

Post Traumatic Stress and Debriefing in the Emergency Services

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Post Traumatic Stress and Debriefing in the Emergency Services

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SUMMARY

The following theseis is divided into three separate parts. Part one is a review of the current post traumatic stress literature. The review outlines the development of the study of post-traumatic stress from early wartime observations to the current focus on the effects of disaster on both victims and emergency personnel. A number of theoretical conceptualisations are offered to describe how a proportion of those exposed to catastrophic events subsequently develop a variety of disabling conditions. Implications for treatment are discussed, emphasising the need for preventative and proactive interventions. Finally, an alternative adaptive model of PTSD is described in the context for future recommendations.

Part two of the thesis describes a study to explore the factors associated with psychological distress in emergency workers following involvement in critical incidents and to determine the efficacy of psychological debriefing in the alleviation of such distress. The study demonstrates that workers initially experience some distress as a response to their work, but that this is typically short lived. Important factors in predicting distress are poor social support, knowing the incident victim and if the incident occurred over both

day and night. Although women and non-emergency workers report a greater initial impact of their experiences, the nature of this relationship is not clear. Debriefing is typically perceived as of benefit by participants but statistically significant effects are not demonstrated in the promotion of subsequent psychological adjustment.

The third and final part of the thesis is a critical appraisal of the research process. A brief description of the development of the project is followed by a discussion of some of the methodological limitations of the above study. Conceptual issues in the field of trauma research and the wider implications of the present study are then explored.

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PART I

**"PTSD: A Review of the Post Traumatic Stress Literature With
Particular Reference to Emergency Service Workers and Current
Interventions"**

ABSTRACT

The present review outlines the development of the study of post-traumatic stress from early wartime observations to the current focus on the effects of disaster on both victims and emergency personnel. A number of theoretical conceptualisations are offered to describe how a proportion of those exposed to catastrophic events subsequently develop a variety of disabling conditions. Implications for treatment are discussed, emphasising the need for preventative and proactive interventions. Finally, an alternative adaptive model of PTSD is described in the context for future recommendations.

INTRODUCTION

With an increasing recognition of the distress often associated with traumatic exposure, specialist psychological therapies have now been developed for the victims of catastrophic events. More recently, there has been a greater appreciation of the effects of trauma on emergency service and disaster workers and hence a move towards the development of intervention strategies specific to this client group. Before exploring emergency service stress, it is important to understand the history and the nature of the concept of PTSD as well as its therapeutic application with civilian victims of disaster.

Although first appearing in DSM-III (APA) in 1980, the concept of "post-traumatic stress disorder" (PTSD) is not new. Interest in the notion of post traumatic stress grew with the battle experiences of the First World War (Trimble 1981). Physicians dealing with the traumata of war began to speculate regarding their aetiology. The term "shell shock" was proposed by Mott (1919) to describe a condition caused by physical brain lesions. This description was expanded by Myers (1940) who suggested a differentiation between shell *concussion* and shell *shock* which was considered to be psychological, not neurological in origin. At this time analytical theory placed all of the emphasis within the individual. Traumatic neurosis was viewed in terms of the individual's inability to master the degree of trauma which resulted in the disorganisation of ego functioning (e.g. Kardiner, 1941). In parallel with the trauma of the battlefield came that associated with accidents as a result of

industrial progression (Trimble, 1985). For example, Page (1885) described the condition of "nervous shock" following railway collision, which was characterised by pain and "nervous prostration" which he believed to be essentially mediated by psychological factors. With the development of compensation acts, the rate of accidents at work and invalidism rocketed. This led to the study of post-trauma reactions becoming focused on determining to what extent an individual may be "malingering" for their own gain. Indeed, this attention has persisted as psychologists have become more involved with medico-legal work and litigation within the claim court. This unfortunately may have been partly responsible for post-traumatic stress not having been 'taken seriously' until relatively recently. It is interesting that despite all the attention it received, PTSD/not appear as an official diagnostic category prior to 1980. Pathological response to trauma was previously classified as "gross stress reaction" (DSM-I, APA, 1952) or "transient situational disturbance" (DSM-II, APA, 1968).

Peterson *et al.* (1991) note that very little appears to have been written about post-traumatic neurosis from 1950 to 1970. During this time psychology as a discipline was developing with the influence, in particular, of the environmental orientation of behaviourism and ecological formulations of psychopathology. Interest in post-traumatic stress snowballed with studies of survivors of the Holocaust and the Korean and Vietnam wars (e.g. Mazor *et al.* 1990; Lindy *et al.*, 1988). The role of environmental *stressors* in aetiology

took on new importance leading to the definition of "post traumatic stress disorder" in DSM-III (APA, 1980).

Over the last two decades the focus has moved away from the battlefield to look at trauma associated with for example, rape (Burgess and Holstrum, 1974), hijack (Kijack and Funtowitz, 1982) and, more recently, that surrounding exposure to disaster (e.g. Raphael, 1990). The growth of cognitive theories has led to a more integrated understanding of PTSD which shifts some of the balance away from the stressor and back onto the individual once again. Such approaches consider individual constructivism and the importance of personal meaning as well as the the nature of the environmental stressor (e.g. Janoff-Bulman, 1985).

With new conceptualisations of PTSD, come new approaches to its treatment. From the use of electro-convulsive therapy and abreaction in the first and second world wars, there has been a development of psychodynamic interventions (e.g. Horowitz and Kaltreider, 1979) and the use of behavioural techniques (e.g. Richards and Rose, 1991). More recently, there has been interest in a whole range of psycho-therapeutic and pharmacologic approaches to the treatment of post-traumatic stress disorder.

One area of study which is currently receiving a great deal of attention is that of trauma following critical incident. Over the last decade there have been numerous natural and man-made disasters which have been reported in the media. A great deal of literature has

documented the often catastrophic effects that incidents such as plane crash or fire can have on both victims and helpers (e.g. Hodgkinson and Stewart, 1991). From this work there it has been realised that emergency workers are in particular need of support in order to minimise the long term effects of disaster work.

The present review gives an account of how post-traumatic stress disorder may present and some of the difficulties inherent in diagnosis. Theoretical models for PTSD and their application to therapy are then explored before looking at how individuals may respond in the face of disaster; and what preventative interventions have to offer emergency service personnel. Finally, future applications of research in the field of traumatic stress and areas for further development are discussed.

DEFINITION AND PHENOMENOLOGY OF POST-TRAUMATIC STRESS DISORDER

Post-Traumatic Stress Disorder (PTSD) is currently defined according to the following diagnostic Criteria (DSM III-R: APA, 1987):-

A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g., serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence.

B. The traumatic event is persistently re-experienced in at least one of the following ways:

1. recurrent and intrusive distressing recollections of the event (in young children, play in which themes or aspects of the trauma are expressed);
2. recurrent distressing dreams of the event;
3. sudden acting or feeling as if the traumatic event were recurring (includes a sense of re-living the experience, illusions, hallucinations, and dissociative ("flashback") episodes, even those that occur upon waking or when intoxicated);
4. intense psychological distress at exposure to events that symbolise or resemble an aspect of the traumatic event, including anniversaries of the event.

C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma) as indicated by at least three of the following:

1. efforts to avoid thoughts or feelings associated with the trauma;
2. efforts to avoid activities or situations that arouse recollections of the trauma;
3. inability to recall an important aspect of the trauma ("psychogenic amnesia");
4. markedly diminished interest in significant activities (in young children, loss of recently acquired skills such as toilet training or language skills);

5. feeling of detachment or estrangement from others;
6. restricted range of affect, e.g., unable to have loving feelings;
7. sense of foreshortened future, e.g., does not expect to have a career, marriage, or children or a long life.

* D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:

1. difficulty falling or staying asleep;
2. irritability or outbursts of anger;
3. difficulty concentrating;
4. hypervigilance;
5. exaggerated startle response;
6. physiological reactivity upon exposure to events that symbolise or resemble an aspect of the traumatic event.

One of the most important changes between DSM-III and DSM-III-R in the diagnosis of PTSD lies in the greater emphasis now placed on the avoidance criteria. There is increasing evidence to suggest that avoidance of painful material is a crucial mechanism in the generation of the disorder (Peterson *et al.*, 1991) and has been shown to be strongest predictor of PTSD development in Vietnam veterans (Malloy *et al.*, 1983). It is proposed that DSM-IV will include "disorders of extreme stress" (Herman, 1990). These will be defined by alterations in affect and impulse regulation, transient episodes of depersonalisation or dissociation, altered self perception, disturbed interpersonal relations and alterations in meaning

Not all individuals who have experienced trauma develop PTSD. Indeed some studies indicate psychological growth as a result of a traumatic incident (e.g. Ursano, 1981) whilst others show the development of a range of psychiatric disorders in addition, or as opposed to PTSD (e.g. Yager *et al.*, 1984). There is, therefore, an array of "associated features" of PTSD which commonly coexist but do not form part of the diagnostic criteria for the disorder (Peterson *et al.*, 1991). These may include physical health problems, particularly those cardiopulmonary and gastrointestinal manifestations associated with sympathetic hyperactivity (Litz *et al.*, 1992).

From a review of a number of descriptive studies on concurrent psychiatric diagnoses in combat veterans, Rundell *et al.* (1989) have shown the prevalence of the following secondary symptoms in individuals who have been diagnosed as suffering from PTSD. The variability across studies is considered to be due to methodological and diagnostic differences:-

alcohol abuse	(41-80%);
depression	(8-72%);
drug abuse	(16-50%);
antisocial personality disorder	(3-40%);
social phobia	(up to 50%);
bipolar disorder	(10-25%).

Studies of civilians have shown some similar trends in, for example, associated depression (e.g. Shore *et al.*, 1986) following trauma, even when controlled for loss or bereavement. The comorbidity with

other factors in the general population is less clearly defined, partly due to the emphasis, until more recently, having been on military personnel.

It is important to note that PTSD has a variable course, which is influenced by situational and personal characteristics (Blank, 1990). Post-traumatic symptoms, in particular, re-experiencing, fade with time (McFarlane, 1991). If major symptoms persist over 3 months, the risk of chronicity greatly increases (Solomon *et al.*, 1990).

EPIDEMIOLOGY OF POST-TRAUMATIC STRESS DISORDER

Community samples indicate that of the 38% or so of the population who are exposed to catastrophic stress, between 1% and 9.2% develop PTSD-like reactions, irrespective of age, gender or ethnicity (e.g. Helzer *et al.*, 1987; Davidson and Fairbank, 1990; Breslau *et al.*, 1991). Differences in prevalences are accounted for by methodological and diagnostic discrepancies. Among those individuals who have experienced a traumatic incident, such as fire-fighters, rates of PTSD have been obtained of 18%-30% immediately after the incident and 10% at 4 years (McFarlane, 1987; 1990). In approximately 30% of cases, depending on the nature of the incident, symptomatology runs to chronicity (duration longer than 6 months), at times lasting for tens of years (McFarlane, 1991).

There is, as already mentioned, a greater risk of co-morbidity, particularly with other axis 1 disorders (McFarlane, 1991) such as obsessive-compulsive and manic depressive disorders, both of which have some elements in common with PTSD. Obsessive-compulsive disorder

and PTSD share a quality of obsessive rumination about an event or belief, whilst the sleep disturbance and concentration difficulties of a dysthymic disorder are also present in PTSD. In addition, of those diagnosed with PTSD, the more severe the condition, the greater likelihood of a previous psychiatric disorder or a history of childhood behavioural problems (Helzer *et al.*, 1987).

The relatively low prevalence of PTSD within the community, may be somewhat of an underestimate. Kolb (1989) suggests that PTSD symptomology is often confused with depression or anxiety. In addition, certain features, such as hyperalertness, nightmares and sleep disturbance are relatively common in the absence of "full blown" PTSD (Helzer *et al.*, 1987). Finally, it is likely that prevalence will be affected by local experience of trauma. The importance of a thorough understanding of traumatic stress reactions in clinical practice is clear. Epidemiological studies suggest that a proportion of those with traumatic stress reactions are not being identified and therefore not receiving appropriate services to which they are entitled.

OVERVIEW OF THEORETICAL MODELS OF POST-TRAUMATIC STRESS DISORDER

It is clear that not all those exposed to trauma subsequently develop PTSD symptomatology. Indeed, a proportion of individuals perceive a sense of growth and development as a result of their experiences (e.g. Dyregov and Solomon, 1991). A variety of theoretical models have been developed to describe the phenomenology and development of PTSD in certain individuals. These include those derived from

cognitive, behavioural, psychodynamic and psychophysiological approaches, the most influential of which are presented below.

The Information Processing Model

The information processing model of PTSD (Horowitz, 1979; 1986) has had a major impact within the area of theory and has become the cornerstone of current diagnostic criteria (Peterson *et al.*, 1991). This model suggests that traumatic events involve massive amounts of internal and external information (Horowitz, 1979). Most of this information cannot be matched to an individual's pre-existing cognitive framework as, by definition, the events lie outside normal human experience (APA, 1986). The result is "information overload" whereby the individual experiences thoughts, feelings and images which cannot be integrated into his/her self-structure.

When this information is unable to be processed immediately, it is shunted out of awareness, remaining in a raw, unprocessed form. The defense mechanisms of denial and numbing are employed to keep the information unconscious. However, due to "completion tendency", whereby processing must continue until reality and internal schemata match, the traumatic stimuli re-enter consciousness intermittently as emotionally upsetting, intrusive and uncontrollable recollections of the event. These intrusions can be in the form of unbidden thoughts, nightmares or flashbacks.

During these episodes, there will be times when new, unrelated information cannot be processed simultaneously. The response to this

"information overload" is denial and numbing, which then allows gradual assimilation of the event. Hence there is an oscillation between re-experiencing and numbing until information processing is complete (e.g. Horowitz, 1993). On completion, the traumatic experience is fully integrated to become part of the individual's "long-term models and schemata" of world and self (Horowitz, 1979). Intrusions are regarded as potentially facilitating the process and defensive processes as promoting the gradual assimilation of the traumatic experience (Horowitz, 1979).

This is an extension of both psychoanalytic and structural (e.g. Benyakar *et al.*, 1989) concepts of trauma, whereby a catastrophic event continues to disturb the psychic equilibrium until fully integrated into self. The process of integration is described by the following progressive stages (Horowitz (1986, 1993):

Phase 1 : Outcry;

Phase 2 : Avoidance (denial and numbing);

Phase 3 : Oscillation (denial and numbing / intrusion);

Phase 4 : Transition;

Phase 5 : Integration.

A Psychosocial Model

The psychosocial model proposed by Green *et al.*, (1985) has been influential in the field of PTSD study. It is concerned with accounting for the fact that certain individuals exposed to trauma develop PTSD whilst others do not. The model expands that of Horowitz but considers the interaction between certain characteristics of the

event, the individual and the recovery environment which influence the process of "growth and restabilisation".

The traumatic event

Green *et al.* (1985) identify a number of event characteristics which may be important in terms of recovery:

- * severity of stressor;
- * duration of trauma;
- * degree of bereavement;
- * degree of displacement of person/community;
- * proportion of people affected;
- * degree of life threat;
- * exposure to death/grotesque sights;
- * degree of participation;
- * degree of preparation/warning;
- * potential for and/or control over reoccurrence.

The greater frequency of any of these factors leads to a greater likelihood of the development of survivor PTSD. The nature of the event will determine the dissonance between existing ~~shemata~~ and new information and, therefore, the extent of information processing required for assimilation. Research exploring animal models of PTSD has indicated the additional features of incident uncontrollability and unpredictability in determining subsequent post-incident adjustment (Foa *et al.*, 1992).

Individual characteristics

The following characteristics of the individual are considered significant in determining response to trauma (Green *et al.*, 1985):

- * nature/effectiveness of coping resources;
- * appraisal of the situation;
- * pre-existing psychopathology;
- * prior stressful/traumatic experiences;
- * demographic characteristics (e.g.education).

Environment

Green *et al.* (1985) emphasise the importance of the following qualities of the recovery environment:

- * availability of social support;
- * cultural characteristics;
- * protectiveness of environment ("trauma membrane");
- * societal attitudes.

Outcome

Wilson and Krauss (1985) propose two alternative outcome categories following exposure to trauma. "Pathological outcomes" refer to the development of psychiatric disorder, including PTSD. "Personal growth and re-stabilisation" occurs when the event is fully integrated despite the occurrence of some trauma related symptomatology such as hypervigilance or occasional nightmares.

Empirical research has supported the central components of this model with respect to predictors of outcome. For example, the most powerful predictor of PTSD has been shown to be stressor severity and the

extent of psychosocial isolation within the recovery environment (Wilson and Krauss, 1985).

Cognitive Appraisal Models

These models focus on the assumptive constructs each of us have about ourselves and the world in which we live. PTSD is considered as maladaptive coping responses to the invalidation of these beliefs. Janoff-Bulman (1985) suggests that our conceptual system contains the following three basic assumptions which are particularly challenged by traumatic experience:-

- * a belief in personal invulnerability;
- * the perception of the world as meaningful;
- * the view of ourselves in a positive light.

Epstein (1990) suggests that we all create a "personal theory of reality" which maintains a positive level of self-esteem and balance between pain and pleasure. It generally develops through a process of assimilation and accommodation but in the face of trauma, the victim may be unable to integrate the experience into the old personal theory of reality. PTSD occurs when our most fundamental beliefs or assumptions about life are "shattered" (Janoff-Bulman, 1985).

Research has illustrated the significance of cognitive appraisal in the development of psychological disorder. For example, Kilpatrick *et al.* (1991) demonstrated that among recent rape and crime victims the relationship between the severity of the assault and the severity of PTSD was mediated by *perceived* life threat. The cognitive appraisal models stress the importance of personal meaning in the development

of PTSD and are complementary to both information processing and psychodynamic theories. They provide clear areas on which to focus in therapy, in the rebuilding of self, and world constructs .

Learning Theory Approaches

A "two-factor" behavioural model for PTSD is proposed by Keane *et al.*, (1985) whereby psychopathology is seen as a function of classically conditioned fear through association, and instrumentally conditioned avoidance of anxiety evoking cues. The pattern of hyperarousal in PTSD is seen to arise from stimulus generalisation to those cues which are similar to the original traumatic event. Avoidance, numbing and denial are considered to arise through the process of negative reinforcement, whereby behaviour leading to a reduction in an aversive experience is likely to be repeated (Keane *et al.*, 1985). This, in conjunction with the fact that the re-experiencing aspects of PTSD represent only part of the memory constellation, means that the individual does not receive sufficient exposure to lead to extinction of the conditioned responses.

Furthermore, Keane *et al.* (1985) suggest that the cognitive/physiological state at the time of trauma leads to a "state dependent retention" which blocks memory recall. Without sufficient cueing the full memory cannot be accessed. This incomplete exposure maintains PTSD symptomatology.

Learning theory may guide specific interventions for individual behavioural responses, for example phobic reactions. It is, however, limited, in that it does not consider higher order functioning such

as attribution or the importance of social support in recovery. It is likely to be best utilised as a source of *techniques* from which to draw and apply within other therapeutic approaches.

Psychodynamic Theories

Historically, classical psychoanalytical theories were postulated to explain combat neuroses early in the study of PTSD (e.g. Kardiner, 1941). They provide some appreciation of the importance of previous experience, such as early loss or abandonment, on a person's capacity to cope with trauma (e.g. Gubrich-Simitis, 1981). Object relations theory of PTSD (e.g. Brende, 1983) can help to understand some of the important dissociative elements of the disorder which can lead to loss of self-identity or splits in the self-system.

Traditionally, however, these theories have placed major emphasis on the victim and the presence of pre-trauma conflicts. An individual's weakness, rather than the nature of the stressor are seen as the 'cause' of PTSD and as such, they have been criticised for ignoring the realities of war, rape, disaster etc (Williams, 1980). Classic analytic therapy is not presently considered the treatment of choice for victims of trauma (Peterson *et al.*, 1990).

Psychophysiological Models

From research on learned helplessness in animals (Maier and Seligman, 1976), it is known that norepinephrine (NE) turnover increases with exposure to inescapable shock. This in turn leads to a depletion of dopamine (DA), the combined effect of which is an inability to initiate appropriate responses. Exposure to trauma also initiates an

increased CNS opioid response. This has the effect of reducing depression and promoting a general sense of well-being (Van der Kolk *et al.*, 1988). Withdrawal from the stressor is associated with a reduction in endogenous opioids whereby the individual becomes depressed. The negative symptoms of PTSD in humans, particularly numbing, are considered to be correlates of opioid and catecholamine depletion (Van der Kolk *et al.*, 1985; Glover, 1992). This description is compatible with those models which implicate levels of arousal and rates of information processing in the development of PTSD in vulnerable individuals (e.g. De la Pena, 1984). The clinical symptomatology of hyperactivity and intrusion in PTSD is suggested to be a result of chronic noradrenergic hypersensitivity which follows catecholamine depletion in response to acute trauma (Mason *et al.*, 1985). This state of hyperarousal has been held to account for a whole range of stress responses, including nightmares, hyperresponsivity, irritability and impaired cognitive functioning (Van der Kolk *et al.*, 1988).

Although such theories may provide direction for treating more extreme cases of PTSD psychopharmacologically, there is a danger that this could be used as a panacea, rather than as an adjunct to psychological intervention. There may be behavioural methods which could be employed equally effectively. For example, relaxation to reduce physiological hyperarousal or physical exercise to increase opioid levels (Thayer, 1989).

Bringing it all Together

In an attempt to integrate the variety of theoretical perspectives, Peterson *et al.* (1991) have proposed an "Ecosystemic Model" of post-traumatic stress. With the inclusion of aspects of learning theory and cybernetic modelling (Schultz, 1984), this is essentially an extension of the psychosocial model (Green *et al.*, 1985) whereby post-traumatic cognitive processing is determined by individual and trauma characteristics.

The greater the severity of the incident, the greater the degree of classical conditioning of fear and therefore the more the individual will employ instrumental avoidance behaviours as a defence. This in turn limits the amount of information which is available for processing and integration. The success of the integration process depends not only on the extent to which belief systems are challenged but also but also the nature of the individual's pre-trauma personality and coping style.

Those factors considered to 'protect' the individual following exposure to trauma include self-monitoring and the employment of positive coping strategies which are focused on finding meaning and regaining personal mastery (Soloman *et al.*, 1991; McCammon *et al.*, 1988).

Conversely, some of the risk factors for the development of PTSD include:

- * the presence of previous psychiatric disturbance (Smith *et al.*, 1990);

- * history of childhood stress and behavioural problems (Emery *et al.*, 1991; Helzer *et al.*, 1987);
- * perception of threat (Kilpatrick *et al.*, 1989);
- * high levels of trauma exposure (McFarlane, 1987);
- * high levels of post-incident distress or social isolation (Feinstein and Dolan, 1991; Wilson and Krauss, 1985);
- * cognitive avoidance or denial (McFarlane, 1988).

APPROACHES TO THE TREATMENT OF PTSD

In terms of therapy, research suggests that there is little to separate approaches with respect to efficacy (McFarlane, 1991). Hypnotherapy, psychodynamic therapy and desensitisation have all been shown to have a significant effect on symptomatology, with psychodynamic approaches being most effective for depression and anxiety, and hypnotherapy and desensitisation most effective for intrusion (Brom *et al.*, 1989).

Individual Therapy

All interventions tend to include a number of important components which are not necessarily defined by the orientation of the therapist. Scurfield (1985) identifies the following five "key principles" in the treatment of PTSD:-

Establishing The Therapeutic Relationship

The most important part of any therapy is the building of a trusting and sharing therapeutic relationship (e.g. Haley, 1984). Assimilation of traumatic material can only take place in an environment where the client feels safe and supported (Catherall, 1989). The client will

need to feel accepted and respected and able to share with the therapist often extremely disturbing material without fear of rejection or persecution.

It is important that the therapist is also able to contain the projection of feelings such as anger often experienced with survivors of trauma. In structural terms, therapy is focused on creating therapeutic stability and space for re-organisation and reconstruction (Benyakar *et al.*, 1989). The way in which the therapist is perceived by the client and their subsequent engagement in therapy has been shown to be one of the major predictors in outcome for trauma victims (Lindy *et al.*, 1983).

