

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**Measuring Traumatic Stressors:
An Investigation into Police Perceptions
of Traumatic Incidents**

A thesis presented in partial fulfilment
of the requirements for the degree
of Master of Arts in Psychology
at Massey University

Sally A. McDowell

1997

ABSTRACT

Traumatic experiences are an inherent part of many aspects of police work. Due to the personal and organisational costs they incur their impact is of growing concern to the New Zealand police. Recent research has indicated that reactivity is less a function of the type of event that officers' encounter and more a function of the event characteristics which officers are exposed to. The present study aimed to contribute to the definition of work related traumatic stressors among police officers. Fifty-two members of the New Zealand police were interviewed to examine their individual constructions of traumatic incidents, in order to gain an understanding of the factors which influence psychological morbidity following exposure to trauma. Taking an exploratory approach, the present study employed the repertory grid method to elicit officers' personal perceptions and constructions of traumatic events. Principal components analysis with varimax rotation led to the extraction and interpretation of six factors underlying police officers' descriptions of event characteristics: emotions, lack of control, work-related factors, training inadequacies, victim orientated, and aspects of death. The results highlighted the wide variety of incidents and event characteristics, which can be interpreted as traumatic among police officers. Despite the focus on traumatic events, the results also reflected the participants' concern with organisational and job stressors. The limitations of the research were mainly related to the small sample size and assumptions associated with the raw data.

ACKNOWLEDGEMENTS

First and foremost I wish to thank Dr Christine Stephens and Dr Douglas Paton, for their guidance and support in helping me to realise my academic potential in completing this thesis. Also I am grateful to the input I received from Duncan Hedderley on all matters statistical. The perspectives that his skills brought to the research were invaluable.

Thanks must also go to a number of members of the New Zealand police. Firstly to Dr Ian Miller, without whose assistance this thesis would not have gone ahead. To the staff welfare officers responsible for region three, especially Mike Hubbard for his assistance in gaining access to participants. To the officers who extended their hospitality to me when I invaded their stations, particularly those I interviewed, who not only gave their time, but also made me privy to what was often highly personal information. Their participation and enthusiasm helped reinforce my confidence in the value of the study that I was conducting.

Finally, special thanks to my family and friends for their encouragement and support of my continued education.

TABLE OF CONTENTS

Abstract.....	i
Acknowledgements.....	ii
INTRODUCTION.....	1
Traumatic Incident Stressors.....	3
Impact of Stress on Police.....	5
Job Performance.....	5
Psychological Consequences.....	6
Physical Health Consequences.....	8
Positive Resolution.....	10
Mediating Factors in Reactions to Traumatic Incidents.....	13
Personal Factors.....	13
Recovery Environment.....	15
Event Characteristics.....	20
Measurement of Traumatic Stress.....	24
Aims and Objectives.....	27
METHOD.....	28
Participants.....	28
Procedure.....	30
The Repertory Grid Method.....	32
The Interviews.....	34
RESULTS.....	37
Descriptive Statistics.....	37
The Interviews.....	37
Traumatic Incidents.....	37
Constructs.....	38
Inferential Statistics.....	41

Data Screening.....	42
Factor Analysis.....	43
Correspondence Analysis.....	49
Qualitative Analysis.....	55
DISCUSSION.....	57
Type of Incident.....	57
Event Characteristics.....	59
Positive Constructs.....	61
Common Factors in Event Characteristics.....	62
Construct and Event Types.....	68
Limitations of the Study.....	70
Measurement Issues.....	70
Response Bias.....	72
Generalisability.....	72
Implications.....	73
Training Implications.....	74
Policy Implications.....	75
Future Research.....	76
Conclusion.....	77
REFERENCES.....	78
APPENDICES.....	88
Appendix 1: Police Notice Seeking Participants.....	88
Appendix 2: Information Sheet.....	89
Appendix 3: Consent Form.....	91
Appendix 4: Demographic Information.....	92

INTRODUCTION

During the last two decades a great deal of research has been conducted into the occupational stressors facing police. Since Hans Selye (1978), a pioneer researcher in the field of stress, first commented that police work is one of the most stressful occupations in the world, researchers have flocked to the study of police stress (Violanti, 1996). While a number of researchers have validated Selye's assumptions (Somodevilla, 1978; Territo & Vetter, 1981), others have argued that police work has not been adequately compared to other occupations, and is no more stressful than the work of ambulance, fire service and prison staff (Anson & Bloom, 1988; Malloy & Mays, 1984; Terry, 1981). Despite such inconsistencies, it is generally acknowledged that police work is inherently stressful (Brown & Campbell, 1994). Not only are police officers faced with many typical occupational stressors, they may also have to contend with repeated exposure to atypical stressors throughout their careers, such as traumatic incidents, and the experience of traumatic stress reactions.

A major factor contributing to the rapid upsurge in research into police occupational trauma, stems from a growing recognition of the significant personal and organisational costs that exposure to traumatic events, and occupational stressors can incur. Friedman, Framer, and Shearer (1988) estimated the average cost of traumatic stress in the workplace at \$46,000 per person, as a result of decreased productivity and increased turnover, absenteeism, and early retirement. Furthermore, the participation of police in a number of major disasters has been cited as a significant reason behind the proliferation of research into police trauma and stress (Brown & Campbell, 1994). Within the New Zealand context, major incidents such as the sinking of the ferry Wahine, the Erebus disaster, the 1981 Springbok tour, and more recently the Cave Creek tragedy, have served as catalysts in stimulating trauma research among members of the New Zealand police. The aftermath of these disasters has aroused interest in issues such as disaster preparedness, prevention, and management, in addition to increasing awareness regarding the stress experienced by police officers and other

professional helpers involved in disaster work. Other potential sources of stress, in particular, stresses deriving from the police organisations own management style and organisational systems, have also received attention (Brown & Campbell, 1994).