Psychoeducation

It is essential to provide the client with appropriate information regarding stress reactions and the recovery process and to emphasise to them that a successful outcome is highly likely (de L.Horne., 1988). This will be particularly significant for the proportion of individuals with PTSD who present with predominantly physical complaints (McFarlane, 1986). It is essential that the client has her/his experiences normalised by the therapist.

Important aspects on which to focus include: a clear explanation of what is happening to the client; what to expect in the future; and the fact that recovery is usually preceded by an increase in distress (Scurfield, 1985). It is often necessary to separate the intrusive

and painful memories of the event with feelings of loss and bereavement (McFarlane, 1991).

It is important to discuss with the client the fact that some symptomatology may never resolve, due to the irreversible alterations to their conceptual system, but that changes may be positive in the direction of psychological growth. Collaboration and discussion forms the basis of therapy with exploration of, for example, previous coping strategies and how these can be utilised and developed.

Stress Management

The reduction of arousal and the associated effect this has on intrusive symptomatology is crucial. This can be achieved by a variety of techniques, including : relaxation training (e.g. Keane *et al.*, 1985); cognitive restructuring through the modification of meaning (e.g. Kreidler and Kreidler, 1988); hypnotherapy (e.g. Spiegel, 1988); and Transcendental Meditation (e.g. Brooks and Scarano, 1982). A decrease in arousal often enables the client to focus upon, and think through traumatic memories both within and outside of the therapeutic setting (McFarlane, 1991).

Regression Back to the Trauma

Of central importance in the treatment of PTSD is the facilitation of the fullest re-experiencing and recollection of the trauma in the here and now. Behavioural techniques or hypnosis (Spiegel, 1988) are of particular value at this stage. The process of re-experiencing needs to be guided gradually so that the client experiences "tolerable doses of awareness" (Scurfield, 1985) to prevent the

extremes of denial and severe traumatic intrusion. Unless handled with great sensitivity by the therapist, "treatment can become only a reliving but not a dispelling of the nightmares" (Horowitz, 1986).

Integration

The final stage of recovery involves the integration of all aspects of the traumatic experience into the client's existing "long-term models and schemata" (Horowitz, 1979). The important aspects of this stage are the positive and realistic re-framing of the incident on the one hand, and the rebuilding of "shattered assumptions" on the other (Janoff-Bulman, (1985)).

Issues of guilt are critical at this stage, particularly if the client has been involved as an agent of the incident (Laufer *et al.*, 1985). Justification of action in these situations is suggested to be counterproductive and the working through of such "moral pain" is essential (Marin, 1981).

Group Treatment

The group environment is able to provide a high level of peer support which helps to reduce both feelings of isolation and stigmatisation. In addition, confrontation by those with similar extraordinary experiences fosters a greater level of understanding and facilitates the free expression of emotion (Scurfield, 1985). Group therapy has been shown to be of particular benefit with Vietnam veterans (e.g. Scurfield *et al.*, 1985).

Family Approaches

The impact on the family system of those suffering trauma is well accepted (Scurfield *et al.*, 1985). The emotional and behavioural sequelae of PTSD can often lead to interpersonal estrangement in relationships (McFarlane, 1991) and bearing in mind the importance of social support in the process of recovery (Green *et al.*, 1985), there are clear benefits of involving family members in therapy. A "five-phase" treatment approach with families has been described by Scurfield (1988). Following engagement, emphasis is placed upon the framing and re-framing of traumatic experiences and subsequent reactions leading to resolution and preparation for the future. Crisis-intervention models with families have also demonstrated a level of success in the treatment of PTSD symptomatology (Harris, 1991).

Pharmacological Treatment

A range of pharmacological treatments have been offered to those suffering PTSD. Tricyclic antidepressants and monoamine oxidase inhibitors are most frequently used (Davidson, 1992). In addition to alleviating some of the depressive features of the condition, the use of these drugs has demonstrated a reduction in the frequency of intrusive episodes and nightmares (McFarlane, 1991). Benzodiazepines, phenothiazines, lithium carbonate, beta blockers and clonidine have also been used with some success (Schwartz, 1990).

Fluoxetine has been shown to improve both intrusive and avoidant symptoms in PTSD sufferers (Davidson *et al.*, 1991). It should be

prescribed with caution due to its propensity to induce intense suicidal ideation in a proportion of those who take it (Teicher *et al.*, 1990).

Whatever treatment option is considered, it must be designed for each client's individual needs following detailed and thoughtful assessment. These may well change over time depending on the stage of recovery (Horowitz, 1986) and as such the therapist must remain flexible and responsive. Attention should be paid to relapse prevention strategies and those factors which may be problematic to the course of therapy (e.g. Perconte, 1989).

POST-TRAUMATIC STRESS DISORDER FOLLOWING NATURAL DISASTER

The study of the experience of natural disaster upon subsequent psychological adjustment has developed during the last decade along with the alarming increase in the number of incidents reported by the media. Exposure to a range of traumatic experiences including war (Figley, 1978), rape (Burgess and Holstrum, 1974) and incarceration (Mazor *et al.*, 1990) have been shown to lead to detrimental effects upon the well-being of a proportion of individuals.

Until recently, most of the research in this field has concentrated on the primary victims of trauma who have been in the "front line", and considered to have received maximum exposure to the event. Studies have shown that a proportion of disaster victims develop problems ranging from PTSD (e.g. Green *et al.*, 1990) and related affective disorders (e.g. Bravo *et al.*, 1990) to sleep problems

(Maida *et al.*, 1989), physical illness and behavioural disturbance (Adams and Adams, 1984).

Symptomatology has been observed in individuals exposed to both natural disaster such as fire (e.g. McFarlane, 1986) or hurricane (Freedy *et al.*, 1992), and human-made disaster such as the nuclear accident at Three Mile Island (Baum *et al.*, 1983) or the Lockerbie aircraft crash (Brookes and McKinlay, 1992). Distress can persist for up to three years following natural disaster (Bravo *et al.*, 1990) and possibly longer after human-made catastrophe (Baum, 1990), particularly for those individuals who have been bereaved (Green *et al.*, 1990).

Relatively little attention has been given to the impact of traumatic exposure on disaster workers or members of the emergency services (Hodgkinson and Stewart, 1991). This apparent neglect has been related, in part, to the reluctance within the emergency services at both individual and organisational levels to admit to work-related distress (e.g. Mitchell and Bray, 1990). An additional factor is likely to be the general public belief that because of their experience and training these workers are impervious to the effects of trauma (Dyregov and Solomon, 1991).

In reality, rescue workers are equally vulnerable to the effects of exposure to extreme stress. In addition to heightened involvement at a scene, emergency personnel may experience a reluctance to 'pull out', over-identification with victims, exhaustion and frustration (James, 1992) which may make them more susceptible to the effects of

stress than their 'clients'. An additional risk factor is that in individuals who have previously been exposed to trauma, similar incidents may lead to the re-emergence of previous traumatic images and feelings. The potential of such re-experiencing is relatively high for progressively more experienced workers.

Emergency workers have been shown to experience stress both as a result of direct work with victims and in the support and co-ordination of other personnel (Weaver, 1987). Disturbance in the cognitive, physical, emotional, behavioural and psychosocial functioning of disaster workers is not uncommon (Mitchell and Dyregov, 1993) following exposure to a host of traumatic experiences. For example, PTSD symptomatology has been observed in: paramedic and "crash" team members (Genest *et al.*, 1989); fire-fighters involved in the disastrous bush fires of South Australia (McFarlane, 1987; 1988a; 1988b; 1988c); rescue workers following the Armenian earthquake of 1988 (Lundin and Bodegard, 1993); police officers at the Bradford fire disaster of 1985 (Duckworth, 1986) and medical students treating victims of the Hillsborough tragedy in 1989 (Kent, 1991).

One of the primary differences between the reactions of emergency personnel and civilian victims of disaster may be in the suppression of immediate reactions. Although this enables personnel to function effectively at the time of the incident, it may encourage the delayed onset of stress reactions (Mitchell and Dyregov, 1993). The deleterious effect of the "macho" culture of the emergency professions has been demonstrated in a study of San Diego fire-

fighters (Laughlin, 1980). One third denied any adverse effects of the job despite displaying negative symptomatology and a further third expressed a need to seek help, but refused because of embarrassment.

Certain experiences of disaster work are considered to be particularly challenging to the well-being of rescue workers. These "critical incidents" are defined as "any situation faced by emergency service personnel that causes them to experience unusually strong emotional reactions which have the potential to interfere with their ability to function either at the scene or later" (Mitchell, 1983). Examples may be: the death of a colleague in the line of duty; serious injury to a colleague in the line of duty; working on a person who is a relative or a close friend and is dying or in a serious condition; contact with dead or severely sick or injured children (Mitchell and Bray, 1990).

With growing concern for the well-being of emergency workers, it became imperative to develop services which may help to 'protect' personnel from the damaging effects of trauma work. These focused upon both *pre-incident* factors in the *prevention* of post-traumatic stress syndromes, and *post-incident* interventions.

Prevention Strategies

Claus (1980) suggested that education in the recognition and management of job-related stress could ameliorate some of the impact of disaster work. Pre-incident stress training is considered to enhance individuals' sense of self-confidence in their ability to

cope successfully with distress and has been found beneficial in the prevention and reduction of stress-response syndromes in paramedics, nurses and the police (Mitchell and Dyregov, 1993). The involvement of partners in stress education has been identified as a way of encouraging further support for emergency personnel (Mitchell and Bray, 1990). Other helpful prevention-orientated stress strategies include encouraging regular exercise and healthy eating (Mitchell and Bray, 1990) and teaching in assertion, decision-making, conflict resolution and communication in crisis (Howarth and Dussuyer, 1988).

Intervention Strategies

Prevention strategies, no matter how well designed and executed may not always be able to contain the impact of disaster work (Mitchell and Dyregov, 1993). There may be a need for intervention following the incident, either immediately on-site, or at some later point. On-site support may be provided by peer support professionals or mental health team professionals for those individuals showing obvious signs of distress such as lability or withdrawal (Mitchell and Bray, 1990). It is important that at this stage, intervention is directed towards "psychological first aid" and not in-depth counselling (Alexander, 1990). There is also a role for support to command staff and victims and their families.

The first level of post-incident intervention is that of "decompression" or "defusing" (Mitchell, 1988b). This is a small group meeting of peers where they are able to describe the event, and their reactions and obtain information on stress reduction. The

purpose of decompression is to eliminate the need for a debriefing or to enhance one if it is indicated (Mitchell and Bray, 1990).

Following larger scale incidents, a strategy known as "deescalation" or "demobilisation" is often employed to reduce the distress of moving back into routine of daily life (Mitchell and Dyregov, 1993). Away from the scene, individuals are provided with information on stress management and the opportunity to ask questions if they wish. During a 20 minute rest period, they are given food and fluids before being instructed on their duties by their managers. Before closure, personnel are encouraged to attend a subsequent debriefing within the next 10 days. It is important that debriefing is presented not as an option for those who cannot cope, but as an extension of professional responsibility for *all* staff involved (Alexander, 1990).

Psychological debriefings are formal group meetings designed to integrate major life experiences on cognitive, emotional and group levels in order to form a more complete factual picture of the incident and its aftermath. The principal goals are to lessen the impact of the event in order to accelerate recovery (Mitchell, 1988a) and ameliorate the development of adverse stress reactions (Dyregov, 1989). From his research into stress in the military and emergency services, Mitchell (1983) has developed a specific protocol for debriefing. It is recommended that this tested model is adhered to because of the danger of increasing people's distress through poorly managed sessions (Mitchell, 1988b).

When?

Debriefing should be conducted by a qualified mental health practitioner 24-48 hours after the conclusion of the incident. Prior to this time, workers may still be emotionally "numb", either from the shock of the incident or because their feelings are still being suppressed. It is unlikely, therefore, that personnel will be able to deal effectively with an in-depth group discussion of the incident, particularly if it relates to their feelings. After this point, emotions are often beginning to surface in a severe form and this is usually a good time to deal with them (Hartshough, 1985). Emergency workers are taught to suppress emotional reactions during and immediately following an incident. Denial and avoidance predominate for the first 24 hours. Often personnel will try to intellectualise the incident and run it over in their minds to determine whether they performed appropriately. As this cognitive activity decreases, intense feelings may be surfacing (Mitchell, 1983).

Who?

The debriefing session should be facilitated by a skilled professional because the emotional content released during the session may overwhelm an untrained facilitator. The facilitator should be competent in human communications and have experience of group dynamics and interaction processes (Mitchell, 1983). In addition, it is essential that the facilitator has a good understanding of the human stress response and operational procedures of the emergency services in order to minimise handicap by virtue of poor credibility (Mitchell and Dyregov, 1993).

How?

Mitchell (1983) advises the tone of the debrief be positive, supporting and understanding. Everybody should have his/her feelings listened to, shared and accepted; and above all, nobody is criticised. In addition to these general recommendations, six specific phases to the debriefing process are identified:-

1. *Introductory phase.* The facilitator introduces her/himself to the group and describes the rules of the process. The need for absolute confidentiality is carefully explained. Group members need to be assured that the open discussion of their feelings will in no way be used against them under any circumstances.
2. *The fact phase.* Participants are requested to describe something about themselves, the incident and their activities during the incident. They are asked to say who they are, their rank, where they were, what they heard, saw, smelled and did as they worked in and around the incident. Each person takes a turn in adding in the details to make the whole incident come to life within the room.
3. *The feeling phase.* Once all group members have shared sufficient factual information to bring the incident back into vivid memory, the facilitator begins to concentrate on feelings currently and at the time of the incident. Every participant is given a chance to express how he/she is feeling and the facilitator has to ensure that nobody dominates or is left out. People often express feelings of fear, guilt, anger, frustration or ambivalence. All of these feelings need to be expressed and listened to.

4. *The symptom phase.* This part of the debrief is primarily concerned with exploring what unusual things people experienced at the time of the incident and what things they may be experiencing currently. Group members are encouraged to describe in what ways their professional and personal lives may have changed as a result of their experiences. In other words, they are describing their own stress response syndromes. The discussion of sensory experience is extremely important and regarded as a way of preventing memories from gaining intrusive control of consciousness (Dyregov, 1989).

5. *The teaching phase.* This part of the process focuses on giving information about the stress response. Personnel are educated about the commonality and normality of their reactions and that what they may be experiencing is a *normal* reaction to an *abnormal* experience.

6. *The re-entry phase.* The final stage of debrief looks to answer any outstanding questions, provide final reassurances and to make a plan of action for future activity which may provide a sense of purpose and identity. Summary comments will be offered and personnel are advised how to get additional help should they feel it necessary.

The whole debriefing session may take up to five hours to complete. A follow-up session may be arranged weeks or months later to resolve issues or problems which are still present as a result of the critical incident. This may involve the entire group or any portion of it and may require more than one session, particularly if an individual is identified for more long-term 1:1 counselling or therapy.

The notion of integration and making sense of what has happened overlaps with information processing approaches to the treatment of PTSD (Horowitz, 1979). Debriefing can be considered as a *pro-active* intervention which aims to begin the process of integration of the event at an early stage rather than deferring until PTSD symptomatology arises. It has proved extremely beneficial in the maintenance of physical and emotional health of both emergency personnel (Mitchell and Dyregov, 1993) and other groups including victims of disaster, bystanders at suicides and those involved in work-site accidents (Dyregov, 1989).

EVALUATION OF PSYCHOLOGICAL DEBRIEFING

Mitchell has described how since introduction of the concept of critical incident debriefing, strategies have been refined and developed to reach a stage where current protocols are generally accepted (Mitchell, 1988a). It was emphasised that these developments had taken place in the absence of systematic evaluation of the process and this was, therefore, greatly needed. There now exist a number of essentially anecdotal reports which suggest that psychological debriefing has proved extremely beneficial in the maintenance of physical and emotional health of both emergency personnel (e.g. Mitchell and Dyregov, 1993) and other groups including victims of disaster, bystanders at suicides and those involved in work-site accidents (e.g. Dyregov, 1989). Where attempts have been made to assess the efficacy of debriefing, studies have focussed on "consumer satisfaction" without considering outcome measures. For example, Robinson (1986), in a study of debriefed

Australian emergency workers, reported that the majority of participants had found it useful and many subjectively reported a reduction of stress-related symptoms following debrief. Robinson and Mitchell (1993) surveyed a sample of 288 Australian emergency workers who had participated in debriefing following critical incident. They examined the impact of traumatic experiences on emergency and hospital/welfare workers and demonstrated a greater impact for non-emergency workers. Victim identification and the involvement of children were endorsed as particularly distressing and debriefing was perceived as of equal value to both professional groups. Debriefing was generally experienced as of considerable or great value and those aspects endorsed as particularly helpful surrounded the sharing of common experiences.

There may well be valid reasons for the apparent absence of empirical research in this area. Robinson and Mitchell (1993) outline a number of difficulties with designing scientifically respectable studies to evaluate the efficacy of psychological debriefing. Firstly, there is a lack of baseline data available describing the phenomenology and duration of symptomology routinely experienced by emergency personnel. Secondly, it is extremely difficult to construct control groups as this would necessarily entail the withholding of assistance. Thirdly, the nature and occurrence of trauma cannot be controlled. Fourthly, research needs to be conducted sensitively and may need to take lower priority than many other needs of those exposed to trauma. Finally, traditionally, emergency workers have a

tendency to close ranks and resist scientific enquiry following critical incidents.

Notwithstanding, there are a number of studies which have attempted to investigate the effectiveness of the debriefing process with more rigour. Scott and Jordan (1993) compared 195 fire-fighters involved in the 1992 L.A. riots who had participated in psychological debrief with 324 who had not. Overall levels of satisfaction with the process were reported as generally lower than in other studies. Approximately 50% rated the debriefing as moderately or highly effective and 50% rated it as low or very low with respect to effectiveness. Perceived effectiveness was significantly, negatively related to subsequent enduring stress symptomatology. There were no significant differences between the debriefed and non-debriefed groups with respect to symptom report. Unfortunately, in their paper, the authors do not detail the nature of the reported "symptomatology" or some of their concerns regarding design. However, their query against the benefits of debriefing is echoed by Kenardy and Webster (1993). These authors report a study by Griffiths and Watts (1992) which examined stress symptoms in those attending debriefing following involvement in the Kempton and Grafton bus crashes. There was no relationship observed between perceived debrief value and stress symptoms, but it was found that attending debriefing was associated with significantly *higher* Impact of Events Scale (Horowitz *et al*, 1979) scores than those not debriefed. In their own study, Kenardy and Webster (1993) also failed to demonstrate an advantage in symptom reduction by attending debrief

whereby participants in the process had significantly higher GHQ scores than those who had not attended debriefing.

It would appear that those studies which aim to evaluate psychological debriefing beyond participant satisfaction, challenge the notion of it serving a protective function for its participants. Further empirical research in this area is clearly needed.

DISCUSSION

In this review, some of the current conceptualisations of Post-traumatic Stress Disorder and how these may be applied within the therapeutic context have been described. Generally, PTSD has been considered as a *disorder* which is defined as "... a behavioural or psychological syndrome...[which]...*must not be merely an expectable response to a particular event*" (APA 1987, italics added). O'Donohue and Elliot (1992) note the potential conflict of this definition on the one hand, and that of PTSD as a response to "an event that is outside the range of usual human experience and that would be *markedly distressing to almost anyone*" (DSM-III-R, APA 1987) on the other. There would, therefore, appear to be some confusion as to whether PTSD is in fact a disorder.

If it is considered as such, then the current criteria for diagnosis are unsatisfactory. For example, McFarlane (1988a) suggests that the second criterion for PTSD, intrusive imagery, is almost a universal response immediately following trauma. It is, therefore, not necessarily an indicator of psychopathology and its strength in diagnosis is questionable.

O'Donohue and Elliot (1992) indicate how the first criterion stresses the unusual nature of the incident, it being "outside the range of usual human experience". Although some examples are offered, it is an extremely vague and arbitrary description and there is an implicit suggestion that the more frequent an event, the less distressing it may be. Peters *et al.* (1986) have suggested, for example, that up to 62% of women have suffered sexual abuse. Does this mean that it is too common to lead to PTSD?

Furthermore, to work with somebody "who *has* experienced..." means that we must first determine that the individual *was* actually assaulted, sexually abused or involved in a disaster. Obviously this has both important legal and ethical implications. It may be that in therapy, one can, and should only work by accepting the victim's reality, be it internal or external.

At present, one of the proposals for DSM-IV, is to prescribe exactly what events an individual must have experienced in order to 'qualify' for PTSD (Davidson and Foa, 1990). It is possible that with a narrower band of specified experiences, the present under-diagnosis of PTSD (Kolb, 1989) will increase with fewer sufferers receiving appropriate treatment.

An alternative approach

An alternative approach to the understanding of PTSD is, in fact, not to consider it as a *disorder*, but as a normal and adaptive *reaction* to the experience of trauma. PTSD is considered to begin as an adaptive set of responses to the traumatic environment (Eberly *et*

al., 1991). For some individuals, these then persist in the absence of the stressor, long after the environment has returned to a more benign state. This model describes how certain behaviour may have been adaptive for survival in Man's primeval environment or within the "*environment of evolutionary adaptedness*" (Bowlby, 1969).

Of fundamental importance, is an appreciation of how in the modern world, there are dramatic shifts in relative danger when moving between the traumatic and post-traumatic environments (Eberly *et al.*, 1991). Such discontinuity was unlikely in the environment of evolutionary adaptedness where once encountered, life threat would probably be re-encountered repeatedly. The most adaptive response, therefore, would be to behave as though danger were still present.

For example, the response of hypervigilance to *similar or trauma relevant stimuli* would permit early detection of danger and increase the chances of escape. Previously neutral stimuli, with similar qualities to the stressor would come to elicit avoidance (stimulus generalisation). Responsiveness to *non-relevant* stimuli may diminish (numbing). The combined effect of these two processes would be to increase the stimulus gradient for the detection of threatening signals. In humans, this pattern of response is likely to be adaptive where threat of attack is still present, for example on the battlefield or in the midst of a house fire.

Intrusion or replaying of the incident would provide the organism with an opportunity to rehearse successful or alternative response patterns in safety. This process will be aided by emotional

constriction or isolation whereby non-emotional information is cutoff to allow maintenance of the adaptive state. The parallels with psychodynamic views of the need for ego-mastery through repetition, and information processing models of the need for completion and assimilation, are clear. Other features of PTSD, such as depersonalisation have been demonstrated to be adaptive, whereby in the face of trauma, the individual is "protected" from developing further psychiatric disturbance (Shilony and Grossman, 1993).

The strength of an adaptive approach to PTSD is that it does not treat the condition as a disorder. Indeed, it may be more appropriate to refer to the constellation of responses frequently observed following exposure to extreme stress as Post-Traumatic Stress *Reaction*.

Theoretically, this model is extremely robust and it fits particularly well with information processing and cognitive formulations. It is likely to have its greatest impact within the therapeutic context where, for the first time, responses to trauma are not pathologised and the stigma of having a 'disorder' may be relieved somewhat, through an understanding of *normal* reactions to *abnormal* experiences.

Looking to the future, it is likely that a number of areas of study will be pursued. Disaster management will become of increasing importance bearing in mind ever increasing scientific developments with the manufacture of bigger, faster and more dangerous machines of production and transport.

When involved in debriefing or any type of crisis counselling, the clinician is vulnerable to the high intensity of emotional reactions of their clients. Being highly charged, these emotions, particularly anger, can easily be displaced or projected with the clinician becoming the prime target (Talbot, 1990). Issues of counter-transference are also of great importance for debriefers. Dealing with death and injury can trigger awareness of our own mortality and survivor guilt (Raphael, 1981), whereby the impact of the tragedy is felt very strongly. There is a great danger for debriefers to become exhausted and highly distressed by the nature of their work (Talbot *et al.*, 1992) and, therefore, a need for "debriefing the debriefers". On the one hand this, as with any form of supervision or professional support, is considered essential. There is, however, on the other, a danger of overkill. If taken to its conclusion, would there be a need to debrief the debriefers' debriefers! It may be that the most efficacious use of resources will lie in the development of preventative and educative strategies.