To date, a great deal of the research into police occupational stress has been conducted in the United States (Brown & Campbell, 1994). The American system of law enforcement differs considerably from that of many other countries with regard to cultural settings, age and gender composition, specific police roles, and policies regarding firearms use. As a result, any direct comparisons between the American research findings and the New Zealand police are questionable. However, inadequacies in the comparability of American research findings to the New Zealand police, provide both incentives and opportunities for the study of police occupational stress in the New Zealand context.

The following literature review intends to draw on a considerable amount of the literature concerning police occupational stress and trauma, in order to develop a thorough understanding of the areas pertinent to the research upon which this thesis is based. Of immediate concern with respect to the current study, is the issue of traumatic incident stress. This review will begin by first defining the nature of common traumatic incident stressors, before moving on to address those types of traumatic incidents that research has shown to be deleterious.

Having outlined the nature of traumatic incident stressors, the focus will shift to address the impact such stressors have on police officers. Exposure to stressful situations, particularly involvement in a traumatic incident, can manifest itself in a number of outcomes. The present review will identify and discuss a number of these outcomes, which may include a decrease in job performance, the development of psychological symptomatology, health problems, and even suicide and substance abuse. Despite the negative effects resulting from exposure to a traumatic incident, the outcome is not always deleterious. A number of researchers have documented instances where police have participated in horrific duties, such as body recovery and

identification, yet have emerged without any significant pathology. Accordingly, the review will also discuss the possibility of positive outcomes following exposure to traumatic events.

The final section of the literature review will address traumatic reactivity and the factors that mediate an individual's reactions to traumatic incidents. The review will identify and discuss three classes of factors that may work together or alone to produce varying degrees of negative or positive reactions. The three categories under investigation include: personal factors, which may incorporate personality variables, psychological history, cognitive style, the meaning an individual attributes to an event, and experience; organisational factors including occupational norms and beliefs, supervisory support, occupational stressors, and management style; and exposure characteristics which define each incident (e.g. physical, psychological and time pressures, time of occurrence, and victim demographics).

In conclusion, the review will summarise the salient issues pertaining to the measurement of traumatic stressors and identify the aims and objectives of the investigation.

Traumatic Incident Stressors

Like the members of many occupational groups in the twentieth century, the police have to deal with the demands and stressors that typify working life, such as workload, shift work, advancement issues, internal reviews, and management conflicts (Cummings, 1996). However, unlike many occupations, the working lives of the police, fire service, and emergency medical staff are punctuated by exposure to emotionally overwhelming events. While a number of other occupations do risk exposure to traumatic events, what makes the police and other emergency service personnel unique, is the frequency with which they risk exposure (Paton, 1996a).

According to Carlier and Gersons (1992), traumatic incidents are characterised by threatening, deeply depressing situations, which generally fall outside the realm of

normal human experience and police activity. Traumatic incidents may include events such as shootings, mutilation, death (particularly of young children), the threat of death or injury, child abuse, and involvement in disaster work (Violanti, 1996). Although a number of the situations deemed to be traumatic incidents might be relatively rare in occurrence (e.g. police shootings and disaster work), their impact and potential for harm cannot be overlooked.

Several researchers have focused their efforts specifically on traumatic incidents, in an attempt to identify those experiences that are the most potent and distressing for the officers involved. Carlier and Gersons (1992) found that those incidents involving violence, deceased children, and powerlessness resulted in the highest emotional intensity, which could in turn manifest itself in the form of heightened stress levels, and adjustment problems such as post-traumatic stress reactions. Research conducted in the United States by Sewell (1983) and more recently Violanti (1996), found violent confrontations to be the primary source of traumatic stress for police. In both studies, incidents involving violence towards officers, the use of violence by police against the public (most notably the use of deadly force), and situations involving the potential for violence or physical injury, were the most demanding for psychological adjustment. Similarly, a study of Australian police officers (Coman, 1993), found violent death, injury or non-accidental death of a child, unpredictable situations, and situations which threatened physical injury, to be the most traumatic events reported by police. Of most relevance to the New Zealand police is the recent work of Stephens, Long, and Miller (1997), in which the experiences most often reported as having the worst effects were serious accidents, chronic distress at work, (e.g. child and sexual abuse work, youth aid and photography work), horrific homicides, sex by force, death of a police officer, and death of a friend or family member.

Repeat exposure to traumatic incidents is an unavoidable aspect of police work for many officers. Although some may progress through their careers without suffering any adverse effects, a large number are not so fortunate. The repercussions associated with repeated exposure to traumatic incidents can manifest itself in a number of forms

and to varying degrees. The following section will outline the various ways that continued exposure to traumatic incidents can impact on a police officer.

Impact of Stress on Police

The impact of stress on police officers is perhaps the most widely researched area of police stress (Terry, 1981). This can largely be attributed to the fact that reactivity to stress can vary considerably in nature, producing several possible avenues for research. Furthermore, a growing recognition of the need to accurately identify any detrimental consequences arising from exposure to stress has also stimulated research in this area. Brown and Campbell (1994) distinguished between three major casualties of police stress, including a decrease in job performance, psychological problems, and health problems.

Job Performance

While of major concern to officers and their superiors, a decrease in job performance is perhaps the least serious casualty of police stress. Job performance may decline as a result of an officer experiencing difficulties in carrying out their job effectively and efficiently, and consequently lead to absenteeism or premature retirement. However, literature concerning the impact of police stress on job performance is lacking, and so no firm conclusions can be drawn. For example, although it has been assumed that stress is related to sickness absence, according to Brown and Campbell (1994) there is no direct empirical evidence indicating that stress is a significant factor in sickness related absences. On the contrary, despite the stressful nature of the job, Alexander and Wells (1991), and Alexander (1993a) found no evidence of an increase in sick leave among police officers involved in body recovery and identification duties from Piper Alpha in the months following their involvement. Although, Alexander and Wells (1991) are unsure whether this finding was a function of the police officers ability to deal with the stressful nature of the event, or whether it was attributable more to the participative and supportive management practices implemented during the task.

Psychological Consequences

The psychological consequences which may accompany exposure to traumatic incidents include depression, anxiety, stress, alcohol and drug abuse, suicide, post traumatic stress disorder (PTSD) or related adjustment problems (Brown & Campbell, 1994; Miller, 1996). A study of officers exiting the New Zealand Police between 1985 and 1995 (Miller, 1996) found that up to 1990, the majority of officers (69.2%) cited psychological factors, including traumatic stress, as predominant reasons for disengagement. Moreover, 16.8% were diagnosed by health professionals as exhibiting symptoms indicative of post-traumatic reactions (Miller & Ford, 1991). Psychological difficulties were again the reasons cited for a further 62.3% of disengagement's between the period 1990 and 1995 (Miller, 1996). In the United States it has been estimated that 12 to 35% of police officers suffer PTSD with various levels of psychological disabilities. PTSD was also the fifth most common referral problem presented to police psychologists in the United States (Mann & Neece, 1990).

Research into the impact of body recovery and mortuary duty on officers involved in the aftermath of the Mount Erebus air disaster in Antarctica, found that 80.5% suffered from sleep disorders as a result of their involvement (Hodgkinson & Stewart, 1991). A further 35% were in the high-stress group immediately after completing their tasks, and 20.5% remained there after three months. Their symptoms were of both a cognitive, emotional, and behavioural nature (Taylor & Frazer, 1981). A similar study by Freeman (1979), which also investigated the impact of disaster work involvement on police officers, reported that officers working at the site of two major airline disasters requested counselling and other psychological support up to one year after the incident.

While providing assistance in the aftermath of a disaster is a task that officers are rarely called on to perform, dealing with the victims of rape, physical abuse, and various other crimes, comprise a much larger proportion of police time. Research by Martin, McKean and Veltkamp (1986) examined the prevalence of PTSD in police resulting from the stress of their work with victims. The frequency of PTSD in relation

to police officers' own victimisation was also explored. The study showed that a significant number of officers suffered PTSD as a sequelae to their stress, with the development of PTSD strongly related to exposure to trauma relating to their victimisation or that of others. Of little surprise was the finding that recurrent and intrusive recollection of the event were one of the most frequently reported symptoms. Largely because police officers are often placed in situations reminiscent of the original trauma, offering little opportunity for them to distance themselves from the trauma (Martin et al., 1986).

Shooting incidents involving police are generally a rare phenomenon (Gersons, 1989), with many officers progressing through a career in the police without firing a single shot (Violanti, 1996). This is particularly the case in New Zealand where policies regarding the carriage of firearms have probably helped to reduce their frequency (Miller, 1996). However, when a shooting incident does occur, the psychological impact on the officers involved can be severe, possibly involving PTSD symptomatology (Gersons, 1989). It has been suggested that involvement in a shooting incident is one of the most stressful events a police officer can experience in their lifetime (Manolias & Hyatt-Williams, 1993).

Gersons (1989) conducted a study into the degree and intensity of post-traumatic reactions in 37 police officers from Amsterdam, who had been involved in shootings between the period of 1977-1984. In all incidents someone was either killed or injured. Using the DSM III classification of PTSD, Gersons found that only 3 of the 37 officers were symptom free. Seventeen (46%) exhibited post-traumatic stress symptoms, while the remaining 17 (46%) fulfilled PTSD-diagnostic criteria. Seven (19%) of the officers were considered to be chronic PTSD patients. The most prominent symptom found in 75% of the total group, was "recurrent and intrusive recollection of the event".

Stratton, Parker and Snibbe (1984) also investigated the impact of shooting incidents on police officers. The results indicated that 30.5% of the respondents felt they were affected greatly or a lot by the incident, 33.8% felt only moderately affected,

while the remainder felt little or no effect. Similarly, a study into the reactions of 25 police officers from the UK involved in shooting incidents, found approximately two thirds (67%) exhibited marked emotional reactions following the incident (Manolias & Hyatt-Williams, 1993). The onset of reactions usually begun within hours of the shooting and included continual recalling of the event, sleep disturbances, bouts of crying, loss of appetite, anxiety, depression and social withdrawal.

Some officers have found themselves completely unable to deal with the stresses of the job and the feelings their activities evoke. Numerous researchers in the United States have studied the incidence rate of police suicide, but few have reported suicide rates among officers lower than that of the general population (Violanti, 1996). On the contrary, most of the research points to a suicide rate among officers far higher than that of the general public (e.g. Friedman, 1968; Labovitz & Hagedorn, 1971; Richard & Fell, 1975; Vena, Violanti & Marshall, 1986). Nevertheless, Dash and Reiser (1978) and more recently Josephson and Reiser (1990), argue that police suicides may not be as high as indicated by previous studies.