Organisations certainly cannot predict the onset of catastrophe, but they can be prepared. By the development of specialist "response teams", possibly at a district level, which comprise professionals trained in debriefing and crisis intervention there would be a service on hand immediately. Early and proactive intervention would help to minimise the long-term sequelae of traumatic exposure. The benefit of such co-ordinated outreach teams and early intervention has been demonstrated by Hodgkinson (1988) following the *Herald of Free Enterprise* tragedy.

In addition to expert groups, organisations have a responsibility for their own provision of education and support. Preparation of workers for what they may experience and how to deal with it is imperative. The drawing up of personnel and family emergency plans may also be of benefit (Hartshough, 1985). The establishment of "support groups" at work are likely to provide a valuable service to personnel and their families, both in times of crisis and on a day-to-day basis.

Possibly of most importance in the future, is *selling*. Clinicians working in the field of PTSD and disaster management need firstly to convince organisations that catastrophe *will* happen to them. At the risk of being branded as scaremongers, psychologists have a role in educating, particularly managers that disaster when it does strike can be managed effectively. Only when this fact can be accepted, can organisations along with professionals begin to plan their disaster-response plans. It may be, that with the movement towards market forces driving health care that the strongest arguments for managers are those surrounding economics. The provision of, for example, critical incident debriefing can, when used properly, reduce sick leave (Dyregov, 1989) and extend the careers of personnel, thus saving significant outlays in their replacement (Mitchell, 1983). It has been suggested that early intervention for trauma victims may cost \$5,000 whereas the costs if help is delayed over about four weeks, the cost to achieve recovery may be in the region of \$200,000 (Mitchell, 1988a). To date, one study which has attempted to evaluate debriefing (Robinson and Mitchell, 1993) has demonstrated its efficacy in the reduction of stress symptoms in emergency personnel.

Most of the literature on psychological debriefing up until recently, however, has been concerned with more descriptive or organisational issues (Alexander, 1990). There appears to have been little work regarding the process and nature of this intervention and, in particular, little research has examined the effectiveness and important components of psychological debriefing. Bearing in mind the nature of "the market place", clinicians will need to be able to demonstrate the efficacy of their product and, therefore, its cost-effectiveness.

Of the few studies designed to evaluate the efficacy of emergency service debriefing (Griffiths and Watts, 1992; Kennardy and Webster, 1993; Scott and Jordan, 1993), all have failed to demonstrate any significant benefit of the process in alleviating the traumatic impact of critical incidents. The apparent lack of acceptable research in the field is likely to be due in part, to the methodological difficulties already mentioned which plague these type of studies. The failure to demonstrate the efficacy of debriefing, despite its positive endorsement may be due to methodological error. Much emergency service research employs inappropriate measures such as those standardised on clinical populations and it is possible that studies have failed to ask the right questions. Alternatively it may be the case that the participants in these studies were not greatly traumatised by their experiences and hence no differences between debriefed and non-debriefed personnel would be expected. There is some research now coming to light which suggests that the majority of worker are not in fact affected by their experiences (e.g. McFarlane,

Manolais and Hyatt-Williams, 1988). Finally it is also possible that debriefing is not of value to emergency workers. Certainly, studies indicate that participants in debriefing report it as being useful for other people and not themselves (Stratton *et al.*, 1984; Mitchell, 1988a; Robinson and Mitchell (1993). Further, more thoughtful and considered empirical research is desperately needed.

Psychological debriefing itself is likely to become more widely applicable to a range of situations outside of the disaster and emergency service field. Already, certain versions of de-briefing have been applied back to the victims of trauma. For example, using debriefing techniques, Manton and Talbot (1990) have established themselves as experts in crisis intervention following armed hold-up. In two years, they attended some forty incidents at banks and building societies and, with current increases in crime, particularly armed robbery, the need for such a service sadly, is likely to increase. Utterback and Caldwell (1989) describe the use of early intervention strategies for the reduction of distress following exposure to violence on university campuses.

Finally, a word of caution. Over recent years, the profile of compensation and litigation work, and its economic and political power has greatly increased. Accordingly, psychologists have become more frequent visitors to the courtroom as expert witnesses. As has been seen in the past, it is possible that more and more emphasis will regress to the *real* versus *malingering* debate. This unfortunately may be at the expense of more productive research into

the understanding, treatment and prevention of post-traumatic stress disorder. Researchers will need to take up a firm position such that the progression of academic enquiry is not dictated by solicitors and insurance companies.

CONCLUSIONS

The present review indicates that there exists a wealth of conceptualisations of, and therapeutic approaches to, the responses of a proportion of individuals exposed to severe trauma. It is considered that such individuals will be best served by those clinicians who appreciate the adaptive function of post-traumatic stress reactions. Professionals working in this area should try not to be restricted by their personal orientation and be able to draw upon the range of techniques from different disciplines.

Research on the exposure of victims and emergency personnel to catastrophic events highlights the need for co-ordinated preventative and proactive intervention packages. Clinicians have a role in the education and support of organisations in providing their own disaster response plans. Part of this work will require the evaluation of existing intervention strategies.

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PART II

**"A Study to Explore Precipitant Factors in the Development of Post
Traumatic Stress Reactions in Emergency Service Personnel and to
Assess the Efficacy of Psychological Debriefing"**

ABSTRACT

A study was carried out to explore what factors are associated with psychological distress in emergency workers following involvement in critical incidents and to determine the efficacy of psychological debriefing in the alleviation of such distress. Results indicated that workers initially experience some distress as a response to their work, but that this is typically short lived. Important factors in predicting distress are poor social support, knowing the incident victim and if the incident occurred over both day and night. Although women and non-emergency workers report a greater initial impact of their experiences, the nature of this relationship is not clear. Debriefing was typically perceived as of benefit by participants but statistically significant effects were not demonstrated in the promotion of subsequent psychological adjustment. These results are discussed in relation to future research and service development.

INTRODUCTION

The following study has two general aims. The first is to explore which factors may precipitate post traumatic stress reactions in emergency service workers involved in critical incidents. The second is to evaluate the efficacy of psychological debriefing in the alleviation of such reactions.

There now exists a body of literature which suggests that emergency workers may experience considerable stress both as a result of direct work with victims (e.g. McFarlane, 1988a; Dyregov and Solomon, 1993) and in the support and co-ordination of other personnel (Weaver, 1987). Following exposure to a host of traumatic experiences, it is not uncommon to observe disturbances in the cognitive, physical, emotional, behavioural and psychosocial functioning of disaster workers (Mitchell and Dyregov, 1993). For example, symptoms of Post Traumatic Stress Disorder have been observed in paramedics (Genest *et al.*, 1989); fire-fighters (McFarlane, 1987; 1988a; 1988b; 1988c); rescue workers (Lundin and Bodegard, 1993); police officers (Duckworth, 1986) and medical students (Kent, 1991).

Effects of Exposure to Stressful Incidents

A range of responses to stressful incidents have been reported in the literature. Cognitive disturbances such as confusion and difficulty concentrating are often reported as effects of disaster work (e.g. McFarlane, 1988a). Constricted thought, denial and selective attention may be employed as defenses against unpleasant and distressing thoughts about the incident (Mitchell and Dyregov,

1993). Fatigue (Dyregov and Solomon, 1991), sleep disturbance (Berah *et al.*, 1984; Lundin and Bodegard, 1993) nausea and loss of appetite (Mitchell and Dyregov, 1993) and sexual hyperactivity or incapacity (Walker, 1990) are frequently reported as physical effects of emergency work. Emotional responses to critical incidents may be characterised by sadness (Dyregov and Solomon, 1991) anxiety (Ersland *et al.*, 1989), guilt and irritability (Duckworth, 1986), depression (Berah *et al.*, 1984) and denial and numbing (James, 1992).

Disturbances in cognitive, physical and emotional functioning may lead to behavioral changes such as withdrawal, substance misuse, absenteeism, and reduced activity (Mitchell and Dyregov, 1993).

One of the primary differences between the reactions of emergency personnel and civilian victims of disaster may be in the suppression of immediate reactions. Although this enables personnel to function effectively at the time of the incident, it may encourage the delayed onset of stress reactions (Mitchell and Dyregov, 1993). Emergency workers often deny any adverse effects of their experiences and refuse support whilst displaying considerable negative symptomatology (e.g. Laughlin, 1980). The most common forms of expression of suppressed reactions are through nightmares, flashbacks and obsessive ruminations about the incident (e.g. Genest *et al.*, 1990).

Factors Which May Precipitate Traumatic Stress Reactions

Certain experiences of disaster work are considered to be particularly challenging to the well-being of rescue workers. These "critical incidents" are defined as "any situation faced by emergency

service personnel that causes them to experience unusually strong emotional reactions which have the potential to interfere with their ability to function either at the scene or later" (Mitchell, 1983). Examples may be: the death or injury of a colleague in the line of duty; working on a person who is a relative or a close friend and is dying or in a serious condition; contact with dead or severely sick or injured children (Mitchell and Bray, 1990).

Theoretical models of post traumatic stress disorder generate a number of additional features of not only the incident, but also the individual and the environment which may predict the development of post-traumatic stress reactions. The Psychosocial Model of PTSD (Green *et al.*, 1985) considers ~~considers~~ the interaction between certain characteristics of the event, the individual and the recovery environment which influence the process of "growth and restabilisation" following exposure to traumatic experiences.

Event factors such as the severity and intensity of the stressor, the degree of bereavement or identification with the victim and the amount of preparation for the event and and ability to execute emergency response effectively have been shown to critical in predicting the post-incident adjustment (e.g. Hodgkinson and Stewart, 1991; Dyregov and Solomon, 1991; Lundin and Bodegard, 1993; Raphael *et al.*, 1984).

Aspects of the individual considered to minimise subsequent distress include the use of cognitive coping strategies. Those which search to discover mastery and personal meaning from experiences have been

shown to be most protective for emergency personnel (Durham *et al.* (1985; McCammon *et al.*, 1988; Genest *et al.*, 1990).

Finally, in terms of the recovery environment, the availability of social support is suggested to be crucial (Green *et al.*, 1985). Perceived social support has been demonstrated to be negatively associated with psychological disturbance following traumatic exposure (Cook and Bickman, 1990; McCammon *et al.*, 1988).

With growing concern for the well-being of emergency workers, it has become imperative to develop services which may help to 'protect' personnel from the damaging effects of trauma work. These have focused upon both *pre*-incident factors in the *prevention* of post-traumatic stress syndromes, and *post*-incident interventions.

Prevention Strategies

Claus (1980) suggested that education in the recognition and management of job-related stress could ameliorate some of the impact of disaster work. Pre-incident stress training is considered to enhance individuals' sense of self-confidence in their ability to cope successfully with distress and has been found beneficial in the prevention and reduction of stress-response syndromes in paramedics, nurses and the police (Mitchell and Dyregov, 1993). The involvement of partners in stress education has been identified as a way of encouraging further support for emergency personnel (Mitchell and Bray, 1990). Other helpful prevention-orientated stress strategies include encouraging regular exercise and healthy eating (Mitchell and Bray, 1990) and teaching in assertion, decision-making, conflict

resolution and communication in crisis (Howarth and Dussuyer, 1988). Developing stress management protocols and organising individual counselling programs for personnel has also been suggested as productive (Mitchell, 1988b).

Intervention Strategies

Prevention strategies, no matter how well designed and executed may not always be able to contain the impact of disaster work (Mitchell and Dyregov, 1993). There may be a need for intervention following the incident, either immediately on-site, or at some later point. The first level of post-incident intervention is that of "decompression" or "defusing" (Mitchell, 1988b). This is a small group meeting of peers where they are able to describe the event, and their reactions and obtain information on stress reduction. The purpose of decompression is to eliminate the need for a debriefing or to enhance one if it is indicated (Mitchell and Bray, 1990).

Following larger scale incidents, a strategy known as "deescalation" or "demobilisation" is often employed to reduce the distress of moving back into routine of daily life (Mitchell and Dyregov, 1993). Away from the scene, individuals are provided with information on stress management and the opportunity to ask questions if they wish. During a 20 minute rest period, they are given food and fluids before being instructed on their duties by their managers. Before closure, personnel are encouraged to attend a subsequent debriefing within the next 10 days. Debriefing is presented as an extension of professional responsibility for *all* staff involved (Alexander, 1990).

Psychological debriefings are formal group meetings designed to integrate major life experiences on cognitive, emotional and group levels in order to form a more complete factual picture of the incident and its aftermath. The principal goals are to lessen the impact of the event in order to accelerate recovery (Mitchell, 1988a) and ameliorate the development of adverse stress reactions (Dyregov, 1989). From his research into stress in the military and emergency services, Mitchell (1983) has developed a specific protocol for psychological or "Critical Incident Stress Debriefing". It is recommended that this tested model is adhered to because of the danger of increasing people's distress through poorly managed sessions (Mitchell, 1988b).

Debriefing should be conducted 24-48 hours after the conclusion of the incident by a qualified mental health practitioner competent in human communications and have experience of group dynamics and interaction processes (Mitchell, 1983). The tone of the debrief is positive, supporting and understanding and everybody has his/her feelings listened to, shared and accepted. The debriefing comprises six individual phases. The process begins with a general introduction of all participants and the notion of debrief. The following two phases are concerned with detailed descriptions of the incident and participants' reactions and feelings to it. The next phase focuses on each individual describing their own stress response syndromes. These are then normalised in the next phase where personnel are also educated about what to expect in the future before being provide^x/with stress management strategies. The final phase involves providing

reassurances and making and planning future activities which may provide a sense of purpose and identity. Personnel are then advised how to get additional help should they feel it necessary.

The whole debriefing session may take up to five hours to complete. A follow-up session may be arranged weeks or months later to resolve issues or problems which are still present as a result of the critical incident. This may involve the entire group or any portion of it and may require more than one session, particularly if an individual is identified for more long-term 1:1 counselling or therapy.

The notion of integration and making sense of what has happened overlaps with information processing approaches to the treatment of PTSD (Horowitz, 1979). Debriefing can be considered as a *pro-active* intervention which aims to begin the process of integration of the event at an early stage rather than deferring until PTSD symptomatology arises.

Evaluation of Psychological Debriefing

Mitchell has described how since introduction of the concept of critical incident debriefing, strategies have been refined and developed to reach a stage where current protocols are generally accepted (Mitchell, 1988a). It was emphasised that these developments had taken place in the absence of systematic evaluation of the process and this was, therefore, greatly needed. There now exist a number of essentially anecdotal reports which suggest that psychological debriefing has proved extremely beneficial in the

maintenance of physical and emotional health of both emergency personnel (e.g. Mitchell and Dyregov, 1993) and other groups including victims of disaster, bystanders at suicides and those involved in work-site accidents (e.g. Dyregov, 1989). Where attempts have been made to assess the efficacy of debriefing, studies have focussed on "consumer satisfaction" without considering outcome measures. For example, Robinson (1986), in a study of debriefed Australian emergency workers, reported that the majority of participants had found it useful and many subjectively reported a reduction of stress-related symptoms following debrief. Robinson and Mitchell (1993) surveyed a sample of 288 Australian emergency workers who had participated in debriefing following critical incident. They examined the impact of traumatic experiences on emergency and hospital/welfare workers and demonstrated a greater impact for non-emergency workers. Victim identification and the involvement of children were endorsed as particularly distressing and debriefing was perceived as of equal value to both professional groups. Debriefing was generally experienced as of considerable or great value and those aspects endorsed as particularly helpful surrounded the sharing of common experiences.

There may well be valid reasons for the apparent absence of empirical research in this area. Robinson and Mitchell (1993) outline a number of difficulties with designing scientifically respectable studies to evaluate the efficacy of psychological debriefing. Firstly, there is a lack of baseline data available describing the phenomenology and duration of symptomology routinely experienced by emergency

personnel. Secondly, it is extremely difficult to construct control groups as this would necessarily entail the withholding of assistance. Thirdly, the nature and occurrence of trauma cannot be controlled. Fourthly, research needs to be conducted sensitively and may need to take lower priority than many other needs of those exposed to trauma. Finally, traditionally, emergency workers have a tendency to close ranks and resist scientific enquiry following critical incidents.

Notwithstanding, there are a number of studies which have attempted to investigate the effectiveness of the debriefing process with more rigour. Scott and Jordan (1993) compared 195 fire-fighters involved in the 1992 L.A. riots who had participated in psychological debrief with 324 who had not. Overall levels of satisfaction with the process were reported as generally lower than in other studies. Approximately 50% rated the debriefing as moderately or highly effective and 50% rated it as low or very low with respect to effectiveness. Perceived effectiveness was significantly, negatively related to subsequent enduring stress symptomatology. There were no significant differences between the debriefed and non-debriefed groups with respect to symptom report. Unfortunately, in their paper, the authors do not detail the nature of the reported "symptomatology" or some of their concerns regarding design. However, their query against the benefits of debriefing is echoed by Kenardy and Webster (1993). These authors report a study by Griffiths and Watts (1992) which examined stress symptoms in those attending debriefing following involvement in the Kempton and Grafton bus crashes. There was no relationship observed

between perceived debrief value and stress symptoms, but it was found that attending debriefing was associated with significantly *higher* IES scores than those not debriefed. In their own study, Kenardy and Webster (1993) also failed to demonstrate an advantage in symptom reduction by attending debrief whereby participants in the process had significantly higher GHQ scores than those who had not attended debriefing.

It would appear that those studies which aim to evaluate psychological debriefing beyond participant satisfaction, challenge the notion of it serving a protective function for its participants.

Aims of The Present Study

The present study is concerned with the experiences of emergency and non-emergency service workers within North Lincolnshire who are at present routinely debriefed following critical incidents as part of the Lincolnshire Joint Emergency Services Initiative. The initiative was established in 1990 and provides education and information on traumatic stress reactions to all service organisations as well as a program of aftercare for those involved in critical incidents. Part of this involves the provision of routine psychological debriefing.

The present study aims to examine the efficacy of psychological debriefing with respect to levels of satisfaction and to more objective measures of psychological adjustment by comparing the experiences of those having undergone debrief with those who have not. Areas of focus and the hypotheses generated are listed over:-

1. To examine whether "psychological adjustment" following exposure to a critical incident was related to specific features of the individual, the incident or the recovery environment as determined by the psychological theory of post traumatic stress reactions.
2. To examine whether people's actual experience of psychological debriefing was consistent with recommended debriefing procedures.
3. To examine people's evaluation of psychological debriefing in relation to which components they found were most valuable.
4. To examine whether "psychological adjustment" following exposure to a critical incident was related to people's evaluation of debriefing.
5. To examine whether individuals who experienced debriefing differed in their levels of current adjustment compared to those who had not undergone debriefing.

Hypotheses

1. Certain characteristics of the incident, the individual and the environment will predict subsequent adjustment.
2. If psychological debriefing is being conducted appropriately, participant's experience of psychological debriefing will be consistent with recommended debriefing procedures.
3. People will evaluate different components of psychological debriefing as differentially effective or helpful.

4. People who value psychological debriefing sessions and found them worthwhile will demonstrate greater psychological adjustment than those people who valued them less.

5. If psychological debriefing is of benefit, those emergency workers who have participated in debrief will demonstrate greater subsequent adjustment than those who have not.

METHOD

Participants

The sample was drawn from all those professionals working for North Lincolnshire Emergency Services who had been involved in a critical incident. Any person involved in compensation or litigation was excluded from the sample. The entire sample consisted of 54 employees of which 38 members (70.4%) were male and 16 (29.6%) were female. The mean age of participants was 37.93 years (s.d.= 7.97) with a range of 25 - 52. Further details are provided in the results section.

Procedure

Members of the North Lincolnshire Debriefing Team were approached to discuss the aims and objectives of the research project and to explore its implementation with particular consideration to the recruitment of participants. It was decided that senior managers from each service (Police, Fire, Ambulance, Health and Social Services) would contact members of their staff who had been involved in critical incidents and ask whether they would be willing to participate.

A joint letter of explanation from myself and the service manager was circulated to all potential participants. The letter detailed the purpose of the study and what would be required of each respondent. The treatment of all information in the strictest confidence was emphasised. Individuals who wished to support the project were asked to communicate their consent either verbally or by completing and signing a consent slip. The difference in communication was determined by the individual wishes of each manager.

A copy of the initial questionnaire (Part 1) was sent for return to all those workers who indicated their wish to participate with the research. On return of each questionnaire, those personnel who were debriefed were contacted individually, either by myself or their manager, again depending on management and organisational factors, to arrange to meet for interview. It was hoped that interviews could be scheduled such that those people who had been involved in a critical incident or debriefed most recently could be interviewed last. This would minimise the heterogeneity of the sample with respect to time lapse. Unfortunately, because of the confidential nature of the debriefs, this information was not available prior to interview.

For their convenience, all personnel were seen either at their place of work or at home. Although all line managers gave workers time free from duty, many could only be seen in their own time, at the beginning or end of a shift. In addition, many of the interviews had to be cancelled due to workers being called out on emergency call. For those personnel who could not be seen for interview, either due

to scheduling difficulties or because they had moved out of region, questionnaire packages were sent to their homes for completion and return.

At the beginning of the interview, individuals were again informed of the nature of the evaluation and assured that all information would be treated in the strictest confidence. Participants were then asked to complete the second questionnaire (Part 2). The next part of the interview was semi-structured and designed to obtain information from each subject relating to adjustment since debriefing. In particular, attention was focused on any form of psychological distress or physical illness in relation to the following factors: further stressful incidents at work or home, level of social support and coping strategies.

The final part of the interview was designed to give individuals the opportunity to ask any questions should they so wish and to inform people that further support would be available if required. Part of the reason for carrying out these interviews was to identify those people who may benefit from additional support. At the end of interview, participants were given a copy of the final questionnaire (Part 3) for return in an accompanying self-addressed envelope and they were informed that on completion, a report on the research would be produced for their organisation. Those individuals who were identified as needing further support were provided with contact information for the debriefing team or the Clinical Psychology Department. If personnel requested that these agencies be asked to

contact them, appropriate information was taken at this point as to where they wished to be reached and the nature of any messages to be left were they unavailable.

Measures

Part 1: This initial questionnaire included demographic variables such as age, gender, years experience and professional body. In addition, the questionnaire was designed to determine the nature of the critical incident and related factors such as degree of preparation, personal involvement and whether operations were carried out quickly. These factors are known to contribute to subsequent distress and adjustment (e.g. Raphael *et al.*, 1983; Dyregov and Solomon 1991). Following the section on demographic information, participants were asked to complete The Impact of Event Scale (IES) (Horowitz, Wilner and Alvarez, 1979) corresponding to the time *immediately after the critical incident*. The IES is a self-report instrument designed to indicate the frequency of experiences relating to a particular life event. For further details including standardisation and reliabilities see Appendix A or Horowitz *et al.* (1979). The IES has been used extensively in trauma research with emergency workers to identify predictive stress factors (e.g. McFarlane 1988a; 1988b; 1988c) and assess the extent of workers' psychological distress (e.g. Lundin and Bodegard, 1993).

Part 2: The second questionnaire related to the persons' experience of debrief. It focussed firstly on, general aspects of the debriefing process relating to its value, the atmosphere within the group and

the extent to which members of the group felt able to express themselves. Each phase of the debriefing process, as determined by Mitchell (1983, 1988b), was then considered in turn. Respondents were asked to rate on a five-point Likert scale, the extent to which they agreed with a particular statement. Each statement reflected what were considered to be essential features of each phase (Mitchell, 1983; Dyregov, 1989). Individuals were also asked to rate the extent to which they had experienced each phase as useful, distressing and relevant. Following this questionnaire, participants were requested to complete the IES corresponding to a period *2 weeks following the debriefing*.

Part 3: The third questionnaire consisted of the IES to be completed for the period of the *last 2 weeks*. Respondents were finally asked to complete the SCL-90-R (Derogatis, 1983); The Coping Responses Questionnaire (CRQ, Billings and Moos, 1981) and The Interpersonal Support Evaluation List (ISEL, Cohen *et al.*, 1985).