The high level of police suicide reported in American research has not been found in other countries such as New Zealand, Britain, and Australia. Research into attrition and disengagement's from the New Zealand police between 1985 and 1995 indicates the rate of police suicides is slightly below the national average for age matched peers (Miller, 1996).

Physical Health Consequences

The final casualty of police stress to be discussed is the officer's physical health. Violanti, Vena, and Marshall (1986) followed a sample of 2,376 police officers from New York State. They also obtained comparative morbidity and mortality data on a sample of municipal workers and the general population. When compared with the municipal workers, the police officers were found to be at a higher risk for developing ulcers and cancers of the oesophagus and colon. These findings appear to support the results of earlier research carried out in Washington State, which found that police have

an increased risk of mortality from diabetes, heart disease, and cancers of the colon and liver (Milham, 1983). Data for the New Zealand police indicate heart disease is the major cause of death amongst officers followed by suicide, accidents on and off duty, and cancer (Miller, 1996).

Fell, Richard and Wallace (1980) conducted an extensive epidemiological investigation into police mortality and morbidity, in order to determine whether psychological job stress incapacitated police at an abnormally high rate. The results of the analysis indicated that police officers died prematurely from stress-related causes at a significantly high rate, ranking 24th out of 130 occupations. Circulatory system diseases were largely responsible for stress-related deaths, accounting for 69% followed by neoplasms and suicide at 10% each. According to Malloy and Mays (1984) however, police deaths did not differ significantly from other occupational groups in cause. With respect to mental health, police admissions to these institutions were not significantly high, with police ranking 70th of the 130 occupations sampled. It was suggested by Fell et al (1980) that these results may be not be due to the lack of mental health problems amongst officers, but their refusal to seek help or acknowledge their problems for fear of being stigmatised. Finally, police were admitted to hospital with stress-related diseases at a significantly high rate, gaining a ranking of 16th out of 130 occupations (Fell et al., 1980).

Although some researchers purport to have identified a relationship between police occupational stress and trauma and impaired job performance, psychological problems and health problems, no unequivocal conclusions can be made. There is no clear cut evidence to suggest that psychiatric disorders occur among police officers at a rate higher than that of the general population, either in Britain or other countries (Brown & Campbell, 1994).

With regard to physical health problems, the evidence is again dubious, although certain ranks of officers seem to display relatively high rates of mortality or morbidity (Brown & Campbell, 1994). Ill health itself can be a personal stressor for an individual,

as well as a consequence of occupational stress (Brown & Campbell, 1994). It is also possible that individuals already predisposed to these disorders are more attracted to law enforcement (Fell et al., 1980). Finally the reported high rates of stress related diseases, such as cancers and digestive problems, may instead be related to the police occupational lifestyle; an occupation characterised by shift work, poor eating habits, smoking, and alcohol use (Brown & Campbell, 1994).

To assume that all officers suffer negative consequences as a result of occupational stress or exposure to traumatic incidents is to oversimplify the issue. The development of a psychological disorder is not a foregone conclusion, as the following literature will illustrate.

Positive Resolution

The realisation that an officer may benefit from experiencing a traumatic event, either personally or professionally, has only recently been acknowledged. Unfortunately, very few trauma inventories have been quick to incorporate this possibility in their design. Instead, current trauma inventories are based on the assumption that attendance at a traumatic event will inevitably trigger symptomatology in the responder. According to Paton (1997), the simplistic nature of current trauma inventories can undermine the identification of any positive resolutions that a person may experience following exposure to a traumatic event. This can occur through the blanket provision of an intervention, justified only by the fact that an individual has experienced a certain event contained in a trauma schedule. For example, for some emergency service personnel, such as the police, responding to traumatic incidents under certain circumstances can be professionally rewarding. The complexities and demands inherent within some situations can bring about the opportunity to employ skills and knowledge rarely exercised in routine contexts (Paton, 1997). Having to attend a debriefing in order to deal with their 'inevitable' negative reactions, may reverse any beneficial effects gained from the experience (Paton & Stephens, 1995). This can result from exposure to the trauma and recollections of others, when during the

course of the debriefing, individuals come into contact with other survivors who are experiencing more intense problems (Joseph, Yule & Williams, 1992).

Research by Alexander and Wells (1991) into the reactions of police officers involved in body-handling duties following the Pipers Alpha disaster, illustrates how the police can not only emerge from their horrific duties with little evidence of pathology, but how such events may even contribute to their personal and/or professional development. Despite the poor condition of the bodies retrieved from the disaster, a three month follow-up study indicated that neither the officers involved in body recovery or mortuary duty, experienced any increase in psychiatric morbidity when their before and after body-handling scores on the Hospital Anxiety and Depression Scale were compared. There was also no difference between the control group and the study group with regard to number of days of sick leave taken within the 12 months following the disaster. Finally, the officers reported that they believed they had fulfilled their duties successfully. Only one officer still felt under stress as a result of his duties (Alexander & Wells, 1991). A further follow-up study three years after the disaster, revealed levels of distress had decreased further over the three years when compared with those taken at three months, particularly the experience of intrusive thoughts. Overall the results suggested the officers did not suffer any adverse reactions as a result of their duties (Alexander, 1993a).

Approximately three months prior to the Piper Alpha oilrig disaster, a major rail disaster in Denmark resulted in the deaths of eight of the 300 passengers and left 73 injured. Research by Andersen, Christensen and Petersen, (1991) into post-traumatic stress reactions among the rescue workers who responded to the accident, found that 30% claimed physical and mental symptoms related to the rescue work after three months, dropping to 10% after seven months. However, overall scores from the total sample on measures including the General Health Questionnaire (GHQ), and Impact of Events Scale (IES) were low, indicating the rescue work had a low to moderate impact on those involved. More importantly, approximately half of the subjects reported that participating in the rescue work had a positive impact on their lives. This led Andersen

et al (1991) to conclude that facing traumatic incidents does not necessarily lead to psychological morbidity but can in fact facilitate personal growth.

Claims of personal growth were also reported by U.S. Air Force personnel involved in the transportation and identification of the nearly 1,000 people who died in Jonestown, Guyana (Jones, 1985). According to Jones, a number of the respondents spoke of the entire experience as leading to personal growth, an experience that was beneficial and one that they would consider repeating if necessary: "I have tried to improve my life and enjoy it. Seeing all those people dead makes you realise your mortality." "I got the feeling I was contributing." "I matured a great deal." "I feel and felt then that I was a kind of hero." (Jones, 1985, p. 306).

Finally, a study of 60 deputy sheriffs involved in shooting incidents in the Los Angeles area (Stratton et al., 1984), revealed that while a shooting was a major emotional event, not rapidly forgotten by those involved, it produced considerable variability in positive and negative reactions. Stratton et al (1984) therefore concluded that substantial emotional debriefing and/or support was not always necessary in the wake of exposure to a traumatic event.

The last 10-15 years has seen a shift towards acknowledging the negative consequences of police work, such as PTSD and other adjustment disorders, alcohol and drug misuse, suicide, and marital problems. While it is important that negative responses to traumatic events be affirmed, it must not be assumed that all reactions to traumatic incidents will be negative. Individual differences, variations in training and experience, and varying aspects of the event itself, will all work together to produce different reactions in different people, some of which may be positive. The following section will address the various factors that can mediate reactions to traumatic events, including individual differences, event characteristics, and the recovery environment.

Mediating Factors in Reactions to Traumatic Incidents

As previously discussed, there is a growing body of evidence to suggest that while traumatic incidents may be emotionally unsettling, they may also be associated with adaptation, as well as personal and/or professional growth (Alexander & Wells, 1991; Andersen et al., 1991; Jones, 1985; Stratton et al., 1984). Research has also indicated that this adaptation can be influenced or mediated by a variety of factors including personal, organisational, and event-related aspects of the experience. If the factors that underpin positive adaptation can be accurately identified, a number of benefits could then be anticipated at both the staff and organisational level in terms of training needs analysis, selection, policy development, and the more precise targeting of interventions for recovery. For example, policy changes could be implemented that create an environment more conducive to the development of positive reactions. By identifying the factors that facilitate either positive or negative resolution, support resources could be tailored to more accurately predict the types of reaction officer's are likely to experience. Furthermore, through research into the personality and social dimensions of those officers who report more positive resolution of incidents, this information could then be applied to the selection and training of officers.

Personal Factors

Researchers have identified a number of personal factors that could influence adaptation and response to a traumatic incident. These factors include personality variables, coping strategies, psychological history, the meaning an individual attributes to an event, age and experience.

According to Buchanan (1994) it is an individual's cognitive style, that is their beliefs, attitudes, motives, and abilities, as well as their psychological history that is important in defining their reaction to a given situation. It is these dimensions that will interact with a situation to determine how a person thinks, feels and reacts.

The importance of an individual's psychological history in determining their reaction to traumatic events has been noted by a number of researchers (McFarlane

1989; Thompson & Solomon, 1991). Following his study of Australian fire fighters involved in fighting a number of serious bush fires, McFarlane (1989) argued, that etiology should be viewed as a longitudinal process, after pre-disaster variables were found to play a more significant role in determining post-traumatic morbidity. In particular, neuroticism and a prior history of treatment for a psychological disorder, were more accurate predictors of post-traumatic morbidity than the degree of exposure to the disaster or losses sustained.

Researchers have also advocated the importance of the meaning that people attribute to a disaster in determining the onset of pathology (Green, Wilson, & Lindy, 1985; McFarlane, 1986; McCammon, Durham, Allison & Williamson, 1988; Peterson, Prout & Schwarz, 1991). Peterson et al., (1991) posits that it is the individual's cognitive appraisal of the event and the meanings that they attribute to it, as dictated by their pre-event cognitive schemas of self, others and the world, which guide their processing of the event and subsequent reaction. In his research into the effects of the Ash Wednesday bush fire disaster in Australia, McFarlane (1986) found that the survivor's personal attribution of meaning to the event was central to the onset of symptoms. The attribution of meaning was also found to have a significant mediating effect on the psychological morbidity of officers involved in the Lockerbie disaster. For those at the scene immediately after the disaster, it was almost impossible to draw any meaning from the destruction and carnage that lay before them. However, those on the scene at a later date, particularly those involved in the murder inquiry, were in a better position to make sense of the disaster as they were presented with more facts regarding what happened, how it happened, and who was responsible (Mitchell, 1990).