The SCL-90-R is a 90 item self-report symptom inventory designed to reflect the psychological symptom status of "normals", psychiatric and medical patients. It has been used in a number of studies examining reactions to disaster (e.g. Baum *et al.*, 1983; Green *et al.*, 1983). The Coping Responses Questionnaire (CRQ) (Billings and Moos, 1981) was devised to assess the nature of coping process among adults following recent stressful life events. The Interpersonal Support Evaluation List (ISEL) (Cohen *et al.*, 1985) is designed to assess the perceived availability of 4 separate functions

of social support. "Appraisal" refers to having somebody to talk about one's problems; "tangible" support indicates the availability of material aid; "belonging" is concerned with having people with whom to do things and "self-esteem" refers to having a positive comparison when comparing one's self to others.

Internal reliability (Alpha Coefficient), of the total general population ISEL was found to be 0.90 in the Mermelstein *et al.* (1983) study. Ranges for general population IESL sub-scales were 0.70-0.82 for appraisal, 0.73-0.78 for belonging, 0.62-0.73 for self-esteem and 0.73-0.81 for tangible support.

The ISEL has been utilised by a number of researchers in the field of trauma psychology. For example, Cook and Bickman (1990) found that ISEL scores were related to psychological symptomology in victims of a major flood in Virginia. Further details of all measures and copies, are given in Appendix A.

The debriefed group received all questionnaires whereas those workers who were not debriefed following the critical incident were only sent the initial questionnaire and an SCL-90-R.

RESULTS

CHARACTERISTICS OF THE ENTIRE SAMPLE

Individual Characteristics

Initially, the entire sample (n=54) is described in order to contextualise those factors which relate to the overall response to the critical incident. Descriptions of the debriefed and

non-debriefed group are given later.

Profession The entire sample consisted of 54 employees (38 men and 16 women) from the following professional groups: 5 Doctors (9.3%); 20 Police Officers (37.0%); 12 Fire Service workers (22.2%); 1 Ambulance Service worker (1.9%); 8 N.H.S. workers (14.8%) and 8 Social workers (14.8%). The N.H.S. workers consisted of 6 nurses, a receptionist and a hospital porter.

Age The mean age of the entire sample was 37.93 years (s.d.= 7.97) with a range of 25 - 52.

Rank 29 individuals (53.8%) held "Low Rank" posts (House Officers; Constables; Fire-fighters; Junior Nurses/Hospital Porters and Social Workers). 12 individuals (22.2%) held "Middle Rank"/junior management posts (Senior House Officers/ Registrars; Sergeants/Inspectors Leading Fire-fighters/Sub-officers; Staff Nurses; Social Services Team Leaders). 13 individuals (24.1%) held "High Rank"/senior management posts (Consultant Physicians; Chief Inspectors /Superintendents; Sub-Officers/Station Officers; Ambulance Service Superintendents; Ward Sisters/Nurse Managers and Social Service Managers).

Stress Education 18 individuals (33.3%) had received training in Stress Recognition and 14 (25.9%) had received training in Stress Reduction. The mean length of service was 13.80 years (s.d.= 8.26) and ranged from 1 - 32 years.

Incident Characteristics

Incident Time 24 of the critical incidents (44.4%) had occurred during the day, 20 (37.0%) during the night and 10 (18.5%) over both day and night.

Incident Type 15 of the incidents (27.8%) were road traffic accidents, 13 (24.1%) were fires, 12 (22.2%) were assaults, 5 (9.3%) involved firearms, 3 (5.6%) were domestic incidents and 5 (9.3%) were classed as "other". These referred to inpatient child deaths.

Incident Involved 12 of the incidents (22.2%) involved the death of an adult, 10 (18.5%) the death of a child and 10 (18.5%) the death of a colleague. 9 incidents (16.7%) involved injury of an adult, 5 (9.3%) injury of a child and 4 (7.4%) injury of a colleague. 1 incident (1.9%) involved the destruction of property and 3 (5.6%) were described as "other" These incidents were characterised by verbal abuse and threatening behaviour. The categories used for the nature of the incident and also for what it involved were mutually exclusive and where more than one category was endorsed, the respondents were asked at interview which they felt was the most salient aspect for them.

Know Victims 31 respondents (57.4%) did not know the victims of the incident at all. 1 (1.9%) knew the victim slightly, 7 (13%) a little, 10 (18.5%) quite well and 5 people (9.3%), reported to have known the victim very well.

Expected Response 5 workers (9.3%) felt that they were not at all able to carry out their professional role at the time of the incident. 9 (16.7%) indicated that they were of only partially able to respond appropriately and 2 (3.7%), felt they responded fairly well. 17 (31.5%) and 21 (38.9%) of participants reported that they were able to carry out their duties very well or completely as they wished respectively.

Waiting Time 17 personnel (31.5%) experienced no time waiting around before they were able to carry out their emergency response. 7 (13%) reported a little time spent waiting, 13 (24.1%) some time, 14 (25.9%) quite a lot of time and 3 (5.6%) indicated that they had spent a lot of time waiting prior to their involvement.

Preparation 3 of the respondents (5.6%) felt completely unprepared for the incident in terms of their level of training and experience. 8 (14.8%) felt slightly prepared and 6 (11.1%) felt reasonably well prepared. 15 (27.8%) and 22 (40.7%) of those questioned reported that they had felt very or completely prepared for the incident respectively.

Predictability 36 (66.7%) participants considered that the incident was not at all predictable. These tended to be incidents responded to by the fire and health services. 8 (14.8%) felt it had been slightly predictable, 2 (3.8%) fairly predictable, 5 (9.3%) very predictable and 3 (5.6%) completely predictable. These more predictable events referred to the inpatient deaths reported by medical staff and road traffic accidents reported by the police.

Routine 19 individuals (35.2%) indicated that the incidents had not been routine at all. 12 (22.2%) felt the incident had been slightly routine and 12 (22.2%) fairly routine. 10 (18.5%) and 1 (1.9%) reported that the incident had been very or completely routine for them. Of this group, 8 respondents were specialist police officers called to RTA's or firearms incidents.

Correct Information 9 Emergency workers (16.7%) felt that they were given no appropriate information to prepare them for what to expect at the scene of the incident. 8 (14.8%) and 11 (20.4%) were given information which enabled them to be slightly or fairly well prepared respectively. 8 respondents (14.8%) indicated that the information given to them allowed them to be very well prepared and 6 workers (11.1%) felt that they were completely prepared for the scene.

Similar Previous Experience (n = 51) 21 of those workers questioned (38.9%), reported to have never been involved in a similar previous incident. 3 (5.6%), indicated occasional similar experiences prior to the incident and 9 (16.7%) of respondents had a moderate level of previous experience. 12 (22.2%) and 6 (11.1%) members of the sample had been exposed to similar prior experiences often or many times respectively.

Similar Experience Since (n = 51) 28 Emergency workers (51.9%) had never been involved in a similar experience after the critical incident and 9 (16.7%) had occasional similar experiences since. 9 respondents (16.7%) reported exposure to a moderate number of experiences following the incident, whereas 4 (7.4%) and 1 (1.9%) had

been involved with similar incidents often and many times since the incident.

Time Elapsed The mean time elapsed between the incident and the time of filling the initial assessment for the entire sample was 280.351 days (s.d. 310.451; median 120.000; mode 6.000), ranging from 6 to 900 days.

OVERALL RESPONSE

Initial response to the incident

The following section describes the responses of the entire sample to the critical incident on the Impact of Events Scale (IES).

Comparisons between debriefed and non-debriefed groups are presented later.

The mean score for the total IES was 16.52 (s.d. 15.09; range 0 - 61). The mean intrusion score for the entire sample was 10.33 (s.d. 8.615; range 0 - 33) and the mean avoidance score was 6.19 (s.d. 7.521; range 0 - 28). It should be noted that when compared with the scores in the original standardisation (Horowitz *et al.*, 1979), these scores fall outside of both normal and patient samples.

Final psychological adjustment

Final psychological adjustment is described by scores from the Symptom Check List-90-R (Derogatis, 1983). The scores for each sub-scale and index were converted into T scores using the normative data for non-patients (p. 56-57, Derogatis, 1983). The mean T scores for each sub-scale for the entire sample are shown in Table 1.

Table 1: Mean T scores for the entire sample (n=42).

	mean	s.d.	range
<i>Somatization</i>	42.833	12.002	30 - 68
<i>Obsessive-compulsive</i>	46.095	14.149	30 - 81
<i>Inter-sensitivity</i>	46.881	13.039	35 - 81
<i>Depression</i>	44.238	14.555	30 - 81
<i>Anxiety</i>	43.595	13.010	30 - 71
<i>Hostility</i>	45.024	11.213	35 - 72
<i>Phobia</i>	41.524	5.580	40 - 63
<i>Paranoia</i>	42.143	11.784	35 - 74
<i>Psychoticism</i>	46.024	9.552	40 - 71
<i>Global Severity Index</i>	46.000	13.713	30 - 81
<i>Positive Symptom Distress Index</i>	46.829	11.625	30 - 66
<i>Positive Symptom Total</i>	43.143	14.200	22 - 69

Examination of the frequencies and distributions of each outcome measure revealed that distributions were considerably biased towards asymptotology. The skewed nature of the data, therefore, violated the essential condition for the use of parametric analyses, that of normally distributed data. As such, all analyses using IES or SCL-90-R scores employed distribution-free, non-parametric analyses.

INTER-RELATIONSHIPS BETWEEN INDIVIDUAL, EVENT AND ENVIRONMENTAL
CHARACTERISTICS AND INITIAL RESPONSE TO THE CRITICAL INCIDENT

In order to identify which factors predicted the extent of impact of the event, Mann-Whitney tests for 2 independent samples were carried out using the initial IES scores for the entire sample as the dependent measures. Individual factors such as gender and coping strategies are examined first. Because of the small sample size, the data describing each of the independent measures from the 5 point Likert scale were collapsed by splitting positive and negative/neutral responses to produce a bivariate factor for each measure. Continuous independent measures such as age, years of experience and time since the incident were correlated against the Total IES scores using Pearson Product Moment Correlations.

Individual Characteristics

Gender Female workers displayed significantly ($U = 185.0$, $z = -2.873$, $p < 0.005$) higher Total IES scores than did male workers ($\bar{X} = 25.88$ and 12.58 ; $s.d. = 16.42$ and 12.77 respectively).

Profession "Non-Emergency Service" Workers (N.H.S. staff, Social workers and Doctors) had significantly ($U = 154.0$, $z = -2.8491$, $p < 0.005$) higher Total IES scores than did members of the "Traditional" Emergency Services (Police, Fire and Ambulance Personnel) ($\bar{X} = 23.71$ and 11.94 ; $s.d. = 15.78$ and 12.90 respectively).

The *rank* of the individual, their *age* and the number of *years service* had no significant effect on the subsequent Total IES score.

Similarly, there was no significant effect on the Total IES score of whether the worker had been given training in either *stress recognition* or *stress reduction*. Finally, there was no significant effect of the *time since* the incident.

Relationship between coping response and psychological adjustment.

Pearson Product Moment Correlations were performed between the Active Cognitive, Active Behavioural, Avoidance, Problem Focussed and Emotion Focussed sub-scale scores of the CRQ and initial IES scores and final measures of adjustment (final IES and SCL-90-R T scores). No significant associations were found for either immediate or final psychological adjustment indicating that the nature of individual's coping strategies do not appear to predict post-incident well-being.

Comparing Coping Response for Profession and Gender

To examine the relationship between coping and gender/profession, Mann-Whitney tests for 2 independent samples were performed with CRQ sub-scale scores as dependent measures and gender and profession as independent measures. Due to the limited sample size, professional groups were collapsed to produce a bivariate factor of "Emergency Service workers" and "Non-Emergency Service workers".

Gender There were no significant differences between male and female workers for coping responses or focus of coping.

Professional Group Non-Emergency workers employed significantly greater levels of Avoidance coping strategies ($U = 42.0$, $z = -2.1972$, $p < 0.05$) and Emotion Focussed Coping strategies ($U = 210.0$,

$z = -2.6128$, $p < 0.005$) than emergency workers. There were no differences with respect to Active Cognitive, Active Behavioural or Problem Focussed coping strategies.

Incident Characteristics

The relationships between number of incident characteristics and impact were investigated using Mann-Whitney tests for 2 independent samples with initial IES scores as dependent measures. Information relating to the nature of the incident is described by a bivariate measure produced by the collapse of the 5 point Likert scale.

Incident time Those workers who had been involved in an incident which had occurred over both day and night showed significantly ($U = 104.0$, $z = -2.590$, $p < 0.005$) higher Total IES scores than did those who were exposed to an incident occurring just during the day or just during the night ($\bar{X} = 28.80$ and 13.73 ; $s.d. = 17.97$ and 13.04 respectively).

How well victims were known Those workers who had known the victims either very well or quite well showed significantly ($U = 205.0$, $z = -1.694$, $p < 0.05$) greater Total IES scores than those who either knew them less well or not at all ($\bar{X} = 21.73$ and 14.51 ; $s.d. = 16.07$ and 14.41 respectively).

There were no significant effects on adjustment if the incident involved children or death. Similarly, whether or not workers were able to carry out their professional duties as and when required had no effect on the impact of the event upon them. The predictability or

routiness of the incident and previous similar experience were not related to worker's post-incident well-being.

Environmental Characteristics

Relationship between social support and psychological adjustment.

To examine the effect of social support on adjustment, Pearson Product Moment Correlations were performed between with Total Social Support and the social support sub-scores of Appraisal, Belonging, Tangible and Self-esteem Support from the ISEL and initial IES scores. Similar analyses were then carried out with IESL scores and measures of final adjustment (final IES and SCL-90-R GSI T scores).

Initial adjustment Results indicated a significant relationship ($r = -0.4592$, $p < 0.01$) between Self-esteem support and the intrusion sub-scale of the IES. All other associations were similarly inverse in nature although none approached statistical significance.

Final adjustment Total social support and self-esteem were both significantly negatively correlated to all measures of final psychological adjustment. Tangible and appraisal support were less strongly associated with final IES scores. Belonging, although negatively associated with all measures, no correlations approached significance. Results are shown in Table 2.

Table 2: Pearson Product Moment Correlations between final measures of adjustment and aspects of social support as defined by the ISEL.

	<i>Aspect of Social Support</i>				
	<i>Appraisal</i>	<i>Belonging</i>	<i>Tangible</i>	<i>S.Esteem</i>	<i>Total</i>
<i>IEST</i>	-0.5867**	-0.342	-0.4656*	-0.7259**	-0.7033**
<i>IESI</i>	-0.5102*	-0.2760	-0.3774	-0.7388**	-0.6265**
<i>IESA</i>	-0.6289**	-0.3946	-0.5346*	-0.6396**	-0.7347**
<i>SCL-GSI</i>	-0.3687	-0.4222	-0.3822	-0.4714*	-0.5531*

IEST (IES total score)

IESI (IES intrusion score)

IESA (IES avoidance score)

SCL-GSI (SCL-90-R global severity index)

* $p < 0.01$

** $p < 0.001$

Comparing Social Support for Profession and Gender

In order to determine whether there were any differences between gender or profession in terms of social support, Mann-Whitney tests for 2 independent samples were performed with IESL scores as dependent measures and gender and profession as independent measures. Again professional groups were collapsed to "Emergency Service workers" and "Non-Emergency Service workers".

Gender Female workers reported significantly greater levels of Belonging Support than male workers ($U = 47.0$, $z = -1.730$, $p < 0.05$). There were no significant differences for any of the other social support categories between gender.

Professional Group There were no significant differences in Total Social Support, Appraisal, Belonging, Tangible or Self-esteem Support between Emergency and Non-Emergency personnel.

Time lapse since the incident and final psychological adjustment

Pearson Product Moment Correlations were performed on all measures of adjustment (IES and SCL-90-R T scores) as dependent variables against the independent variable of time lapse since the original critical incident. Time lapse correlated significantly ($r = 0.407$ ($p < 0.01$)) with the *paranoia* dimension of the SCL-90-R. No other significant results were obtained indicating that final psychological adjustment, was not determined by the time since the critical incident.

Overall, results indicate that in the present study, the significant factors in predicting the impact of the event were gender, profession, the time of the event, the extent to which workers knew the victim and and the presence of social support.

EFFECTIVENESS OF DEBRIEFING

In order to examine the effectiveness of psychological debriefing for emergency service personnel, the first phase was to compare participants' experience of debrief with recommended protocols. The second stage was to determine whether the extent to which debriefing was experienced as helpful effected adjustment. Finally, to determine the impact of debriefing on adjustment, debriefed and non-debriefed groups were compared.

Experience of debriefing

The mean debriefing group size was 9.94 (s.d. 4.58) ranging from 3 - 20 and the mean time lapse from the incident to the debrief was 30.33 days (s.d. 40.63; median 14; mode 14) ranging from 2 - 112 days. 66.7% of participants attended debrief within 2 weeks of the incident; 72.7% within 3 weeks and 78.8% within a month. A group of 6 people were debriefed 112 days after the incident. This was because at the time of the incident, formal debriefing procedures had not been established.

General factors 87.1% of participants experienced the atmosphere of the debriefing as positive, supporting and understanding. 100% felt that everybody had a chance to express themselves and 80.6% reported that all group members' feelings were shared and accepted. 93.5% of the group indicated that had felt listened to and nobody had been criticised.

70.6% of respondents said that the experience of debrief helped them to deal with their reactions and 64.7% reported coping well in the week following the session. Only 11.8% felt that they had some unresolved feelings since the debrief and nobody reported a deterioration in their problems as a result.

Overall, the experience of debrief was rated as very helpful by 12.9%, slightly helpful by 48.4% and neither helpful or unhelpful by 38.7%. In terms of distress, debrief was considered very distressing by 3.2% of those attending, slightly distressing by 12.9%, neither distressing or comforting by 54.8%, slightly comforting by 16.1% and

very comforting by 12.9%. Finally, the debriefing was perceived as slightly irrelevant by 3.2%, neither irrelevant or relevant by 32.3%; slightly relevant by 32.3% and very relevant by 32.3%.

The Introductory Phase 85.3% of group members felt that they had been given a clear description of what to expect during the debriefing session and 94.1% were clearly able to appreciate the need for confidentiality. 90.3% of participants reported to have felt re-assured that open discussion of their experiences and feelings would not be used against them. In 76.5% of cases the introductory phase of the debrief was perceived to reduce tensions.

The introductory phase of the debriefing was described as very helpful by 47.1% of participants, slightly helpful by 32.4% and neither helpful or unhelpful by 20.6%. This phase was experienced as very comforting by 20.6%, slightly comforting by 23.5%, neither distressing or comforting by 47.1%, slightly distressing by 5.9% and very distressing by 2.9%. The introductory phase was reported as very relevant by 38.2% of participants, slightly relevant by 29.4%, neither irrelevant or relevant by 26.5% and slightly irrelevant by 5.9%.

The Fact and Thought Phase 94.1% of respondents felt that all group members were given an opportunity to recount their experiences and 97.1% indicated that they were able to be focussed upon the incident. All of the participants felt that they were able to recount their part in the incident with ease.

77.4% of the sample, reported that this phase helped them to gain a clearer and more complete picture of the incident and 97.1% were able to recall their thoughts about the incident with ease. 79.4% felt that other group members shared similar thoughts, only 17.6% indicated becoming confused when trying to recall their thoughts.

The fact and thought phase of the debriefing was described as very helpful by 54.8% of personnel, slightly helpful by 32.3% and neither helpful or unhelpful by 9.7% and slightly unhelpful by 3.2%. 25% experienced it as slightly comforting, 18.8% as neither distressing or comforting by 37.5%, 15.6% as slightly distressing and 3.1% as very distressing. In terms of relevance, it was experienced as very relevant by 54.8%, slightly relevant by 32.3%, neither irrelevant or relevant by 9.7% and slightly irrelevant by 3.2%.

The Feeling Phase 85.3% of group members felt easily able to discuss their feelings during the incident and 94.1% indicated that everyone had been given the opportunity to talk about their own reactions. 91.2% of respondents reported that they were able to share with the group what had been the worst part of the incident for them.

This phase of the debriefing was described as very helpful by 47.1% of those who took part, slightly helpful by 38.2% and neither helpful or unhelpful by 14.7%. 32.4% of the sample described the phase as very comforting, 17.6% described it as slightly comforting, 38.2% as neither distressing or comforting and 11.8% as slightly distressing. It was reported as very relevant by 54.8%, slightly relevant by 29.0%, neither by 12.9% and slightly irrelevant by 3.2%.

The Symptom Phase 91.2% indicated that they had been able to talk about their physical reactions to the incident and 91.2% felt that there was the opportunity to listen to others' reactions. 67.6% reported that their reactions had been similar to those of other group members.

It was described as very helpful by 48.4% of participants, slightly helpful by 25.8% and neither helpful or unhelpful by 25.8%. 26.5% of participants experienced it as very comforting, 32.4% as slightly comforting, 38.2% felt that it had been neither distressing or comforting and 2.9% had found it slightly distressing. 58.1% of the sample thought that the symptom phase had been very relevant, 19.4% had found it slightly relevant and 22.6% thought it had been neither irrelevant or relevant.

The Teaching Phase 67.7% of respondents reported that they had been given information regarding typical stress reactions and 50.0% said that they were able to learn stress management techniques from the session. 29.4% indicated that they had been able to pick up stress management techniques from other group members. 64.7% were able to normalise their own reactions. 67.6% said that the instruction in stress management had no effect on the intensity or awareness of their own reactions. Only 29.4% reported an increased awareness of their reactions as a result of this phase. 47.1% felt clearer about their reactions and 53% reported that the teaching phase enabled them to express these more clearly.

The teaching phase of the debriefing was reported to be very helpful by 32.3% of personnel, slightly helpful by 35.5%, neither helpful or unhelpful by 29.0% and slightly unhelpful by 3.2%. In terms of comfort, it was experienced as very comforting by 19.4%, slightly comforting by 32.3%, neither distressing or comforting by 48.4%. 38.7% of respondents found the teaching phase to be very relevant, 32.3% experienced it as slightly relevant, 25.8% as neither irrelevant or relevant and 3.2% as slightly irrelevant.

The Re-entry Phase 76.5% of those who were debriefed reported that they were given the opportunity to ask further questions and 79.4% felt that they were encouraged to make further comments. 82.4% indicated that they were encouraged to make further contact with the debriefing team if necessary.

The re-entry phase of the debriefing was experienced as very helpful by 29.0%, slightly helpful by 29.0% and neither helpful or unhelpful by 41.9%. It was reported to be very comforting by 26.5%, slightly comforting by 23.5%, neither distressing or comforting by 50.0%. Finally the re-entry phase was perceived as very relevant by 41.9% of participants, slightly relevant by 19.4%, neither irrelevant or relevant by 38.7%.

Overall, it would appear that peoples' experience of debriefing is generally consistent with recommended protocols for carrying out debrief (e.g. Mitchell, 1983). In addition, the majority of participants perceived the process to be generally useful and relevant.

Analysis of degree of helpfulness for each debrief phase.

Clearly the above results reveal a bias towards responses which indicate overall satisfaction with or benefits from debriefing. This was confirmed from an examination of the frequencies and distributions of responses. As a result, distribution-free analyses had to be employed using this data.

In order to determine whether certain phases of the debriefing process were perceived as differentially helpful, Multiple Wilcoxon Matched-Pairs Signed Ranks tests were performed on the mean degree of perceived usefulness of each phase of the debrief, as defined by the 5 point Likert scale. Because of the large number of analyses carried out on the same data, caution should be used when interpreting the results, with the use of a more stringent criteria for significance. The mean ratings of usefulness of each phase are shown in Table 3.

Table 3: Mean ratings of perceived usefulness (0 - 5) of each phase of the debriefing.

<i>Phase</i>	<i>Mean Rating</i>
Introductory Phase	:4.3226 (s.d. 0.791);
Fact and Thought Phase	:4.3871 (s.d. 0.803);
Feeling Phase	:4.3548 (s.d. 0.709);
Symptom Phase	:4.2258 (s.d. 0.845);
Teaching Phase	:3.9677 (s.d. 0.875);
Re-entry Phase	:3.8710 (s.d. 0.846).