Coping strategies have also been identified as an important variable in shaping an individual's subjective experience of a disaster. Those involved in disaster work and victim recovery, have found the use of imagery to be an effective way of dealing with the mutilation and carnage they are exposed to. Taylor and Frazer (1982), who investigated the effects of body recovery and mortuary duty on police officers following the Erebus disaster, found that those officers who imagined the bodily remains were not

human beings demonstrated less stress afterwards. The use of similar imagery was also noted in members of the Grampian Police Force involved in the retrieval of bodies from the accommodation modules aboard Piper Alpha (Alexander, 1993b). Humour has also been utilised to alleviate some of the stress associated with the job. Airforce personnel involved in the recovery of bodies from the Jonestown mass suicide, found humour valuable in supporting each other during their task (Jones, 1985). Humour was also employed as a coping mechanism by officers involved in the aftermath of both Erebus and Piper Alpha (Taylor & Frazer, 1982; Alexander & Wells, 1991). In fact a good sense of humour was part of the selection criteria in recruiting volunteers for body recovery from the Piper Alpha accommodation module (Alexander, 1993b).

Further to the personal factors discussed above, the value of age, experience, and training has also been found to contribute to an individual's experience of, and reaction to a traumatic event. Jones (1985) found short-term dysphoria to be more pronounced in those younger than 25 years of age. There was, however, only a non-significant difference in the rates of dysphoria in those with no training or experience when compared with those who had training and/or experience. Age and level of experience in dealing with death were also used to select volunteers for body recovery duty from Piper Alpha (Alexander, 1993b). Paton (1989) argues that training and experience directly affect the helper's appraisal of an event, as they help mould their expectations. The development of 'performance' schemata also limits the ability of an event to overwhelm an individual's processing system. Training and experience all help create a sense of mastery over the situation, which may then reduce the likelihood of subsequent psychological problems being experienced (Thompson & Solomon, 1991). This was found to be the case among rescue workers in Denmark involved in a major rail disaster. From their sample of 83 respondents, Andersen et al., (1991) found training and experience helped to decrease stress and its negative consequences.

Recovery Environment

In addition to the strong influence that personal factors have on an individual's recovery, there is also considerable evidence implicating the power of the recovery

environment (Peterson et al., 1991). The recovery environment is defined by a number of factors, including occupational norms and professional beliefs, job stressors, management practices, and the existence of social support networks. The influence of the recovery environment can be such that the impact of an event can be as much a function of the way in which the organisation and its members respond to an event, as to the event itself (Paton & Smith, 1996).

An organisations environment can have a particularly potent affect on an officer's recovery. According to Paton and Stephens (1995), occupational groups such as the police are especially at risk from experiencing work-related trauma, as they form cohesive social groups with a distinctive culture. Inherent within their group culture is the notion that emotional expression is a character flaw. The fear of not measuring up in the eyes of peers creates a "toughness ethic", which motivates officers to block feelings in stressful situations and to continue to suppress their emotions (Gersons, 1989). Pogrebin and Poole (1991) found police officers in Britain considered their emotions an occupational weakness or hazard. As a result, they failed to express their feelings to other officers and mistakenly felt they were alone in experiencing them. In a sample of Australian police officers, Coman (1993) found that while many of them clearly felt a need to share their emotional experiences with fellow officers and others, they instead employed a number of avoidance strategies for dealing with their emotions.

It is possible that the decision to withhold any discussions about a traumatic event with colleagues or other suitable confidants is to the detriment of their psychological health. Considerable empirical evidence exists that supports the importance of discussing traumatic events and their emotional effects (e.g. McFarlane, 1988b; Norman, 1988; Weinrich, Hardin, & Johnson, 1990; Williams, 1993).

In addition to the impact of occupational norms and beliefs on individual and group recovery, the style of management employed by an organisation can also exert a mediating effect. The management style of the police is characterised by an authoritarian and hierarchical structure, strict discipline, lack of supervisory support,

and strong adherence to rules and policies (Kroes, 1986; Reiser, 1974). Although this management style may be suitable and effective under normal operating conditions, it is not necessarily attuned to all situations (such as traumatic incidents), where its very nature can undermine the performance and/or recovery of officers, thereby impacting negatively on their welfare. For example, participation in disaster work generally exposes officers to a workload which is complex, ambiguous and difficult to assimilate (Paton, 1994a; Aronoff & Wilson, 1985) as well as fraught with pressure. In an attempt to adhere to the organisations rules and general management style, officers may find that their performance is compromised. If in the aftermath of a disaster an officer feels their response was ineffective or substandard, they may experience decreased self-esteem or a pathological reaction.

The significance of management style in the recovery of officers involved in traumatic incidents has been documented in a number of studies. Alexander and Wells (1991) found that despite the distressing nature of the work, the officers involved in body recovery and mortuary duty following the Piper Alpha disaster demonstrated few adverse reactions. An outcome attributed in part, to a number of management initiatives including a shift away from the autocratic structure characteristic of police organisations, towards more participative and supportive leadership and organisational practices (Alexander & Wells, 1991). The operation was also professionally organised and the officers thoroughly briefed on what they could expect (Alexander, 1993b). The importance of the exercise for both the bereaved and the inquiry was heavily emphasised, and there was an excellent *esprit de corps* among the officers. It must be noted however, that the ability to plan and prepare an operation, such as that undertaken by the Grampian Police Force, is a luxury not often afforded by police rescue workers. Similarly, Thompson and Solomon (1991) accredited, in part, the low symptomatology in officers of the Heathrow team, (involved in body recovery and identification following the Lockerbie air disaster, Marchioness pleasure boat sinking, and a horrific helicopter crash), to a move away from the usual strict adherence to police discipline and rank. Thompson and Solomon (1991) also emphasised the contribution made by preparation, interpersonal relationships, and debriefing in lowering distress among

officers constituting the Heathrow team, as well as a management initiative that stressed the voluntary nature of the work.