Results indicated that the introductory phase was experienced as more helpful than both the teaching phase ($z = -1.965$, $p < 0.05$) and the re-entry phase ($z = -2.448$, $p < 0.05$). Similarly, the fact and thought phase was perceived as more useful than both the teaching phases ($z = -2.083$, $p < 0.05$) and re-entry phases ($z = -2.698$, $p < 0.01$). Finally, the feeling phase was endorsed as more helpful than both the teaching phase ($z = -2.147$, $p < 0.05$) and the re-entry phase ($z = -2.919$, $p < 0.005$). Results, therefore, indicate that the fact and thought and feeling phases of debriefing are experienced as of greater benefit than other phases, particularly the introductory and re-entry phases.

Analysis of degree of distress/relevance for each debrief phase.

Similar analyses were performed on the degree of perceived distress and relevance of each phase of the debrief as defined by the 5 point Likert scales. There were no significant differences (or differences approaching significance) for perceived distress of each phase.

The fact and thought phase was perceived as of more relevance than both the teaching and re-entry phases, although these differences did not approach significance. Similarly, the feeling phase was rated as more relevant than the teaching phase and significantly more relevant than the re-entry phase ($z = 1.965$; $p < 0.05$). No other significant differences were observed.

Aspects of debrief rated (1-10) and ranked for degree of use.

Participants rated aspects of debriefing for degree of perceived usefulness on a scale 1 - 10 (10 being most useful). The mean ratings for each aspect are shown in Table 4.

Table 4: Mean ratings of perceived usefulness (0 - 10) of various aspects of debriefing.

<i>Aspect of Debriefing</i>	<i>Mean Rating</i>
"sharing experiences"	8.00 (s.d. 2.22) range 1 - 10;
"sharing reactions to the incident"	7.16 (s.d. 2.00) range 3 - 10;
"being understood"	6.84 (s.d. 2.73) range 1 - 10;
"being listened to"	6.55 (s.d. 2.49) range 1 - 10;
"sharing thoughts"	6.35 (s.d. 2.33) range 2 - 10;
"sharing feelings"	6.29 (s.d. 2.15) range 2 - 10;
"learning my reactions were normal"	5.48 (s.d. 3.17) range 1 - 10;
"getting a clearer picture"	4.97 (s.d. 3.08) range 1 - 10;
"knowing where to get further help"	4.45 (s.d. 2.68) range 1 - 10;
"learning stress management"	4.19 (s.d. 2.93) range 0 - 10.

*Relationship between overall level of use of debrief and gender/
profession*

Chi-squared tests were performed on the numbers of respondents rating debriefing as useful/not useful by gender and profession ("Emergency" /Non-Emergency"). There were no significant differences obtained between groups for the perceived helpfulness of the debrief.

Inter-relationship between overall level of use of debrief and level of psychological adjustment

In order to determine whether participants' perception of the benefit of debrief effected subsequent adjustment, Mann-Whitney tests for 2 independent samples were performed with the Impact of Events Scale scores following the initial incident, following debriefing and currently, as well as the Symptom Checklist-90-Revised T scores as dependent measures. The degree of perceived overall usefulness of debriefing was used as an independent measure. Once again due to the limited sample size, degree of usefulness as defined by the 5 point Likert scale was collapsed to produce a bivariate factor of "Useful" versus "Not useful".

Compared to individuals who did not experience debriefing as being helpful overall, those who did, scored lower on the IES over all three time periods. They also had lower inter-sensitivity, depression, anxiety, hostility, phobic, psychotic, GSI, PSDI and PST T scores on the SCL-90-R. None of these differences approached statistical significance except for those on the anxiety sub-scale of the SCL-90-R. Those participants who experienced debriefing as helpful scored significantly ($U = 47.0$, $z = -1.795$, $p < 0.05$) lower on the SCL-90-R anxiety sub-scale than those who did not experience it as helpful ($X = 41.81$ and 50.40 ; $s.d. = 12.77$ and 12.42 ; range = $30 - 69$ and $35 - 71$ respectively).

Analysis of psychological disturbance over time.

In order to examine psychological adjustment over time, Wilcoxon Matched-Pairs Signed Ranks tests were performed between each of the 3 sets of IES scores (immediately following the incident (1), following debriefing (2) and current state (3)). Results indicated highly statistically significant reductions in all measures over time. Table 5 describes differences in adjustment as measured by IES scores. The table shows z statistics and corresponding probabilities for each comparison.

Table 5: Psychological adjustment over time as measured by the IES.

<i>Means</i>	<i>IENT1</i> 18.000	<i>IENT2</i> 11.0882	<i>IENT3</i> 5.3000
<i>IENT1</i>		z= -3.370 (p < 0.0005)	z= -4.372 (p < 0.0001)
<i>IENT2</i>			z= -3.471 (p < 0.0005)
<i>Means</i>	<i>IESI1</i> 11.3529	<i>IESI2</i> 7.2353	<i>IESI3</i> 5.3000
<i>IESI1</i>		z= -3.467 (p < 0.0005)	z= -4.35 (p < 0.0001)
<i>IESI2</i>			t= -3.467 (p < 0.0005)
<i>Means</i>	<i>IESA1</i> 6.6471	<i>IESA2</i> 3.8529	<i>IESA3</i> 1.6000
<i>IESA1</i>		z= -2.287 (p < 0.02)	z= -3.722 (p < 0.0002)
<i>IESA2</i>			z= -2.094 (p < 0.02)

IENT (IES total score)
IESI (IES intrusion score)
IESA (IES avoidance score)
(numeric suffixes indicate time points)

COMPARISON OF PSYCHOLOGICAL ADJUSTMENT BETWEEN DEBRIEFED AND
NON-DEBRIEFED GROUP.

The entire sample was divided into two sub-groups of those workers who had been debriefed following a critical incident (34) and those who had not (19). It is important to note that the non-debriefed group should in no way be considered as a *control* group. Members of this group were not selected at random and could not be matched against those in the debriefed group because of the very limited number of potential participants *per se*. Individual and critical incident characteristics for both groups are presented below in Tables 6 and 7 respectively. Where individuals were not debriefed, this was because the service was either not available or not offered at the time.

Table 6: Comparison of individual characteristics between the debriefed and non-debriefed groups.

	<i>Debriefed Group (n=34)</i>	<i>Non-debriefed Group (n=19)</i>
<i>Gender</i>		
male	23 (67.6%)	14 (73.7%)
female	11 (32.4%)	5 (26.3%)
<i>Profession</i>		
doctors	5 (14.7%)	0
police	16 (47.1%)	3 (15.8%)
fire fighters	1 (2.9%)	11 (57.9%)
ambulance staff	1 (2.9%)	0
N.H.S. staff	3 (8.8%)	5 (26.3%)
social workers	8 (23.5%)	0
<i>Mean Age</i>	38.53 yrs (s.d. 7.96)	37.53 yrs. (s.d. 7.77)
<i>Mean length of service</i>	13.68 yrs (s.d. 8.50)	14.63 yrs. (s.d. 7.73)
<i>Rank</i>		
low rank	15 (44.1%)	10 (52.6%)
middle rank	8 (23.5%)	4 (21.1%)
high rank	8 (23.5%)	5 (26.3%)
<i>Training experience</i>		
stress recogn.	12 (33.3%)	4 (21.1%)
stress reduc.	9 (26.5%)	4 (21.1%)

Table 7: Comparison of incident characteristics between the debriefed and non-debriefed groups.

	<i>Debriefed Group (n=34)</i>	<i>Non-debriefed Group (n=19)</i>
<i>Incident Time</i>		
Day	19 (55.9%)	5 (26.3%)
Night	6 (17.6%)	13 (68.4%)
Both	9 (26.5%)	1 (5.3%)
<i>Incident Type</i>		
RTA	12 (35.3%)	3 (15.8%)
Explosion	0	1 (5.3%)
Fire	1 (2.9%)	11 (57.9%)
Domestic	2 (5.9%)	1 (5.3%)
Firearms	5 (14.7%)	0
Assault	10 (29.4%)	2 (10.5%)
Other	4 (11.8%)	1 (5.3%)
<i>Incident Involved</i>		
Property	1 (2.9%)	0
Destroyed		
Colleague Dead	5 (14.7%)	5 (26.3%)
Colleague Injured	4 (11.8%)	0
Adult Dead	7 (20.6%)	5 (26.3%)
Adult Injured	8 (23.5%)	1 (5.3%)
Child Dead	6 (17.6%)	3 (15.8%)

Table 7 continued.

	<i>Debriefed Group (n=34)</i>	<i>Non-debriefed Group (n=19)</i>
Child Injured	0	5 (26.3%)
Other	3 (8.8%)	0
<i>Know Victims</i>		
Not at all	16 (47.1%)	14 (73.7%)
Slightly	1 (2.9%)	0
A little	4 (11.8%)	3 (15.8%)
Quite well	10 (29.4%)	0
Very well	3 (8.8%)	2 (10.5%)
<i>Expected Response</i>		
Not at all	1 (2.9%)	4 (21.1%)
Slightly	7 (20.6%)	1 (5.3%)
Fairly well	0	2 (10.5%)
Very well	12 (33.3%)	5 (26.3%)
Completely	14 (41.2%)	7 (36.8%)
<i>Waiting Time</i>		
None at all	10 (29.4%)	7 (36.8%)
A little	5 (14.7%)	2 (10.5%)
Some	6 (17.6%)	7 (36.8%)
Quite a lot	10 (29.4%)	3 (15.8%)
A lot	3 (8.8%)	0

Table 7 continued.

	<i>Debriefed Group (n=34)</i>	<i>Non-debriefed Group (n=19)</i>
<i>Preparation</i>		
Not at all	1 (2.9%)	2 (10.5%)
Slightly	6 (17.6%)	2 (10.5%)
Fairly	3 (8.8%)	3 (15.8%)
Very	9 (26.5%)	5 (26.3%)
Completely	15 (44.1%)	7 (36.8%)
<i>Predictability</i>		
Not at all	16 (47.1%)	19 (100%)
Slightly	8 (23.5%)	
Fairly	2 (5.9%)	
Very	5 (14.7%)	
Completely	3 (8.8%)	
<i>Routine</i>		
Not at all	12 (39.3%)	7 (36.8%)
Slightly	8 (23.5%)	3 (15.8%)
Fairly	4 (11.8%)	8 (42.1%)
Very	9 (26.5%)	1 (5.35%)
Completely	1 (2.9%)	0
<i>Correct Information (n=23)</i>		
Not at all	4 (11.8%)	5 (26.3%)
Slightly	5 (14.7%)	3 (15.8%)
Fairly	5 (14.7%)	6 (31.6%)

Table 7 continued.

	<i>Debriefed Group (n=34)</i>	<i>Non-debriefed Group (n=19)</i>
Very	5 (14.7%)	3 (15.8%)
Completely	4 (11.8%)	2 (10.5%)
<i>Similar Previous Experience (n=31)</i>		
Never	8 (23.5%)	12 (63.2%)
Occasionally	3 (8.8%)	0
Sometimes	6 (17.6%)	3 (15.8%)
Often	9 (26.5%)	3 (15.8%)
Many times	5 (14.7%)	1 (5.3%)
<i>Similar Experience Since (n=31)</i>		
Never	16 (47.1%)	11 (57.9%)
Occasionally	7 (20.6%)	2 (10.5%)
Sometimes	6 (17.6%)	3 (15.8%)
Often	2 (5.9%)	2 (10.5%)
Many times	0	1 (5.3%)
<i>Time Elapsed</i>	<i>(n=25)</i>	<i>(n=11)</i>
Mean	230.920 days	417.909 days
S.D.	289.201	334.102
Range	6 - 900 days	120 - 775 days

To examine whether debriefing had been effective, Mann-Whitney tests for 2 independent samples were performed with all measures of adjustment (the Impact of Events Scale scores following the initial incident and current T scores on the Symptom Checklist-90-Revised) as

dependent measures. The independent measure was whether or not an individual had taken part in a formal debriefing. The mean T scores for each sub-scale and IES summary scores are shown in Table 8 for both groups. The table includes Mann-Whitney U statistics and corresponding z statistics and levels of significance for each comparison. For more detailed descriptions of the outcome measures 4for both groups, see Appendix B.

Table 8: Comparison of psychological adjustment between debriefed (1) and non-debriefed (2) groups.

	n	U	z	Mean1	Mean2
<i>IEST1</i>	53	252.0	-1.328	18.00	13.89
<i>IESI1</i>	53	255.5	-1.256	11.35	8.53
<i>IESA1</i>	53	290.0	-0.620	6.65	5.37
<i>SCL-SOM</i>	42	205.0	-0.081	42.69	43.06
<i>SCL-O/C</i>	42	187.5	-0.544	46.65	45.19
<i>SCL-I/SENS</i>	42	175.0	-0.905	48.04	45.00
<i>SCL-DEP</i>	42	139.5	-1.843	47.15	39.50
<i>SCL-ANX</i>	42	168.0	-1.082	45.12	41.13
<i>SCL-HOST</i>	42	164.0	-1.220	46.58	42.50
<i>SCL-PHOB</i>	42	184.0	-1.392	42.46	40.00
<i>SCL-PARA</i>	42	196.5	-0.364	42.19	42.06
<i>SCL-PSYCHO</i>	42	188.5	-0.617	46.77	44.81
<i>SCL-GSI</i>	42	188.5	-0.509	46.53	45.13
<i>SCL-PSDI</i>	42	135.5	-1.734	49.28	43.00
<i>SCL-PSTOT</i>	42	160.5	-1.232	44.92	40.25

There were no significant differences on measures of adjustment between the debriefed and non-debriefed group. Although the debriefed group consistently scored higher than the non-debriefed group on all measures *except* on the *SCL-somatisation scale*, none of these differences approached statistical significance (See table 8). The results would, therefore appear to challenge the notion that psychological debriefing has a significant effect on the well-being of emergency service personnel following involvement in critical incidents.

DISCUSSION

The present study was carried out to explore the experiences of emergency service personnel exposed to traumatic incidents in the line of duty. It was hypothesised that certain factors may predict post-incident adjustment. The efficacy of psychological debriefing in the promotion of the well-being of workers was also examined. It was hypothesised that certain aspects of the process may be of differential value to participants and that those individuals who valued debriefing would show greatest subsequent adjustment. Finally, it was hypothesised that those workers who had taken part in psychological debriefing would demonstrate less psychological disturbance than those who had not.

Methodological issues

Before discussing the results and implications of this study, there are a number of methodological issues which merit consideration. In terms of comparing the debriefed and non-debriefed groups, the latter

cannot be considered as a *control* group, and so any inferences drawn are done so with caution. Participants could not be matched and as can be seen in Tables 6 and 7, the two groups differ considerably in both individual and incident characteristics. *Within* each group there also existed a substantial amount of heterogeneity. Very few respondents were recounting their experiences of the same event and even so events are highly variable in their impact on people (McFarlane and Raphael, 1984). Nevertheless, care was taken to ensure that respondents from both groups reported a similar initial response to the incident in order to ensure that any differences in subsequent adjustment weren't simply attributable to a greater overall impact of the event. Furthermore, because a number of debriefs were attended, there is no way of controlling for the variability of debrief delivery.

Participants were asked to report their experiences retrospectively. Because of the unpredictable nature of traumatic stress research, this is a problem frequently occurred within this field. Norris and Kaniasty (1992), explored this problem by comparing immediate self-reports of the experiences of survivors of Hurricane Hugo in 1989, with those made some 9 months later. They found that agreement over time was extremely high and argued that retrospective accounts in trauma research were likely to be reliable as traumatic events, being "outside the range of usual human experience" (APA, 1986) were highly salient events which could act as "landmarks".

Autobiographical memory research (e.g. Robinson, 1986) suggests that landmarks form a temporal frame of reference around which memory

searches are organised. Furthermore, both Funch and Marshall (1984) and Raphael *et al.* (1991) have found that people remember very well, those life experiences which brought great distress or change to their lives. It could be argued that for emergency workers who have a greater exposure to traumatic events than members of the public, that events may become less salient. In which case, delayed recall may be less accurate.

Results would, however, suggest that, apart from specialist traffic or armed response units within the police, events were generally not considered routine. It is reasonable to accept the accuracy of report in the present study although further research is needed specifically examining the accuracy of retrospective report among emergency service personnel. For a in depth discussion of further methodological issues, see Critique.

Overall impact of event

The Impact of Events Scale (Horowitz *et al.*, 1979) is considered here not as a measure of psychological psychopathology but as the extent to which an event or experience has been processed. The information processing model of PTSD (Horowitz, 1979; 1986) suggests that traumatic events cannot be immediately processed due to their unique nature and hence the large amount of novel information which they present. The combination of numbing and intrusion often observed following exposure to extreme stress, is regarded as a way of gradually assimilating the traumatic experience. Symptomatology continues until completion when the experience has been processed.

It would be expected that IES scores would decrease over time for those individuals who were able to successfully assimilate their experiences. In the present study, the substantial and significant decrease in IES scores observed over time would support this hypothesis.

Unfortunately, it was not originally planned to collect final IES scores for the non-debriefed group and so scores are only available for those individuals who were debriefed. Therefore, it is not possible to determine whether this is the result of a natural process or due to the experience of the debriefing. Certainly, it would have been useful to have had IES scores for both groups over time and this would obviously be one clear area for improvement. It is assumed, however, that this reduction is not purely a function of having attended a debrief by the fact that there are few significant differences between the two groups on the SCL-90-R outcome measures.

The initial IES scores are considerably lower than those reported for the patient sample in the original standardisation but higher, particularly for intrusion, than the student controls. This may be that emergency workers are unique and should not be compared with patient or non-patient groups. Indeed, their experiences are likely to differ from both groups. This being the case, a question arises as to how suitable clinical measures are for this population. Even the IES (Horowitz *et al.*, 1979), which most usefully can be considered as a measure of the extent to which an event has been assimilated and processed, was standardised on a patient sample.

Although the IES may be the best measure currently available, there is a need to develop more appropriate measures for use within the emergency services. In addition there is a question of how accurate self-reports are anyway (e.g. Dohrendwend, 1990) in that they only sample a very limited amount of information as opposed to for example, semi-structured interviews.

The Impact of Events Scale was originally standardised by referring to individual's responses to experiences some 4 weeks earlier for the student group and a mean of 25 weeks previously for the patient group. It may, therefore, be more meaningful to examine final IES scores in comparison with the scores from the original study (Horowitz *et al.*, 1979). In this case, the final scores from the present study are similar to the student group which would suggest that the impact of participants' experiences in the present study are generally not abnormally great over time.

Comparing the results of the current study with previous research using emergency workers, the final IES scores are less, for example than those reported for fire-fighters exposed to the Australian bush-fires, both with and without diagnoses of PTSD at 8 months (McFarlane, 1988c) or fire-fighters involved a Norwegian hotel fire (Hytten and Hasle, 1989). The present scores are also lower than those for personnel involved in the 1988 Armenian earthquake at 9 months (Lundin and Bodegard (1993)).

It is difficult to know how to interpret these differences for a number of reasons. Obviously the events to which each set of scores will have been very different both between studies and within the present study. They will in turn be experienced very differently by different people. The present scores correspond to a mean time following the event of 321.33 days or 10.7 months (s.d. 319.595) compared with McFarlane (1988c) of 8 months and Lundin and Bodegard (1993), of 9 months. Although in the present study time since the incident was not found to be associated with IES scores, the variation in time lapse is very large. The sample sizes and professional mix are also different. Notwithstanding, it is possible that the severity of the traumatic experiences of those participants in McFarlane's and Lundin and Bodegard's studies were greater than those in the present study.

It is interesting to note that many studies which have employed the IES for use with both civilians and emergency service employees, consistently reveal much higher scores for members of the public. This is certainly true for the present study when compared to for example, reports from victims of the Lockerbie disaster (Brooks and McKinlay, 1992). This would suggest that the impact of traumatic experiences is less on professionals, presumably due to the "protectiveness" of their roles, previous experiences and smaller degrees of personal involvement and tragedy.

It has been suggested that a diagnosis of Post Traumatic Stress Disorder (PTSD) can be predicted from IES scores. Bearing in mind the

information processing model (Horowitz, 1979), of most significance is delayed self-report as initial IES scores may be considered to simply reflect the individual beginning to process their experiences. McFarlane (1988c) suggested a criteria of 26 or more on any IES score to indicate a diagnosis of PTSD. Hytten and Hasle (1989) suggested that "a stress reaction of clinical significance" would be indicated by a score greater than 20. Using McFarlane's criterion, 14 respondents (26%) would indicate an initial diagnosis of PTSD and one (3.3%) for current. Using Hytten and Hassle's criterion, these numbers would increase to 19 (35%) for initial impact and 2 (6.7%) for delayed which are similar proportions reported in their study.

Of the two people identified, one, with the lower IES scores, was male and responding to an incident some 2 months previously. He could, therefore, not be considered as having a delayed response and may have been in the process of "working through" his experiences. The other individual was female and identified an incident 2 and a half years earlier. Neither member of staff wished for further support although both were informed of how to get it. Once again, this highlights the dilemma between more aggressive outreach and respecting the wishes of the individual.

Subsequent adjustment

Adjustment following the incident was indicated by scores on the Symptom Checklist-90-Revised (SCL-90-R, Derogatis, 1983). The results indicate that the majority of individuals are not abnormally symptomatic. This is reflected by both the mean scores for each scale

and the considerable skew in the T score distributions towards no symptomatology. Phobic-type symptoms were reported least often with most respondents endorsing no such symptoms, resulting in a relatively small standard deviation. In fact, no person in the non-debriefed group reported any items on this scale. One possible explanation for this is that the questions relating to this dimension are very specific. The majority of items are related in particular, to agoraphobia rather than a more general avoidance of situations. The low scores on this scale may in part be an artefact of the greater number of male participants in the present study bearing in mind 80% of people with agoraphobia are women (e.g. Hawton *et al.*, 1991).

Inter-relationships between individual, event and environmental characteristics and initial response to the critical incident
Individual Characteristics

On first examination, critical incidents appear to have a greater impact on women compared with men. This would be consistent with research on disaster survivors (e.g. Alexander, 1990) which suggests that women are at greater risk of adverse reactions following traumatic exposure . However, considering the nature of the self-report measures used, women may simply be more open and able to express themselves and the impact of their experiences. Indeed, scores on the original standardisation study of the IES resulted in significantly higher scores for both female patient and student samples (Horowitz *et al.*, 1979).

This difference, may simply be a result of a difference in willingness to report about subjective internal states in favour of women. A similar suggestion is made by Robinson and Mitchell (1993) in discussing the fact that the female dominated health and welfare workers reported more emotional responses than emergency workers who were predominantly male.

Therefore, the difference observed between emergency and non-emergency workers with the latter scoring higher on the IES may reflect the fact that emergency workers are predominantly men. This is certainly the case in the present study. The emergency services have always been traditionally male dominated and workers may be unable to talk about distress. Men are likely to say " "that was terrible" whereas women are more likely to say "that upset me terribly" " (James, 1992).

However, it may also be the case that emergency workers indicate a lower initial impact of the event because they are trained specifically for this type of event compared to health and social service personnel where exposure to trauma such as assault are less common. A similar difference between emergency and non-emergency personnel in their response to critical incidents is reported by Robinson and Mitchell (1993). Interestingly in their study, this difference was partially accounted for by the fact that welfare and hospital workers recalled higher levels of previous personal trauma than emergency workers. In the present study, previous life events were not recorded. The importance of life and family history in

predicting adjustment following critical incidents has been identified (Stratton, 1986; McFarlane, 1988b) and certainly needs attending to in future research of this kind.

The present study suggests there is no effect of age or experience in predicting the impact of critical incidents. Although this is consistent with previous research (e.g. Hytten and Hasle, 1989) it is, somewhat counter-intuitive. One might expect that those younger less experienced workers may be more distressed by exposure to critical incidents. It is possible that the crucial variable is the level of training. For example, Ersland *et al.* (1989) reported that those well qualified for the task reported less frequent and severe reactions during the A.Keiland oil rig disaster in 1980. Similar effects have been observed in mental health professionals working in the aftermath of earthquake (Dyregov and Solomon, 1991). In the present study, no effect of training or preparation was demonstrated.