Research has also pointed to the importance of social support from both co-workers and supervisors in aiding the recovery of officers affected by traumatic events (Dunning, 1994; Ganster, Fusilier, & Mayes, 1986; House, 1981; Smith, 1985). Greller, Parsons and Mitchell (1992) found social support from the supervisor to be the only moderating factor on the effects of occupational stressors in a police organisation. Another study measuring only supervisor support (Kirmeyer & Dougherty, 1988), found tension, anxiety, and coping among a sample of police radio dispatchers was significantly moderated by supervisor support. Unfortunately, the autocratic structure of the police organisation often restricts opportunities for, and/or the willingness of police supervisors' to provide emotional and social support to officers following involvement in traumatic events (Paton & Stephens, 1995). Despite the importance accorded to supervisor support, researchers La Rocco, House and French (1980) suggested co-worker support was in fact more consequential for individual well being. Similarly Stephens, Long, and Miller (1997) found that support from peers was most important in moderating the effects of traumatic events

Finally, recent research by Stephens (1996) suggests organisational and job stressors may also have a role in exacerbating the impact of traumatic incidents. Stephens (1996) surveyed 527 New Zealand police officers, in order to investigate how emotional support moderates the impact of traumatic stress on psychological outcomes. While the survey revealed that the opportunity to talk about traumatic experiences was related to lower PTSD symptoms, further analysis also revealed an interaction between negative communications about work and communications about disturbing experiences. If officers reported more complaints to their peers about their work, then any benefits they gained from communicating about their traumatic experiences, with regard to reduced PTSD symptomatology was significantly weakened. The results

therefore suggest that low job satisfaction may increase the likelihood of developing PTSD symptoms following exposure to trauma.

Stephens (1996) is not alone in drawing such a conclusion. Several other researchers have reached similar conclusions (e.g. Armstrong, O'Callahan, & Marmar, 1991; Brown & Feilding, 1993; Evans & Coman, 1993). A number of researchers even go so far as to suggest that organisational stressors are the major source of psychological distress among police officers (Brown & Campbell, 1990; Cummings, 1996; Kroes, 1986; Martelli, Waters & Martelli, 1989). Organisational stressors which may include the authoritarian structure of the police, lack of participation in decision making, lack of administrative support, a punishment-centred philosophy, and unfair discipline (Kroes, 1986; Reiser, 1974). Regardless of whether or not organisational factors are the primary source of police psychological distress, such findings pose significant implications for the event impact, the management of recovery, and for the design of environments, which facilitate recovery. Furthermore, they highlight the role of the police organisational context in determining psychological outcomes following trauma (Hart, Wearing & Headey, 1995; Thompson, 1993).

Organisations and occupational groups can exert a strong influence on the psychological recovery of their members. Like the members of many organisations, police personnel are dominated by their organisational and professional context and culture. By acknowledging the existence of psychological correlates, through policy initiatives and greater flexibility in management style, organisations such as the police can encourage their members to seek support and assistance following exposure to traumatic incidents. However, the culture of an organisation such as the police is generally well entrenched and not very amenable to change in the short term. Therefore, examination of the event characteristics which determine psychological reactivity to traumatic events among police officers, deserves full and immediate attention.

Event Characteristics

Following the exposure of an individual or group of people to a traumatic event, it has generally been customary to try and predict reactivity by focusing on the type of event to which they were subjected. However, a focus at this level provides little insight into the ability of traumatic incidents to exert their psychological impact on individuals. Despite the apparent similarities between certain classes of incidents, they are all in fact unique due to differences in their constituent components or event characteristics. Event characteristics are the features of a traumatic event likely to be perceived as traumatic, such as the enormity of the event, exposure to injury and death, intensity of exposure and victim profiles (Paton & Stephens, 1995). It is these event characteristics, along with the personal and organisational factors mentioned above, that help define an individual's reaction to a traumatic incident.

It has generally been acknowledged that the stressor characteristics associated with a traumatic event are fundamental in defining both the experience and recovery interventions (Peterson et al., 1991). As a result, commonly used trauma schedules have concentrated on the types of incidents considered to be traumatic, in an attempt to identify personnel at risk from psychological reactivity. The trauma policy implemented by the New Zealand Police reflected this knowledge by adopting a set of events, (including the use of deadly force, multiple and bizarre homicides and injury or threat of death to police on duty) (New Zealand Police) as a means to signal access to support resources. Since its development and implementation, research in this area has grown to reveal that traumatic reactivity is less a function of the experience of an event per se, and more a function of the kinds of event characteristics to which officers are exposed (Atchison, 1995). Meaning, that even when dealing with similar incidents, for example road traffic accidents, the reactions they elicit from the police officers called to deal with them may vary considerably, due to the event characteristics which define each road accident.