This may, however, have been masked by the fact that most respondents indicated that their training had prepared them either very well or completely for the critical incident. This suggests that certainly for the emergency services in North Lincolnshire, training of personnel is generally of a high standard. It is possible, bearing in mind the differences between impact of the event between emergency and non-emergency workers that a difference might have also been observed in terms of level of training. Certainly, from interview, social service workers in particular, had generally felt unprepared

for their critical incident which highlights a need for further training but also the fact, as already mentioned that critical incidents are more common for traditional emergency service workers.

Cognitive coping responses which attempt to reach mastery and meaning and maintain a sense of proportion are most frequently employed by emergency workers (McCammon *et al.*, 1988; Durham *et al.*, 1985).

Searching to put one's experience into perspective and understand its meaning corresponds to cognitive appraisal models of PTSD (e.g. Janoff-Bulman, 1985) which emphasise the importance of achieving an understanding of the event in terms of new or pre-existing cognitive frameworks. Active cognitive strategies which focus on a search for meaning and logical analysis relate better to adaptational outcomes than avoidance (Moos and Billings, 1982).

It would be expected, therefore, that active cognitive and problem focussed coping strategies would be associated with lower IES scores. In the present study, only these styles of coping were negatively correlated with IES scores, although relationships did not approach statistical significance. This would tend to support the hypothesis that strategies which attempt to assimilate traumatic experiences predict better subsequent adjustment. This, in turn is consistent with both cognitive appraisal and information processing formulations of post traumatic stress responses (e.g. Janoff-Bulman, 1985; Horowitz, 1979)

There were no differences with respect to gender and type of coping response. There were, however significant differences for profession.

Health and social service workers employed greater levels of avoidance and emotion focussed coping strategies than traditional emergency workers. This is not consistent with a number of studies which suggest that avoidance and denial are typical responses of, for example, police officers (e.g. (Manolais and Hyatt-Williams, 1988)).

A question arises as to whether this difference can be explained in terms of the initial impact of the critical incident. That is, do workers who are more affected by their experiences try to block them out to a greater extent than those less effected? Alternatively, is the greater impact seen in non-emergency workers a result of their style of coping? Avoidance as a coping strategy, has been found to be counterproductive in terms of subsequent psychological adjustment for critical incident workers (e.g. Genest *et al.*, 1990) and may in part explain the differences in initial IES scores for profession. If health and social service workers are employing more avoidance coping strategies, it is possible that again this is linked to their level of training and previous experience in relation to the critical incident.

The greater use of emotion focussed coping by health and social service workers compared to emergency personnel would appear quite reasonable. One of the demands of this type of work is the ability to be sensitive to people's emotional, as well as physical needs. The relative lack of emotionality and psychic distancing of, for example police officers has been indicated in previous research (e.g. Manolais and Hyatt-Williams, 1988).

Incident Characteristics

Two aspects of the critical incident were related to increased initial IES scores. Participants recorded greater IES scores when the victim of the incident was well known to them. For a number of them, the victim was a colleague or friend. This observation is not unexpected and is consistent with previous studies (e.g. Mitchell and Dyregov, 1993).

Those workers who were involved in incidents which occurred over both day and night reported greater impact of the event than those who attended incidents during the day or at night. It is possible to speculate that these incidents were of longer duration so exposure being greater with respect to time. Research both with victims of disaster and emergency workers indicate a similar "dose effect" whereby length of exposure or working more than one shift predicts subsequent stress reactions (Maida *et al.*, 1989; Bartone *et al.*, 1989; Scott and Jordan, 1993).

Consistent with a number of studies (e.g. Robinson, 1984; Robinson and Mitchell, 1993), participants reported at interview that the involvement of children in critical incidents was especially stressful. However, no significant effects on initial IES scores were demonstrated. It is likely that such incidents are particularly difficult for parents with similar aged children, this information, however, was not collected formally and it may be the case that such an effect would have been demonstrated for with an increase in initial IES scores.

Difficulties or delays in the discharge of professional responsibilities are frequently reported as an additional stressors for emergency workers (e.g. Hytten and Hasle, 1989). Although in the present study these factors were not significantly associated with increased IES scores, the majority of respondents indicated minimal delay or problems in executing their emergency responses. Once again this may indicate high levels of critical incident training. Alternatively, these results may reflect professional pride and the high social desirability of scales relating to the incident.

Finally, time since the incident was not found to be significant in terms of subsequent psychological adjustment. From an information processing conceptualisation of post traumatic stress reactions (e.g. Horowitz, 1979), it would be expected that over time, the impact of the event would decrease as assimilation and completion progress. This is partially reflected by the reduction in IES scores over time. However, theoretically it might be predicted that time lapse would be negatively related to adjustment. It is possible that the absence of such an effect indicates that event processing and completion take place very rapidly.

Environmental Characteristics

Results indicated that all aspects of social support as described by the Interpersonal Support Evaluation List (ISEL) (Cohen *et al.*, 1985) were negatively associated with initial IES scores. However, only the relationship between the intrusion sub-score of the IES and self-esteem reached statistical significance.

Considering the self-esteem scale of the ISEL, research tends to suggest that social support *per se* is not protective following trauma. Of most importance in predicting psychological adjustment, is perceived *self-efficacy* (Murphy, 1988). Self-efficacy and self-esteem, as measured by the ISEL are similar with respect to positive self-image as well as perceived levels of control.

In terms of final adjustment, apart from belonging, all support dimensions were significantly negatively correlated with some measure of psychological adjustment. The greater effect of support some time after the incident is consistent with previous studies using the ISEL whereby social support is only protective some months following the incident. It is suggested that the initial impact of traumatic events may be overwhelming to the extent that individuals are not able to utilise available support (Cook and Bickman, 1990).

Total social support was related to lower final IES, GSI T scores and particularly to self-esteem. This further illustrates that social support, to be effective requires tangible and appraisal support in the presence of high self-esteem. It is possible that those individuals who are feeling good about themselves are those most able to make use of and perhaps provide support for others. This raises a question with respect to the SCL-90-R, whether the strong relationship with self-esteem is due to the measurement of essentially the same entity but in the opposite direction. That is, low scores on the SCL-90-R and high self-esteem may both reflect psychological well-being. A further concern, with any correlation is

the nature of causality. It is not possible to determine whether low distress is due to support or whether those people with low distress perceive and receive greater support. The greater belonging support for women may reflect the more extensive network of friends to which they belong. Men, particularly those in the emergency services do not typically seek out others for support (Durham *et al.*, 1985).

In summary, it would appear that the initial hypothesis is confirmed. Certain characteristics of the incident, the individual and the environment will effect subsequent adjustment. The relationship is however, complex. It is not possible to determine whether, for example women or health and social service workers are more at risk. The nature of one's coping strategies may also be of significance. The incident itself is likely to have greater impact on the worker if the victims are well known to them. It is also possible that the greater the traumatic exposure, the greater the risk to the individual. Finally, the presence of social support and high self-esteem in the individual appears to be a protective factor although the direction of this relationship is uncertain.

Experience of debriefing

In general, those people who had participated in psychological debriefing reported that they had experienced the crucial elements as present. Their responses provided support for the second hypothesis that overall, participant's experience of psychological debriefing is consistent with recommended debriefing procedures and therefore debriefing is being delivered correctly. Debriefing is, in itself a

complex process to manage with regards to the delivery of the "essential ingredients" whilst monitoring and utilising group dynamics. It would appear, therefore, that locally debriefers are being well trained and delivering a good quality service.

In terms of overall satisfaction with debriefing, it was rated as very helpful by 12.9% of those who had attended and slightly helpful by 48.4%. Nobody experienced it as unhelpful, although 38.7% of respondents described it as neither helpful or unhelpful. Similarly 67.6% of participants rated debrief as relevant with nobody rating it as irrelevant. These are similar to those reported for previous studies (e.g. Scott and Jordan, 1993).

At interview, however, very few participants reported that the experience had been of benefit to *them*. Almost all respondents, regardless of profession, suggested that they had gone for other people who had found it useful. This response would appear to be typical for emergency personnel having undergone debrief, and is reported by Stratton *et al.* (1984), Mitchell (1988a) and Robinson and Mitchell (1993). This being the case, begs the question, who are these "others"? It may be the case that individuals do not experience debriefing as a useful exercise but justify their position by suggesting that it is beneficial to others.

Criticisms of debriefing surrounded procedural aspects of the process, such as the debrief coming too late or having a range of ranks within the same group. Both senior and junior personnel experienced this as inhibitory by the difficulty of revealing

culpability to either junior or senior ranks respectively. Some participants indicated that the debriefing had not been run smoothly due to the inexperience of the debriefer. Similar comments were reported in Mitchell and Robinson's study (1993). It is likely that as debriefers become more experienced, such difficulties can be avoided. Reducing the heterogeneity of groups with respect to rank may reduce inhibitions within the groups. Suggestions for improving debriefings locally will be presented to the debriefing group with a report of the research.

Analysis of degree of helpfulness for each debrief phase.

Participants clearly evaluated certain components of components of psychological debriefing as differentially relevant or helpful hence confirming the third hypothesis. The fact and thought and feeling phases were endorsed as of most benefit and the teaching and re-entry phases as of least. It is assumed that teaching and re-entry were not reported as less valuable simply because of their position in the process. One might suggest that by the time of these phases, participants would be tired or fed up. This is not considered to be the case because no participant reported that the debrief had been too long. Results indicate that what people found to be most helpful to them were those phases which enable re-creation of the event and their reactions in order to enable processing and assimilation.

In the present study, "*sharing experiences*" and "*sharing reactions to the incident*" were endorsed as the most useful aspects of the debriefing process. These equated to talking with others about the

incident which were found to be most valuable in the Robinson and Mitchell study (1993). "*Being understood*" and gaining understanding of self were similarly determined as the next most helpful aspects in both studies respectively.

These results suggest that the value of debriefing is in gaining a more full understanding of the critical incident within a supportive and sharing group situation. This is consistent with a conceptualisation of debriefings as a way of "objectifying" experiences (Macleod, 1991). By verbally expressing and sharing experiences, it is possible to discover and reconstruct them. The experience then can become an event which can in turn be moved away from both in time and in self. This is the beginning of the process of assimilation and completion.

From this, it is possible to suggest an alternative model for debriefing which may be equally effective. The three basic stages of ventilation of feelings, discussion of the stress response syndrome and mobilisation of resources (Mitchell, 1983) may not all be needed. The latter stages in particular could possibly be absent or shortened without risking the overall effectiveness of the process.

Of most importance is a detailed discussion of the incident in great detail in order to objectify the experience facilitate its assimilation. The ventilation of feelings and reactions is also essential in order to normalise people's responses and achieve a sense of shared experience. This will in turn increase the social support aspects of the process. Closure will then serve to mark the

end of the event and the transition back to life with an emphasis on organising ongoing peer support and professional input if desired.

Indeed, a modification of "Defusing" (Mitchell, 1983) may fulfill the needs of most personnel following critical incident. Defusings are essentially informal meetings with peers held soon after the incident where details of and reactions to the incident are discussed and shared. The most important aspect is the positive and supportive atmosphere of the defusing which is based on care and concern for group members (Mitchell, 1983). Peer support and acceptance is the focus. During the process which takes about an hour, team members check on each others well being and provide support and friendship to those hardest hit. Defusings may need to be modified with the development of a closure stage where goodbyes are said to both incident and other workers, and where ongoing support mechanisms are established. These may simply involve trips to the pub together or arranging other times to meet.

Research indicates that informal debriefs appear equally valuable as more formal processes. Hytten and Hasle (1989) found no significant difference in IES scores between formally debriefed group and those who had discussed their experiences with colleagues in an informal setting. Modified debriefs may not, therefore, require the presence of trained debriefers or psychologists to be equally effective.

Inter-relationship between overall level of use of debrief and level of psychological adjustment

Results provide support for the fourth hypothesis that those people who considered debriefing to be helpful, generally showed better adjustment than those who did not. These differences achieved statistical significance for the anxiety sub-scale on the SCL-90-R. Scott and Jordan (1993) found highly significant differences between those who found debriefing useful and those who did not related to lower levels of distress and symptomatology. It is likely that those who appreciated debrief were more engaged in, and receptive to, the process and would, therefore, be more able to utilise it appropriately than those people who experienced it less positively. This would parallel processes in therapy where clients need to be motivated in order to derive the most from it. Alternatively, it may be the case that there is something unique about those who did not value debriefing. There may be modulating factors surrounding for example, personality traits or life history which may have made them less receptive to debriefing but also more inclined to psychological distress. Future research in this field will need to focus more on the assessment of these areas.

Comparison of psychological adjustment between debriefed and non-debriefed group.

Results do not support the final hypothesis. There is no evidence to suggest that those emergency workers who have participated in debrief demonstrated greater subsequent adjustment than those who did not, and that debriefing would appear not to be of benefit. This

conclusion is consistent with all previous studies which have attempted to evaluate the efficacy of psychological debriefing. It has been consistently shown that despite being endorsed as helpful, no differences in symptomatological resolution have been found between those emergency workers who have received debriefing and those who have not (e.g. Scott and Jordan, 1993).

In the present study, debriefing was generally associated with elevated levels stress reactions as measured by the IES and SCL-90-R. Kennardy and Webster (1993) similarly found that debriefed workers showered higher GHQ and IES scores than non-debriefed workers. The rate of recovery of both groups was the same. Furthermore, Griffiths and Watts (1992) found that debriefing was associated with significantly higher IES scores at 12 months.

Theoretically, elevated IES scores, at least initially following debriefing, may be reflective of the assimilation process. Certainly, intrusive recollections, for example, are considered to be adaptive in the processing of the traumatic experience (Horowitz, 1979). Unfortunately, final IES scores were not available for both groups.

One could hypothesise that if final IES scores were lower for the debriefed group compared to the non-debriefed group, that debriefing was actually effective. However, the differences between SCL-90-R scores is more difficult to understand. Overall, it would appear that the debriefed group are more distressed than those who had not been debriefed. Because of the methodological limitations of the study with respect to not having matched groups or prospective measures, it

is not possible to determine whether these differences are simply due to differences between participants. For example, differences in the severity of the initial incident may have influenced whether individuals sought out debrief or whether it was provided for them.

However, it is interesting to note that the only measure on which the debriefed group scored lower than the non-debriefed group was somatisation. This scale reflects symptom concerns arising from perceptions of bodily dysfunction often reported by sufferers of functional disorders (Derogatis, 1983). It could be suggested that the process of debriefing as well as allowing expression and ventilation of feelings, educates people as to the nature of stress reactions. This in turn may enable them more able to understand and express their distress verbally. For those who have not been educated in this way, distress may find the only outlet available, that is in physical expression. This is reasonable, bearing in mind both the reluctance of emergency workers to admit to distress (e.g. Gersons, 1989) and also the high levels of physical illness in services such as the police (e.g. Alexander *et al.*, 1991).

CONCLUSIONS

The present study was designed to assess the efficacy of psychological debriefing for emergency personnel in the prevention of traumatic stress reactions following involvement in critical incident. Debriefed and non-debriefed workers were compared in terms of their post-incident adjustment. The results are consistent with previous similar studies (Griffiths and Watts, 1992; Kennardy and

Webster, 1993; Scott and Jordan, 1993) which all fail to demonstrate, without exception, the benefit of debriefing in alleviating the impact of critical incidents.

One possible explanation for this, certainly in the present study is that emergency workers were not in fact greatly traumatised by their experiences. Indeed there is now a growing body of literature which suggests, that although many non-symptomatic individuals develop a range of stress reactions following exposure to extreme stressors, such symptoms are typically transient and short-lived (Adams and Adams, 1984; Raphael *et al.*, 1983-84).

Similarly, the present results indicate that most respondents do *not* appear to develop severe and ongoing psychological distress as a result of their experiences. Respondents generally showed reasonable assimilation and completion over time. Indeed, using IES scores as an indicator of resolution rather than PTSD, essentially only 2 individuals had failed to process the event to a level where it was no longer problematic to them.

This is consistent with previous findings which reveal that the majority of emergency response personnel report either an absence of deleterious effects (e.g., McFarlane, 1987; Manolais and Hyatt-Williams, 1988) or the presence of positive and life-enriching effects (e.g. Raphael *et al* 1983-84; Dyregov and Solomon, 1991) of their involvement in critical incidents. This being the case, one would not expect there to be significant differences in adjustment between debriefed and non-debriefed workers.

Despite the relative absence of empirical evaluation, debriefing has continued to be endorsed since its introduction over 10 years ago. One reason for this, is that traditionally, research has suggested that emergency workers are significantly affected by their work. As a result, organisations and professionals alike, have been under pressure to be seen to supply *something* in the way of after-care. The above would certainly challenge this view.

It is possible, therefore, that psychological debriefing, although endorsed as helpful is of little real benefit to workers. What emergency service personnel may be experiencing is reasonable distress or sadness as a result of their involvement in traumatic incidents. Rather than providing debriefing for workers, there may be alternative areas for development in which psychologists may be effective.

These may involve working at the organisational level of emergency services in effecting change in the mechanisms (and attitudes) of the system so that those who wish further help, can feel able and secure to seek it. There is a need for educating managers in the importance supporting voluntary and informal referrals for work-related psychological difficulties in co-operation with employees. There is still great resistance within organisations to accept this position and often only those given a mandatory referral make contact with appropriate services. They then may attend unwillingly and not be able to benefit from support (Dunning, 1990).

Psychologists have a further role in training and education. For example, research on shooting incidents indicates that despite the psychological sequelae of killing or being involved in a life-threatening experience, psychological aspects formed no part of officer's training (Manolais and Hyatt-Williams, 1988). Talbot et al., (1992) emphasise the importance of encouraging high levels of communication to facilitate feelings of community and support, which are likely to be protective for workers exposed to high levels of distress. Researchers note that often, workers do not necessarily need to discuss an incident but it may be enough to know that they had all shared the same experience (Manolais and Hyatt-Williams, 1988). This would be supported by the present study whereby the most important and valuable aspects of debriefing being those which focus on mutual support and shared experience.

Finally, psychologists may be able to work with managers in the promotion of more sensitive practices. These may include minimising the amount of paper-work an individual is required to complete following a critical incident or providing support for junior workers, particularly in the case of legal proceedings. One factor which was highlighted by many workers as being of great help to them following critical incidents, was being kept informed of the progress of victims. Often workers maintained contact with families some time after the event which is likely to have facilitated the process of completion for them.

SUMMARY

In summary, although emergency workers are initially effected by the nature of their work, either by becoming distressed or sad, or by experiencing intrusion and numbing as a normal part of assimilation, relatively few develop ongoing and severe psychological disturbance. It would appear that, consistent with a handful of previous studies, formal psychological debriefing, although apparently experienced as helpful, does not reduce the impact of critical incidents on emergency personnel. The presently prescribed, and until recently untested, model for debriefing may require some revision with an increased emphasis on those processes which promote group cohesion and a sense of shared experience.

Formal debriefing may be more productive if targeted at those identified to be at particular risk when it can be provided to meet the needs of the individual rather than those of the organisation. There is a danger that debriefing may be employed simply so that organisations are seen to be doing *something* rather than nothing. It is possible that informal meetings with peers which serve to facilitate the transition from critical incident back to everyday life, will be equally effective in militating against long-term dysfunction.

Strategies targeted at the organisation and its culture may provide an alternative approach for minimising emergency service stress. Teaching about the importance of self protection and monitoring, with emphasis at management levels is likely to be the greatest challenge for psychologists working with such organisations. Future research in the area of emergency service traumatology desperately needs the development of specifically designed intervention and assessment procedures. Prospective and long-term evaluation although problematic is essential if valid conclusions can be reached concerning the efficacy and of appropriate intervention procedures for emergency service personnel.

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PART III

"Critique: A Critical Appraisal of the Research Process"

Introduction

The following is a critical appraisal of the research process. A brief description of the development of the project is followed by a discussion of some of the methodological limitations of the study. Conceptual issues in the field of trauma research and the wider implications of the present study are then explored.

Origins and development of the project

I became interested in post traumatic stress early in my clinical career following my initial placement in North Lincolnshire in 1991. This was supervised by an expert within the field where I was given the opportunity to work therapeutically with people who had been exposed to trauma.

In 1988, the first European Conference on Post Traumatic Stress had been held in North Lincolnshire and a need for the provision of preventative interventions for emergency workers was highlighted. Developments began and by 1990 the North Lincolnshire Joint Emergency Services Initiative (N.L.J.E.S.I.) had been established. This is a multi-agency organisation (emergency services, N.H.S. and social services) which operates upon the philosophy that trauma prevention is preferable to action following a major incident. It provides education and training in post traumatic stress and post event counselling and support, part of which is served by psychological debriefing.

When exploring research opportunities in the summer of 1992, it became clear that there was a great need to evaluate the efficacy of

psychological debriefing in the prevention of psychological disturbance in emergency personnel following critical incidents. At this time, although having been used globally since its introduction in 1983, not a single evaluative study had been published. Methodologically, research in this field is extremely difficult to perform. Disasters are completely unpredictable and with the establishment of debriefing practices, it is not possible to see how ethically, current non-debriefed samples could be recruited as this would necessitate the withholding of a potentially valuable therapeutic service.

In the present study, in the early design stages, such problems with empirical design turned into tensions between the clinical professional service and the academic requirements of the university. For me this was one of the most disheartening and frustrating experiences of the entire process. The project metamorphosed on numerous occasions and I found it extremely difficult to maintain any sense of ownership. I travelled between Sheffield and Lincoln, desperately trying to negotiate a proposal which would satisfy both parties. On the one hand, my very limited research experience meant that I was guided by the university. My need to work with the N.L.J.E.S.I., on the other hand, demanded that I tailored my work to what they needed and could provide. I found that distancing myself from the practical requirements of the project whilst maintaining interest in the content through discussion with other professionals extremely useful. By this stage, a retrospective study was proposed

to explore the experiences of those emergency workers who participated in psychological debriefing.

Recruitment for the study proved extremely problematic. Because of the confidential nature of debriefing, nobody seemed to have any record of who had undergone debrief. I decided to contact each service representative individually. A meeting was arranged in November 1993 with the police Superintendent involved with debriefing. He agreed to contact potential participants to request their support.

By December, the tensions between clinical and academic interests had reached a climax and it was, therefore, decided to arrange between academic and clinical supervisors, the police representative and myself. This meeting took place just before Christmas and I remember it only as being somewhat tense and awkward after which differences in agenda remained. I decided that in order to preserve my sanity, I would have a complete break over the festive season and try to look afresh in the new year.

In January 1993, I began my initial search of the appropriate literature. It became clear that no research had yet been carried out within this field. My interest and enthusiasm began to return. In February, I sent letters to all national and international/ in the field requesting advice or recommended literature. I was flattered and delighted by the response. I was, however, concerned by the general expert opinion, that such research was extraordinarily challenging.

In April, I attended a meeting of the debriefing group to present my proposal and to ascertain potential numbers of participants. I received a varied response. Some members of the group appeared enthusiastic whilst others were dismissive. On reflection, their lack of interest was as much mine as theirs. The difficulties in designing an acceptable project and balancing it with other clinical and academic demands had left me with little motivation. A discussion with my clinical research supervisor enabled me to see the importance of presenting research with enthusiasm (real or feigned) especially when needing something from the audience.

By June, the provisional questionnaire had been drafted. There now came the stage of the project from which I believe I learned most. I arranged meetings with service managers to discuss the nature of the project, present the questionnaires and ask for their support. I soon realised that the way in which I approached managers and 'sold my wares' needed to be extremely flexible. For example, on two meetings with social service managers the interviews were long and extremely laid back. The first hour or so was filled with conversation about families hobbies and so on. It was not until the last five or ten minutes of the scheduled meeting that the project or in what way I would like support was discussed. This contrasted starkly with, for example, my meetings with police managers. They were brief, formal and straight to the point. Proposals were presented on paper with clear aims and timescales.

It was at this point that my contact within the police retired without my knowledge and the entire process of negotiation had to begin over again. In fact, this proved to be somewhat of a blessing in disguise. The Chief Inspector involved in debrief and research who took over, was extremely enthusiastic about the project and his time and commitment proved to be crucial. He was also very open and greatly experienced, and over the course of our meetings, I gained a great deal of insight into the nature of the job and the profession as a whole. Indeed, one of the most important resources available to me was the support and encouragement of both managers and more junior professionals throughout all services.

By July, the draft questionnaires were complete and piloting began. I received a great deal of support from both colleagues, and other professionals at this stage and their contributions and feedback were invaluable in the process of editing and re-design. The final questionnaires were completed in August.

Support from social services had been agreed and the Part 1 questionnaires were sent out. Once again it was interesting to note the differences between traditional emergency services and social and health services. In the latter, interviews were arranged informally by telephone. With the police, letters from myself and the Chief Inspector involved were sent out with consent slips for return. Respondents were then contacted and *told* when interviews would take place. Often the participants were not available on this initial contact and instructions were simply left for them, to inform them

when and where to attend. For me, this was marvelous. Some twenty interviews were arranged in just five minutes. All I had to do was turn up.

Interviews were carried out from September to December. For health and social service workers these were generally conducted in the day. For police officers I spent a number of evenings out at various stations in the county, sitting in canteens waiting for participants to return from duty. This provided another rare opportunity to meet and chat informally with officers about their experiences. For a profession which is traditionally somewhat closed and mysterious to the public, I was rather surprised how well I was received.

In November, at an extremely valuable meeting with the manager of the Accident and Emergency Department, it emerged that it may be possible to recruit participants to the study who had not undergone debriefing. This option was further explored and it appeared that all services had appropriate participants who were subsequently approached and asked to complete comparison questionnaires. This presented a unique opportunity to compare the experiences and psychological well-being of workers who had undergone debrief with those who had not.

It was clear by January 1994 that ambulance and fire service workers were still unrepresented. Primarily, this was because I had been unable to get any response from either service. Eventually at a further debriefers meeting where I presented an update of the project, I was given further contacts for both services. One senior

debriefed ambulance worker was interviewed but it appeared that he was either alone or that no records of debriefed ambulance workers were available.

With respect to the fire service, negotiation was once again vital. After considerable time on the telephone, a senior manager agreed to meet with me. It soon became apparent why up to this point I had experienced particular difficulty in engaging fire service managers. It was revealed to me that on one level, the fire service is, by definition, a rather closed profession but also, locally they are somewhat reluctant to accept the notion of debriefing. It is considered by some to be unnecessary and by others as a potentially damaging 'fad'. He did, however, agree to lend his support to the project and after this meeting, questionnaires were circulated to both debriefed and non-briefed officers.

The final questionnaires were returned by the end of March. By this time the data and command files had been written for SPSSPC and coding had begun. The data was finally entered and the analysis completed by the beginning of May when write-up was already under way.

Methodological and design issues

There are a number of methodological issues which warrant discussion in order to put the results of this study into perspective. In North Lincolnshire, psychological debriefing is a relatively new venture and routine debriefs have only been in effect since 1991. This meant that

the population from which samples were drawn, was itself small, and all were targeted.

Because the exact numbers of those debriefed were not available because of confidentiality, it is not possible to determine response rate. However, it is known that 2 officers within the police did not wish to be included in the study and that 2 dropped out from the debriefed group and a further 4 from the non-debriefed group. From the initial questionnaires circulated, 5 out of 6 medical staff and 5 out of approximately 20 social workers completed all parts for the debriefed group. For the non-debriefed group, 11 out of 20 questionnaires were returned by fire-fighters and 5 out of 8 by N.H.S. staff. Potentially, therefore, there may have been as many as 32 non-responders, which would equate to a 63% response rate. Although it has been suggested that the return rates in disaster research are considerably lower than in comparable community studies (e.g. Logue *et al.*, 1981), the response to the present study is somewhat lower than that reported in other studies within the field such as the 80% reported by Lundin and Bodegard (1993).

Nothing was known of those who did not wish to participate in the research initially. Of those who dropped out over the course of the study, 5 were interviewed and of these, 3 were extremely distressed by their experiences (but not necessarily as a direct result of the traumatic experience for which they had been debriefed). One of the reasons for carrying out interviews, was to identify those individuals who may benefit from further support. Two people

considered that they may benefit from professional support. It was agreed that they would contact the psychology department and the appropriate member of staff would be given their details. They were both adamant that they were not to be contacted, by telephone or letter, either at work or at home. Neither person made any further contact. This is consistent with previous studies which suggest that despite a high level of distress, those in need are extremely reluctant to make use of available services (e.g. Gersons, 1989).

On the one hand, there may be an argument for more aggressive outreach to those considered at risk of developing a more chronic or severe post traumatic stress reaction. On the other, the assurance of complete confidentiality and the wishes of the individual must be respected. What demands much more attention from psychologists is working *with* the organisation. There is a desperate need to challenge those attitudes which make personnel so frightened of admitting that they need help. One person was convinced that they would lose their job were they to make use of services or support either outside or within their organisation.

In terms of the integrity of the research project, the participants may not be entirely representative of the population. It is possible that the current study underestimates the true level of distress within the emergency services of North Lincolnshire. This assertion would be consistent with bereavement studies which suggest that non-responders are more adversely affected following loss than responders (e.g. Lehman *et al.*, 1987). Indeed, in a study of

employees exposed to industrial disaster, Weisaeth (1989) demonstrated that those people who were most resistant to examination, were those who had experienced the greatest exposure to the incident and also those with the most severe post traumatic stress reactions 7 months post-disaster. They found that resistance was related in particular to psychological defenses such as avoidance and stressed the importance of high response rates in traumatic stress research.

The small sample sizes available meant that sophisticated higher level analyses were not possible due to insufficient cell numbers. Similarly, categorical data needed collapsing which may have lost some of the finer detail in the analysis. In terms of comparing debriefed and non-debriefed groups, it is clear that the latter cannot be considered as a *control* group and, therefore, any inferences drawn, are done so with caution. Participants could not be selected randomly or matched across the two groups such that the groups differed with respect to number, gender and profession.

Conceptual issues

The following section explores a central question within the field of emergency service stress, with which I have been struck. This is, where symptomatology *is* observed in individuals, to what extent is it simply a reflection of emotional distress rather than indicative of psychiatric disorder?

I have found it far more useful to consider post traumatic stress reactions as normal and adaptive responses to a traumatic event (e.g. Eberly *et al.*, 1991). This view is consistent with an information processing model (e.g. Horowitz, 1979), whereby apparent symptoms are considered as a way of assimilating extraordinary experiences. Certainly when examining the traumatic stress research, all measures employed, have been those developed with *clinical* populations. It is already noted that these may be inappropriate for use with non-clinical populations such as emergency workers, but they may also be inappropriate for the discrimination of *distress* from *disorder*.

Sadness and distress, although often reported as the most common responses of disaster workers (e.g. Dyregov and Solomon, 1991), have not achieved much credence as valid concepts within the research field. Despite our best intentions as psychologists, and no matter how much we may dispute it, it is likely that this is an artefact of the medical model. Although such human emotions may not be regarded as "scientific" and measurable units, they are those most frequently reported by those people exposed to traumatic experiences. Trying to fit the response to the scientific label may simply betray the inadequacy of enquiry to date.

"Distress" in the field of trauma response, is here conceptualised as an appropriate response to the immediate impact of a traumatic experience which will enable the assimilation of that event. The response is considered less appropriate as time proceeds after the event whereby reactions may interfere with the individual's capacity

to perform and enjoy life. From the information processing/adaptive models of post-traumatic stress reactions, distress will involve perception and attention, consciousness, ideational processing, affective and somatic experiences and behaviour and action. All of these dimensions, particularly time, are relevant to the assessment and identification of those people who may benefit from further support. Cross-sectional study will fail to account for the process of resolution and will not adequately differentiate those who are developing ongoing difficulties and those who are distressed but in the process of adaptive resolution (McFarlane, 1985).

A further question in emergency service research is where psychological disturbance is observed, to what extent is it also due to the front-line work? In the present study, a number of workers reported severe work-stress, but due to paper work, form-filling, organisational change and bureaucracy. This is consistent with previous findings whereby critical incidents are described as "stressful" in the short term, but on-going stress is caused by intrinsic job stressors such as paperwork and having to work to deadlines (Alexander *et al.*, 1991). Exposure to trauma was not found to be the most significant predictor of job related stress. The major associations with stress were related to issues of job design, human relations and personnel management, the organisation of the work and the structure of the police organisation itself.

Participants in the present study reported that where stress was associated with domestic issues, whether financial or in their relationships, work was often considered as a "release". At work, people felt that they were with others who shared and understood their experiences and who could offer support by simply "being". Obviously, in response to the reported relationship difficulties, the question arises as to whether these problems are separate or related to the job. For example, those relationship problems described by armed response workers stemmed from their partner's fear for their safety and also from the fact that until an incident had occurred, workers' wives were not even aware that their husbands used firearms (Manolias and Hyatt-Williams, 1988). Future research may usefully examine the effects of emergency work on partners and families.

Debriefing issues

The following section explores some of the observations from the present study in relation to the debriefing experience and a conceptualisation for its understanding. Participants highlighted the importance of group processes in debriefing. The group situation provides a means of achieving a shared understanding of the incident whereby experiences can be validated by people who have been "in the same boat" reducing the sense of isolation and uniqueness. These factors parallel those aspects of group therapy for post traumatic stress reactions which are found to be of value (e.g. Scurfield, 1985). In addition to the reduction of isolation and stigma, being with peers aids in the free expression of feelings and experiences allowing the processing of "unfinished business".

Debriefing may be considered to serve as a 'ritual for closure' which aids in the integration of loss for those who survive. Rituals are used by groups to organise experiences by attributing meaning to events (Ursano and Fullerton, 1990). Burials and funerals have been used in this way for centuries as a way of marking a traumatic experience which can then be seen to have ended before the transition to a new life stage. Rituals are of particular importance to emergency services. The initiation and socialisation processes within such organisations often consist of elaborate rituals which have to be "passed" through before one is accepted (Ko and Kao, 1993). There also tends to be an abundance of parades and ceremonies which function to re-enforce group cohesion and the notion of exclusive membership. Similarly the use of group gallows humour in the form of "insider jokes" also serve to establish and maintain boundaries between workers and civilians whilst also increasing closeness and allegiance (Fullerton *et al.*, 1992).

One further point in relation to psychological debriefing, is the concern within some parts of the services, with its potential to be damaging. A number of experienced organisation managers considered that the nature of their workers' training was protective against the emotional aspects of the job. "It's like having a kind of protective bubble or shell around you, you get there and you might feel sorry for the victim but then your training kicks in". He then added that to put workers straight in to a debrief situation which essentially demands that workers confront the emotional impact of the event may, "strip away the shell" leaving them extremely vulnerable.

Service issues

One dimension which demands attention when working with emergency personnel, but appears to have been relatively ignored, is the culture of the organisation. Emergency services tend to be organised in a paramilitary fashion with rules and obedience to the hierarchy. The culture on the one hand fosters great feelings of loyalty, belonging and cohesion, and on the other, promotes the expectation that all members will cope equally well (Alexander and Wells, 1991).

There is an attitude within the services of "if you can't stand the heat...". This in itself has always been likely to result in considerable resistance in designing programmes to support those who may be suffering distress (e.g. Dunning and Silva, 1980) as well as making those who may need them reluctant to take them up. The emergency service culture indicates that workers do not generally complain about psychological problems or discuss emotional reactions with each other, let alone outsiders. Their work often demands the suppression of feelings. Humour allows release and if stress increases, alcohol is frequently employed (Gersons, 1989).

The suggestion has been made that the the nature of paramilitary organisations such as the police and fire service may be deleterious to the psychological well-being of individual workers, with particular reference to the acceptance of job related distress (e.g. Ko and Kao, 1993). It is however, this military type of rigidity with the importance of rituals, socialisation and adherence to the hierarchy which promotes the intense group cohesion and shared ethos

essential to the job. This is of particular importance in the fire service which demands that individuals work as a well co-ordinated unit. It is the case that each member within the group puts his or her life in the hands of their colleagues. Emergency personnel differ from civilians in the nature of their training which promotes a level of operational preparedness for traumatic and critical incidents. It has also been suggested that those who self-select to work in the services are particularly emotionally hardy (Everly, 1988). To a psychologist, the "hard-man" attitude seems callous and difficult to appreciate. However, as one senior officer at interview reflected, "we are not hard.... just extremely well-trained". In fact, the level of care and after-care offered by particularly, the fire-service is, to a health 'care' professional, nothing short of humbling. Both workers and families of current and ex-service workers are provided with a great deal of practical, financial and personal support.

It is, therefore questionable to what extent psychologists are qualified to work within, and comment upon the experiences and reactions of emergency workers. It is the clinical conceptualisation of post traumatic reactions that they are *normal responses to abnormal experiences*. For the emergency services this may not be the case. Cultural influences and also research which indicates that the majority of workers do not experience on-going distress, illustrates an alternative model for psychological responses to trauma. Within the organisation, disaster work and critical incidents may not be extraordinary experiences, particularly for long serving members of

specialist teams such as police armed response or traffic units. In this case psychological disturbance could be considered as *abnormal responses to normal experiences*.

The point of this is, that it is possible that too much attention has been paid to trauma work within the emergency services and possibly the resistance and reluctance of such organisations to accept the psychological push has been justified. Without a full understanding of organisational culture and a recognition of the very different belief systems which may operate within the emergency services, psychologists are likely to lose credibility and possibly alienate the people they are trying to serve. This was in part, illustrated repeatedly at interview. A number of participants appeared somewhat confused by the concern from 'outsiders' into their welfare. As already noted, most reported no impact of their work beyond distress, "sometimes you get naturally distressed.....natural sadness....but the job doesn't really bother me, I don't know why". However, many of those workers were equally confused as to how any person could work as a psychologist, as one worker commented "now your job...I couldn't do that...no way!".

Personal issues

The above gives an account of some of the more general aspects of the present project. Overall, despite being fraught with design and organisational difficulties, I believe the study represents a reasonable attempt at evaluating psychological debriefing in the context of emergency service stress. The process has been exhausting

and at times, somewhat punishing. However, the privileged insight that I have gained into the emergency services has provided me with a much greater understanding of the extraordinary challenges of this type of work. The experience has highlighted the difficulties of performing research in parallel with other commitments and the great need for detailed planning and discipline. I have thoroughly enjoyed working with both individuals and within organisations, which has enabled me to develop skills both in designing and carrying out applied research but also in the communication and promotion of psychological skills and knowledge.

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APPENDICES

Appendix A.

The following section gives details of the measures, and a copy of the questionnaire used in the current study.

The Revised Impact of Events Scale (IES) (Horrowitz, Wilner and Alvarez, 1979)

The IES is a self-report instrument derived from statements most frequently used to describe episodes of distress by persons who had experienced recent life changes (Horrowitz, 1973; 1974). The qualities of experience are anchored to a specific life event which then serves as a referent for each of the 15 statements on the list. Respondents are required to endorse the frequency of each experience under 4 categories from "not at all" to "often". The scale produces a total subjective stress score and also separate scores for avoidance and intrusion. The scale was standardised on a sample of 66 adults described as having "stress response syndromes" who sought psychotherapy as a result of reactions to a serious life event. The members of the patient sample were compared with a group of medical students following exposure to their first cadaver. Significant differences were found between both group and gender. The mean scores of both samples were as follows:

<i>Patient sample</i>	<i>Males</i>	<i>Females</i>
Total IES	: Mean = 35.3 (s.d. 22.6);	Mean = 42.1 (s.d. 16.7)
IES Intrusion:	Mean = 21.2 (s.d. 12.5);	Mean = 21.4 (s.d. 8.6)
IES Avoidance:	Mean = 14.1 (s.d. 12.0);	Mean = 20.6 (s.d. 11.3)

Student sample

Total IES : Mean = 6.9 (s.d. 6.8); Mean = 12.7 (s.d. 10.8)
IES Intrusion: Mean = 2.5 (s.d. 3.0); Mean = 6.1 (s.d. 5.3)
IES Avoidance: Mean = 4.4 (s.d. 5.3); Mean = 6.6 (s.d. 7.0)

Reliability of the IES

The split half reliability of the total scale is high ($r = 0.86$). Internal consistency of the sub-scales, calculated using Cronbach's Alpha, is also high (intrusion = 0.78; avoidance = 0.82). A correlation of 0.42 ($p = 0.0002$) indicates that the two sub-scales are associated, but do not measure identical dimensions.

Test-Retest Reliability

The 15 item scale was given to a beginning class of 25 physical therapy students. They completed the scale twice with an interval of a week between each rating. They had seen and dissected a cadaver for the first time four weeks before the initial IES administration. Results indicated a test-retest reliability of 0.87 for the total stress score, 0.89 for the intrusion sub-scale and 0.79 for the avoidance sub-scale (Horowitz *et al.*, 1979).

The Symptom Checklist-90-Revised (SCL-90-R) (Derogatis, 1983)

The SCL-90-R is a 90 item self-report symptom inventory designed to reflect the psychological symptom status of "normals", psychiatric and medical patients. Each item is rated on a 5-point scale of distress, ranging from 0, "not at all" to 4, "extremely". It is scored and interpreted in terms of 9 primary symptom dimensions and 3 global indices of distress. The primary symptom dimensions are:

somatisation; obsessive-compulsive; interpersonal sensitivity; depression; anxiety; hostility; phobic anxiety; paranoid ideation and psychoticism. The 3 global indices of distress are: the Global Severity Index (GSI), which indicates the current level or depth of distress; the Positive Symptom Distress Index (PSDI) which is a measure of intensity and the Positive Symptom Total (PST) which is a count of the number of symptoms the respondent endorses.

Reliability of the SCL-90-R Symptom Dimensions

Symptom Dimension	Internal Consistency (Coefficient alpha) ^a	Test-retest (<i>r</i> _{tt}) ^b
Somatisation	0.86	0.86
Obsessive-compulsive	0.86	0.85
Interpersonal sensitivity	0.86	0.83
Depression	0.90	0.82
Anxiety	0.85	0.80
Hostility	0.84	0.78
Phobic Anxiety	0.82	0.90
Paranoid Ideation	0.80	0.86
Psychoticism	0.77	0.84

^a "symptomatic volunteers" (n = 219)

^b heterogeneous psychiatric outpatients with one week lapse (n = 94).

The SCL-90-R has been used in a number of studies examining reactions to disaster. For example, Baum *et al.* (1983) found that those individuals exposed to the nuclear power accident at Three Mile Island scored higher on GSI, somatisation, anxiety and paranoia than

controls. Similar results were shown by Green *et al.* (1983) whereby victims of the Beverley Hills Supper Club fire demonstrated elevated GSI and hostility scores.

The Coping Responses Questionnaire (CRQ) (Billings and Moos, 1981)

This questionnaire was devised following a study to assess the nature of the coping process among adult community members from an analysis of their reports of coping responses following a recent stressful life event. Items were selected from a previous inventory (Sidle *et al.*, 1969) and a review of the literature of coping responses in a variety of situations. Items were grouped into 3 methods of coping categories: active cognitive, active behavioural and avoidance, and also into focus of coping categories: problem focussed and emotion focussed.

Internal Consistency

A number of coping strategy were grouped within each category. It was suggested that an upper limit could be placed on internal consistency coefficients by the fact that the use of one coping response may reduce stress and therefore lessen the need to use other responses from the same or other categories of coping. Bearing in mind these considerations, the internal consistencies (Cronbach's Alpha) for method of coping is 0.72 for active-coping; 0.80 for active-behavioural coping and 0.44 for avoidance coping. These coefficients indicate that the sub-categories of coping responses, as well as the entire set of items ($\alpha = 0.62$), exhibit moderate internal homogeneity. The inter-correlations among the 3 methods of

coping categories are relatively low ($\bar{X} = 0.21$) indicating that the categories are relatively independent.

The Interpersonal Support Evaluation List (ISEL) (Cohen et al., 1985)

The ISEL comprises a list of 40 statements concerning the perceived availability of potential social resources. The items are counter-balanced for social desirability: half the items being positive statements about social relationships, and half being negative. Respondents are requested to indicate whether each statement is "probably true" or "probably false" about themselves.

The ISEL is designed to assess the perceived availability of 4 separate functions of social support. "Appraisal" refers to having somebody to talk about one's problems; "tangible" support indicates the availability of material aid; "belonging" is concerned with having people with whom to do things and "self-esteem" refers to having a positive comparison when comparing one's self to others.

Validity of the ISEL Scales

The general population scale of the ISEL correlated with the "Partner Adjustment Scale" (Mermelstein et al., 1983), a measure of the quality of marital or living partner relationships and with the "Family Environment Scale" (Moos and Moos, 1981; Correlation coefficients 0.31 and 0.30 respectively). The student scale was found to correlate (correlation co-efficient = 0.46) with the "Inventory of Socially Supportive Behaviours" (Barrera et al., 1981), a measure of recent perceived social support.

Test-retest and Internal Reliability of the ISEL Scales

2-day test-retest correlations are as follows for the general population ISEL: 0.87 for Total ISEL, 0.84 for appraisal support, 0.67 for belonging, 0.78 for tangible support and 0.74 for self-esteem support. For the 6 month test-retest conditions, the correlation for total ISEL was 0.74, 0.60 for appraisal support, 0.68 for belonging, 0.49 for tangible support and 0.54 for self-esteem support.

Internal reliability (Alpha Coefficient), of the total general population ISEL was found to be 0.90 in the Mermelstein *et al.* (1983) study. Ranges for general population IESL sub-scales were 0.70-0.82 for appraisal, 0.73-0.78 for belonging, 0.62-73 for self-esteem and 0.73-0.81 for tangible support.

The ISEL has been utilised by a number of researchers in the field of trauma psychology. For example, Cook and Bickman (1990) found that ISEL scores were related to psychological symptomology in victims of a major flood in Virginia.

" Questionnaire package"

Thank you for agreeing to help with this research project. As you may know, The Lincolnshire Joint Emergency Service Initiative is a relatively new venture which seeks to provide after-care, including de-briefing sessions, for personnel following a critical incident.

This research project is designed to evaluate the de-briefing sessions and to see whether there are any aspects of the process which you felt were particularly helpful for you as well as those which you may have felt were not so helpful.

You will be asked to provide information regarding the type of incident for which you were de-briefed, your experience of de-brief and how things have been for you since. All the information which you give us will be treated in the strictest confidence and following data collection all questionnaires will either be returned or destroyed.

A study of this type is essential to be able to develop and if necessary, re-structure future de-briefs for yourselves and for your colleagues. Your help with this piece of work may help us to further support the most important resource which the Emergency Services, Social Services and the Health Service has...yourselves.

Thankyou.

Introduction

The project is split into 3 parts:-

Firstly, you will also be asked for some basic factual information about yourself and the nature of the incident for which you were de-briefed. You will then be asked to fill in 2 brief questionnaires which simply look at how things were for you following the critical incident before the de-briefing. These focus on whether you noticed any difficulties with, for example sleeping or concentration. The incident may have taken place some time ago and it may be difficult for you to remember exactly how you felt at the time. If you are unsure about any items please try to make an "educated guess" as best you can. This first part hopefully will only take about 10-15 minutes to complete.

Secondly, during a brief interview you will be asked to complete the above 2 questionnaires relating to a time about 2 weeks after the de-briefing. Once again try to remember as best you can. There will then be a questionnaire which examines your experience of de-brief and asks what aspects you found most helpful. This informal meeting is to give you the opportunity to ask any questions or give any further information which you may feel will be useful. This stage should take about an hour.

Finally, you will be sent the first questionnaires again to complete, relating to how things are for you at present. You will also be asked to describe how you cope with stress in your life and where you may find support.

I appreciate fully the time commitments you will have, both professionally and personally and although this may sound like a lot, I hope that the whole process should only take 90 minutes or so of your time. I also hope that you will find the experience useful and perhaps even enjoyable (!) and that you will be given a little time just for yourself to share your experiences.

Please note that although you are asked for your name, all information is completely confidential and this simply ensures that I can keep all of your questionnaires together. When you have completed these first questionnaires, seal them in the envelopes provided and I will arrange to collect them.

Your help with this work is invaluable and greatly appreciated.

Thank you again.

Matt Hutt

Psychologist

"PART 1"

1.

Basic factual information

1. What is your profession?

2. How long have you worked within the profession?

3. What is your age?

4. Are you ☐ male

☐ female?

5. What is the title of your post?

6. Prior to the incident, had you received any formal training in:-

a). recognition of stress? (*YES / NO)

b). stress reduction techniques? (*YES / NO)

7. How many Psychological de-briefs had you previously attended?

8. How long after the event did the de-brief take place?

(* please circle your answer)

2.

The critical incident

This section focuses in a general way on details of the incident. Please tick which of the following apply (you may tick more than one) and give any additional details which you feel may be important.

1. The incident took place in () daylight?

() night?

() both?

2. The incident was:-

() a motor vehicle accident

() a train crash

() an aeroplane crash

() an explosion

() a fire

() a domestic incident

() a firearms incident

() an assault

other (please specify)

3. The incident involved:-

() destruction of property

() *death/injury of a colleague

() *death/injury of an adult

() *death/injury of a child

() rescue

() hostage taking

() missing persons

() other (please specify)

(*delete as appropriate)

The Critical Incident (continued)

3.

For each of the following questions, please circle your answer.

4. Did you know any of the victims?

Not at all 1. 2. 3. 4. 5. Very well

5. Could you carry out your emergency response as you wanted to?

Not at all 1. 2. 3. 4. 5. Completely

6. Was any time spent "hanging around or "not being able to get on with it"?

None at all 1. 2. 3. 4. 5. -- Alot

7. Did you feel adequately prepared or trained?

Not at all 1. 2. 3. 4. 5. Completely

8. Was the incident predictable?

Not at all 1. 2. 3. 4. 5. Completely

9. Was the incident "fairly routine" for you?

Not at all 1. 2. 3. 4. 5. Completely

10. Were you prepared for what to expect at the scene?

Not at all 1. 2. 3. 4. 5. Completely

11. Had you ever experienced anything similar before?*

Never 1. 2. 3. 4. 5. Many times

12. Have you experienced anything similar since?*

Never 1. 2. 3. 4. 5. Many times

(*if so, please give details)

4.

Below is list of comments made by people after critical incidents or disasters. Please read each item and indicate how frequently the comments were true for you following the incident but prior to the de-briefing (this may be difficult if the de-brief was some time ago, but please try to remember as best you can!) by ticking the right column. Please answer all questions.

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF				
	Not at all	Rarely	Sometimes	Often
1.I thought about it when I didn't mean to				
2.I avoided letting myself get upset when I thought about it or was reminded of it				
3.I tried to remove it from my memory				
4.I had trouble falling asleep or staying asleep because of the pictures and/or thoughts about it that came into my mind				
5.I had strong waves of feelings about it				
6.I had dreams about it				
7.I stayed away from reminders of it				
8.I felt as if it hadn't happened or it wasn't real				
9.I tried not to talk about it				

(continued)

5.

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF				
	Not at all	Rarely	Sometimes	Often
10. Pictures about it popped into my head				
11. Other things kept making me think about it				
12. I was aware that I still had a lot of feelings about it but I didn't deal with them				
13. I tried not to think about it				
14. Any reminder brought back feelings about it				
15. My feelings about it were sort of numb				

6.

Below are 12 statements which describe common reactions among people who have been involved in a critical incident or disaster. Please indicate whether you experienced any of these following the incident but prior to the de-briefing (this may be difficult if the de-brief was some time ago, but please try to remember as best you can!) by circling your answer. If in doubt, take the alternative which is closest to what you think you experienced.

- | | |
|---|------------|
| 1. Difficulty with sleep | (YES / NO) |
| 2. Nightmares about the incident | (YES / NO) |
| 3. Depressed feelings | (YES / NO) |
| 4. Tendencies to jump or startle at sudden noises
or unexpected movements | (YES / NO) |
| 5. Tendencies to withdraw myself from others | (YES / NO) |
| 6. Irritable feelings (easily irritable
or infuriated) | (YES / NO) |
| 7. Frequent swings in mood | (YES / NO) |
| 8. Bad conscience, self accusations or guilt | (YES / NO) |
| 9. Fears when approaching the place of the incident
or situations that reminded me of it | (YES / NO) |
| 10. Tensions in my body | (YES / NO) |
| 11. Impaired memory | (YES / NO) |
| 12. Difficulty in concentrating | (YES / NO) |

"PART 2"

1.

The De-briefing

This section concerns your experience of the de-briefing and which parts you found of most benefit. You are asked to comment firstly on the de-brief in general and then on each of the following phases separately:- the introductory phase, the fact and thought phase, the feeling phase, the symptom phase, the teaching phase and the re-entry phase. Please include any extra information which you feel is important.

For all of the following sections, please indicate your answers by circling the number which best describes how you feel about each statement.

A). General

1. The "atmosphere" of the de-brief felt positive, supporting and understanding.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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2. Everybody had a chance to express themselves.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

3. Everybody's feelings were shared and accepted.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

4. I did not feel criticised.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

5. I felt that I was listened to.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

2.

6. Overall, did you find the de-brief:-

unhelpful	1.	2.	3.	4.	5.	helpful?
distressing	1.	2.	3.	4.	5.	comforting
not relevant	1.	2.	3.	4.	5.	relevant

7. How many group members were there, excluding the facilitators?

.....

B).Introductory phase (introductions and explanations).

1. I was given a clear description of what would happen during the de-briefing process.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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2. I clearly understood the rules of the de-briefing process and the need for absolute confidentiality.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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3. I felt re-assured that the open discussion of my feelings would not be used against me under any circumstances.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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4. I felt that this stage helped to reduce tensions within the group.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

5. I found the introductory phase of the de-briefing to be:-

unhelpful	1.	2.	3.	4.	5. helpful?
distressing	1.	2.	3.	4.	5. comforting
not relevant	1.	2.	3.	4.	5. relevant

It made me feel:-

confused	1.	2.	3.	4.	5. clear
tense	1.	2.	3.	4.	5. relaxed
isolated	1.	2.	3.	4.	5. supported

C).The fact and thought phase (discussion of details of the event).

1. All group members were given an opportunity to recount their experiences of the incident.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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2. I was able to focus my mind on the incident being discussed.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

3. I was able to recall my part in the incident with ease.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

4. I found the discussion about the facts of the incident to be:-

unhelpful	1.	2.	3.	4.	5. helpful?
distressing	1.	2.	3.	4.	5. comforting
not relevant	1.	2.	3.	4.	5. relevant

4.

It made me feel:-

<i>confused</i>	1.	2.	3.	4.	5.	<i>clear</i>
<i>tense</i>	1.	2.	3.	4.	5.	<i>relaxed</i>
<i>isolated</i>	1.	2.	3.	4.	5.	<i>supported</i>

5. The discussion of the facts of the incident enabled me to gain a clearer and more complete picture of the incident.

1. <i>Strongly agree</i>	2. <i>Slightly agree</i>	3. <i>Neither agree or disagree</i>	4. <i>Slightly disagree</i>	5. <i>Strongly disagree</i>
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6. I could recall my thoughts about the incident with ease.

1. <i>Strongly agree</i>	2. <i>Slightly agree</i>	3. <i>Neither agree or disagree</i>	4. <i>Slightly disagree</i>	5. <i>Strongly disagree</i>
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7. Other people in the group had similar thoughts to me about the incident.

1. <i>Strongly agree</i>	2. <i>Slightly agree</i>	3. <i>Neither agree or disagree</i>	4. <i>Slightly disagree</i>	5. <i>Strongly disagree</i>
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8. I became confused when I tried to remember what I was thinking during the incident.

1. <i>Strongly agree</i>	2. <i>Slightly agree</i>	3. <i>Neither agree or disagree</i>	4. <i>Slightly disagree</i>	5. <i>Strongly disagree</i>
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9. I found the discussion about what everyone was thinking during the incident to be:-

<i>unhelpful</i>	1.	2.	3.	4.	5.	<i>helpful?</i>
<i>distressing</i>	1.	2.	3.	4.	5.	<i>comforting</i>
<i>not relevant</i>	1.	2.	3.	4.	5.	<i>relevant</i>

It made me feel:-

confused	1.	2.	3.	4.	5.	clear
tense	1.	2.	3.	4.	5.	relaxed
isolated	1.	2.	3.	4.	5.	supported

D).The feeling phase (discussion of feelings about the incident).

1. I was easily able to talk about how I felt during the incident.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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2. Everyone was given the opportunity to talk about their own reactions.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

3. I was able to tell everyone what, for me was the worst thing about the incident.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

5. I found the sharing of feelings about the incident to be:-

unhelpful	1.	2.	3.	4.	5.	helpful?
distressing	1.	2.	3.	4.	5.	comforting
not relevant	1.	2.	3.	4.	5.	relevant

It made me feel:-

confused	1.	2.	3.	4.	5.	clear
tense	1.	2.	3.	4.	5.	relaxed
isolated	1.	2.	3.	4.	5.	supported

6.

E).The symptom phase (discussion of reactions to the incident).

1. I was able to talk about my physical reactions both at the time of the incident and later on.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

2. I had the opportunity to listen to other group members talking about their reactions both at the time of the incident and later on.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

3. I began to feel that my reactions were similar to other people's.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

4. I found talking about the different ways people respond to stressful incidents to be:-

	1.	2.	3.	4.	5.
unhelpful					helpful?
distressing					comforting
not relevant					relevant

It made me feel:-

	1.	2.	3.	4.	5.
confused					clear
tense					relaxed
isolated					supported

F).The teaching phase (information on stress management).

1. I was given information regarding typical stress reactions and what I may experience in the future.

1.	2.	3.	4.	5.
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	or disagree	disagree	disagree

2. I was able to learn stress management techniques from the de-briefing team.

1.	2.	3.	4.	5.
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	or disagree	disagree	disagree

3. I was able to pick up techniques to manage my stress from other members of the group.

1.	2.	3.	4.	5.
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	or disagree	disagree	disagree

4. I came to realise that I was having a "normal reaction to an abnormal situation".

1.	2.	3.	4.	5.
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	or disagree	disagree	disagree

5. The instruction in stress management techniques helped my own reactions to be:-

weakened	1.	2.	3.	4.	5.	strengthened
noticed	1.	2.	3.	4.	5.	ignored
confused	1.	2.	3.	4.	5.	understood
expressed	1.	2.	3.	4.	5.	denied

8.

5. I found the symptom phase of the de-briefing to be:-

unhelpful	1.	2.	3.	4.	5.	helpful?
distressing	1.	2.	3.	4.	5.	comforting
not relevant	1.	2.	3.	4.	5.	relevant

It made me feel:-

confused	1.	2.	3.	4.	5.	clear
tense	1.	2.	3.	4.	5.	relaxed
isolated	1.	2.	3.	4.	5.	supported

G).The re-entry phase (closure).

1. The group was given the opportunity to ask additional questions.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

2. The group were encouraged to make any comments they wished to.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

3. The group were encouraged to make further contact with the de-briefing team if they so wished.

1.	2.	3.	4.	5.
Strongly agree	Slightly agree	Neither agree or disagree	Slightly disagree	Strongly disagree

4. I found this section of de-briefing to be:-

unhelpful	1.	2.	3.	4.	5.	helpful?
distressing	1.	2.	3.	4.	5.	comforting
not relevant	1.	2.	3.	4.	5.	relevant

9.

It made me feel:-

confused	1.	2.	3.	4.	5.	clear
tense	1.	2.	3.	4.	5.	relaxed
isolated	1.	2.	3.	4.	5.	supported

6. On the whole, I found that the process of de-briefing helped me to deal with my reactions to the incident.

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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7. In the week following the de-brief, I felt that I coped well (if not please give details at the end).

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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8. Since the de-briefing I have found that there are still some feelings which I am not dealing with well (if so please give details at the end).

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
-------------------------	-------------------------	------------------------------------	----------------------------	----------------------------

9. Since the de-briefing I have found that my problems have got worse (if so please give details at the end).

1. Strongly agree	2. Slightly agree	3. Neither agree or disagree	4. Slightly disagree	5. Strongly disagree
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10.

10. Please rate, the following aspects of the de-briefing in order of usefulness for you (give the most useful a 10. the least a 1).

Aspect	Rating
sharing experiences,	()
being listened to,	()
learning stress management,	()
sharing feelings,	()
learning my reactions were normal,	()
sharing thoughts,	()
knowing how to get further help,	()
getting a clearer picture of the incident,	()
sharing reactions to the incident,	()
being with people who understood.	()

11. Do you have any further comments on the de-brief process? (if yes please give details) (YES / NO)

Additional details

7). problems coping after de-briefing.

8). unresolved issues.

9'. problems getting worse.

ii). comments on de-briefing.

12.

Below is list of comments made by people after critical incidents or disasters. Please read each item and indicate how frequently the comments were true for you for the 2 weeks following the de-brief (this may be difficult if the de-brief was some time ago but please try to remember as best you can!) by ticking the right column. Please answer all questions.

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF

	Not at all	Rarely	Sometimes	Often
1.I thought about it when I didn't mean to				
2.I avoided letting myself get upset when I thought about it or was reminded of it				
3.I tried to remove it from my memory				
4.I had trouble falling asleep or staying asleep because of the pictures and/or thoughts about it that came into my mind				
5.I had strong waves of feelings about it				
6.I had dreams about it				
7.I stayed away from reminders of it				
8.I felt as if it hadn't happened or it wasn't real				
9.I have tried not to talk about it				

(continued)

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF			
	Not at all	Rarely	Sometimes Often
10. Pictures about it popped into my head			
11. Other things kept making me think about it			
12. I was aware that I still had a lot of feelings about it but I didn't deal with them			
13. I tried not to think about it			
14. Any reminder brought back feelings about it			
15. My feelings about it were sort of numb			

14.

Below are 12 statements which describe common reactions among people who have been involved in a critical incident or disaster. Please indicate whether you experienced any of these in the 2 weeks following de-briefing (this may be difficult if the de-brief was some time ago but please try to remember as best you can!) by circling your answer. If in doubt, take the alternative which is closest to what you think you experienced.

- | | |
|---|------------|
| 1. Difficulty with sleep | (YES / NO) |
| 2. Nightmares about the incident | (YES / NO) |
| 3. Depressed feelings | (YES / NO) |
| 4. Tendencies to jump or startle at sudden noises
or unexpected movements | (YES / NO) |
| 5. Tendencies to withdraw myself from others | (YES / NO) |
| 6. Irritable feelings (I easily became irritable
or infuriated) | (YES / NO) |
| 7. Frequent swings in mood | (YES / NO) |
| 8. Bad conscience, self accusations or guilt | (YES / NO) |
| 9. Fears when approaching the place of the incident
or situations that remind me of it | (YES / NO) |
| 10. Tensions in my body | (YES / NO) |
| 11. Impaired memory | (YES / NO) |
| 12. Difficulty in concentrating | (YES / NO) |

"PART 3"

1.

Below is list of comments made by people after critical incidents or disasters. Please read each item and indicate how frequently the comments were true for you for the last 2 weeks by ticking the right column.

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF				
	Not at all	Rarely	Sometimes	Often
1.I have thought about it when I haven't meant to				
2.I have avoided letting my-self get upset when I have thought about it or been reminded of it				
3.I have tried to remove it from my memory				
4.I have had trouble falling asleep or staying asleep because of the pictures and/or thoughts about it that came into my mind				
5.I have had strong waves of feelings about it				
6.I have had dreams about it				
7.I have stayed away from reminders of it				
8.I have felt as if it didn't happen or it wasn't real				
9.I have tried not to talk about it				

2. (continued)

FREQUENCY OF EXPERIENCE SINCE DE-BRIEF

Not at all Rarely Sometimes Often

10. Pictures about have
popped into my head

11. Other things have
kept making me think
about it

12. I have been aware that
I still have a lot of
feelings about it but
I haven't dealt with
them

13. I have tried not to
think about it

14. Any reminder has
brought back feelings
about it

15. My feelings about it
have been sort of numb

Below are 12 statements which describe common reactions among people who have been involved in a critical incident or disaster. Please indicate whether you have experienced any of these in the last 2 weeks by circling your answer. If in doubt, take the alternative which is closest to what you think you experienced.

1. Difficulty with sleep (YES / NO)
2. Nightmares about the incident (YES / NO)
3. Depressed feelings (YES / NO)
4. Tendencies to jump or startle at sudden noises
or unexpected movements (YES / NO)
5. Tendencies to withdraw myself from others (YES / NO)
6. Irritable feelings (I am easily getting irritable
or infuriated) (YES / NO)
7. Frequent swings in mood (YES / NO)
8. Bad conscience, self accusations or guilt (YES / NO)
9. Fears when approaching the place of the incident
or situations that remind me of it (YES / NO)
10. Tensions in my body (YES / NO)
11. Impaired memory (YES / NO)
12. Difficulty in concentrating (YES / NO)

* * * Thankyou so much for your patience and co-operation * * *

CRO

NAME: DATE:

INSTRUCTIONS: Below is a list of ways in which people cope with a wide variety of stressful events. Please indicate how often you make use of each way in terms of coping with stress. Circle the number that best indicates how often you typically use each way of coping.

- 0 = Almost never cope in this way
 1 = Sometimes cope in this way
 2 = In between or unsure
 3 = Often cope in this way
 4 = Almost always cope in this way

CIRCLE ONE NUMBER

	Almost Never	Some- times	In Between	Often	Almost Always
1. Try to see the positive side of the situation	0	1	2	3	4
2. Try to step back from the situation and be more objective	0	1	2	3	4
3. Pray for guidance or strength	0	1	2	3	4
4. Take things one step at a time	0	1	2	3	4
5. Consider several alternatives for handling the problem	0	1	2	3	4
6. Remember that I was in a similar situation before, and draw on my past experience	0	1	2	3	4
7. Try to find out more about the situation	0	1	2	3	4
8. Talk with a professional person (e.g. doctor, lawyer, clergy) about the situation	0	1	2	3	4
9. Take some positive action	0	1	2	3	4
10. Talk with spouse or other relative about the problem	0	1	2	3	4
11. Talk with friend about the situation	0	1	2	3	4
12. Exercise more	0	1	2	3	4
13. Prepare myself for the worst	0	1	2	3	4
14. Take it out on other people when I feel angry or depressed	0	1	2	3	4
15. Try to reduce the tension by eating more	0	1	2	3	4
16. Try to reduce the tension by smoking more	0	1	2	3	4
17. Keep my feelings to myself	0	1	2	3	4
18. Get busy with other things in order to keep my mind off the problem	0	1	2	3	4
19. Think that everything will probably work out O.K. and not worry about it	0	1	2	3	4

1331

This scale is made up of a list of statements each of which may or may not be true about you. For each statement we would like you to circle the probably TRUE (T) if the statement is true about you or probably FALSE if the statement is not true about you.

You may find that many of the statements are neither clearly true nor clearly false. In these cases, try to decide quickly whether probably TRUE (T) or probably FALSE (F) is most descriptive of you. Although some questions will be difficult to answer, it is important that you pick one alternative or the other. Remember to circle only one of the alternatives for each statement.

Please read each item quickly but carefully before responding. Remember that this is not a test and there are no right or wrong answers.

1. There is really no one who can give me objective feedback about how I'm handling my problems. T/F
2. If I decide on a Friday afternoon that I would like to go to a movie that evening, I could find someone to go with me. T/F
3. I feel that I'm on the fringe in my circle of friends. T/F
4. If I were sick, there would be almost no one I could find to help me with my daily chores. T/F
5. I am able to do things as well as most other people. T/F
6. I have someone who takes pride in my accomplishments. T/F
7. Most people I know don't enjoy the same things that I do. T/F
8. No one I know would throw a birthday party for me. T/F
9. There is someone I could turn to for advice about changing my job of finding a new one. T/F
10. There is someone who I feel comfortable going to for advice about sexual problems. T/F
11. If I needed a quick emergency loan for £100, there is someone I could get it from. T/F
12. If for some reason I were put in jail, there is someone I could call who would bail me out. T/F
13. There is at least one person I know whose advice I really trust. T/F

14. In general, people don't have much confidence in me. T/F
15. I regularly meet or talk with members of my family or friends. T/F
16. If I wanted to go out of town (e.g., to the coast) for the day I would have a hard time finding someone to go with me. T/F
17. If a family crisis arose few of my friends would be able to give me good advice about handling it. T/F
18. There is really no one I can trust to give me good financial advice. T/F
19. If I had to go out of town for a few weeks, someone I know would look after my home (the plants, pets, garden, etc.) T/F
20. I don't often get invited to do things with others. T/F
21. I am closer to my friends than most other people. T/F
22. Most people I know think highly of me. T/F
23. If I had to mail an important letter at the post office by 5:00 and couldn't make it, there is someone who could do it for me. T/F
24. If I needed a ride to the airport very early in the morning, I would have a hard time finding anyone to take me. T/F
25. There are several different people with whom I enjoy spending time. T/F
26. If I were sick and needed someone to drive me to the doctor, I would have trouble finding someone. T/F
27. Most of my friends are more interested than I am. T/F
28. If I needed some help in moving to a new home, I would have a hard time finding someone to help me. T/F
29. I feel that there is no one with whom I can share my most private worries and fears. T/F
30. Most of my friends are more successful at making changes in their lives than I am. T/F
31. There is someone I can turn to for advice about handling hassles over household responsibilities. T/F
32. If I got stranded 10 miles out of town, there is someone I could call to come get me. T/F
33. There is no one I could call on if I needed to borrow a car for a few hours. T/F

34. When I need suggestions for how to deal with a personal problem I know there is someone I can turn to. T/F
35. When I feel lonely, there are several people I could call and talk to. T/F
36. I have a hard time keeping pace with my friends. T/F
37. I am more satisfied with my life than most people with theirs. T/F
38. If I wanted to have lunch with someone, I could easily find someone to join me. T/F
39. I think that my friends feel that I'm not very good at helping them solve problems. T/F
40. There are very few people I could trust to help me solve my problems. T/F

Appendix B.

The following section shows the mean initial Impact of Events Scale scores and SCL-90-R T scores for both the debriefed and non-debriefed groups.

Debriefed Group

IES score (n=30)

Total IES : Mean = 18.00 (s.d. 14.904); range 0 - 61

IES Intrusion: Mean = 11.35 (s.d. 8.435); range 0 - 33

IES Avoidance: Mean = 6.65 (s.d. 7.738); range 0 - 28.

SCL-90-R (n=26)

	<i>mean T</i>	<i>S.D.</i>	<i>range</i>
<i>Somatization</i>	42.692	11.249	30 - 63
<i>Obsessive-compulsive</i>	46.654	13.573	30 - 69
<i>Inter-sensitivity</i>	48.038	12.654	35 - 71
<i>Depression</i>	47.154	14.186	30 - 81
<i>Anxiety</i>	45.115	13.095	30 - 71
<i>Hostility</i>	46.577	10.320	35 - 68
<i>Phobia</i>	42.462	6.976	40 - 63
<i>Paranoia</i>	42.192	11.020	35 - 69
<i>Psychoticism</i>	46.769	10.041	40 - 71
<i>Global Severity Index</i>	46.539	12.307	30 - 81
<i>Positive Symptom Distress Index</i>	49.280	10.390	30 - 66
<i>Positive Symptom Total</i>	44.923	13.446	22 - 69

Non-debriefed Group

IES score (n=19)

Total IES : Mean = 13.90 (s.d. 15.874); range 0 - 51

IES Intrusion: Mean = 8.53 (s.d. 0.094); range 0 - 27

IES Avoidance: Mean = 5.37 (s.d. 7.463); range 0 - 24.

SCL-90-R (n=16)

	<i>mean T</i>	<i>S.D.</i>	<i>range</i>
<i>Somatization</i>	43.063	13.518	30 - 68
<i>Obsessive-compulsive</i>	45.188	15.450	30 - 81
<i>Inter-sensitivity</i>	45.00	13.847	35 - 81
<i>Depression</i>	39.50	14.315	30 - 71
<i>Anxiety</i>	41.125	12.899	30 - 68
<i>Hostility</i>	42.50	12.458	35 - 72
<i>Phobia</i>	40.00	0.00	40 - 40
<i>Paranoia</i>	42.063	13.309	35 - 74
<i>Psychoticism</i>	44.813	8.879	40 - 64
<i>Global Severity Index</i>	45.125	16.132	30 - 81
<i>Positive Symptom Distress Index</i>	43.00	12.728	30 - 64
<i>Positive Symptom Total</i>	40.25	12.343	22 - 69