Although research into the nature and impact of various event characteristics with regard to police work is very limited, researchers have uncovered the importance

of certain event characteristics in determining reactivity among the broader category of emergency workers (e.g. police, fire service, and emergency medical service (EMS) workers). For individuals involved in emergency response work, the most salient event characteristic has been identified as the intensity of exposure to a traumatic event (McCammon, 1996). Exposure to injury, mutilation, and death, the presence of child victims, as well as the scope and enormity of the event, have also been identified as important variables (Werner, Bates, Bell, Murdoch & Robinson, 1992). Ursano and McCarroll (1990, p. 397) noted, "Exposure to death in the form of dead bodies is a significant psychological stressor that can make victims of rescuers." Following interviews with around fifty individuals, all of whom had extensive experience in handling dead bodies, they found visual grotesqueness, smell and tactile properties were significant aspects of the traumatising exposure.

Being confronted with the sight of a child's mutilated body has also emerged as a considerably toxic variable, regardless of the age of the body handler or whether they have children (Ursano, & McCarroll, 1990). Responders to a Swedish bus crash in which a number of children were injured and 12 killed, reported great emotional distress, even among the most experienced helpers (Dyregrov & Mitchell, 1992). Furthermore, Werner et al., (1992) found that EMS volunteers rated the involvement of children or young people as a stressor associated with high emotional impact.

As well as the intensity of exposure and victim profiles, adverse work conditions have also been found to influence responder reactivity, due to the increased demands they can place on emergency responders (McCammon, 1996; Paton & Stephens, 1995). Operating under dangerous conditions which compromise the safety of responders, challenging locations, problematic weather conditions, severe physical and/or time pressures, and excessive media attention, have all been identified as adverse features of the overall work conditions. Personnel involved in the recovery of bodies following the Mount Erebus air crash, which included some 11 police personnel, identified a number of variables associated with the work conditions that heightened negative reactions to the task. These included the remoteness of the crash site, unfavourable weather

conditions, danger underfoot in the form of crevasses, snow and ice, and living in tents, (Taylor & Frazer, 1981).

Media presence at the scene of an incident has also been identified as a variable capable of elevating the level of stress experienced by emergency workers (Mitchell & Bray, 1990). Taylor and Frazer (1981) found media presence at Scott Base a source of stress for body recovery personnel for a number of reasons. Firstly, due to inaccurate media reports about the incident and secondly, many of the personnel involved in the body recovery felt obliged to protect the relatives from the reality of the recovery operation. Thirdly, due to the ever-present media contingent, many felt that they could not completely relax once back at base after the operation for fear of disclosing information to the press. Inaccurate press reporting also proved to be a source of stress for responders to the Armenian earthquake, when the press exaggerated the power of the thermal imaging cameras being used in locating victims. As a result the expectations of family members were raised, as well as the pressure on rescue team members to locate missing individuals (Paton, 1994b).

Another event characteristic research has shown contributes significantly to the impact of an event, is when the trauma victim is known to the responder, or the responder can identify with the victim (McCammon, 1996; Paton & Stephens, 1995). For fire-fighters who attended the Hyatt Regency skywalk collapse knowing their fire chief had attended the tea dance at the hotel that evening, the fear of encountering his body among the victims was a considerable burden for them during their rescue work (Paton, 1996b). Knowing the victim or their family, and identifying with the victims and the dead, was also responsible for increased feelings of distress among firefighters, (Fullerton, McCarroll, Ursano & Wright, 1992) national park service, and law enforcement officers (Hartsough, 1988). Apprehension about encountering the bodies of colleagues, friends, and acquaintances killed in the Mount Erebus air crash was also a considerable source of stress for 11 members of the body recovery team (Taylor & Frazer, 1981).

In conducting research into the psychological aspects of disasters, Myers (1989) identified a number of issues related to the characteristics of an event, which may increase the stressfulness of a given situation, and subsequently heighten the risk of psychological problems in those exposed. These factors include: a lack of warning about the event; an abrupt contrast of scene; technological disasters as opposed to natural disasters, because it is often assumed that these are preventable; the nature of the destructive agent (e.g. familiar or unfamiliar); the duration of the threat, and the degree of uncertainty it imposes; time of occurrence, with events occurring at night usually more stressful than those which occur during the day; scope of the event; traumatic aspects such as the involvement of children, distressing sights, sounds and smells, or prolonged contact with the dead; when human error is involved, these events are generally viewed as preventable and are therefore more distressing; and features of the post-disaster environment such as unfavourable weather conditions, hazards, and poor living conditions.

Identifying the more toxic situational factors, whose presence can influence the stressfulness of a traumatic incident and its subsequent impact on responders, has several major benefits for the development and provision of training and support resources. As a result of such knowledge, training programmes could be designed which incorporate such event characteristics. In doing so, officers would then be better equipped (through stress inoculation) to deal with such factors when they arise in traumatic incidents. In addition, officers could also be provided with information regarding the types of reactions such event characteristics may elicit, as well as methods and techniques for dealing with possible negative reactions.

The implications for the provision of support resources are equally significant. By identifying the situational factors, which exert the most stress upon responders to traumatic incidents, those responsible for the supply of support resources would be in a better position to predict the reactions of those involved. Support resources could then be tailored to the needs of the individual, rather than simply providing a blanket support resource to all individuals exposed to a traumatic incident, which is ignorant as to the

incidents' unique characteristics. By identifying those affected, and targeting their needs more precisely, the risk of individuals developing ongoing, serious problems could be reduced. Considerable cost savings for the organisations involved could also be anticipated as a result of decreased absenteeism and turnover, and increased productivity.

Based on the literature cited above, it is apparent that no simple causal relationship exists between exposure to a traumatic incident and the development of a pathological reaction. Research suggests that while a traumatic experience may be necessary, it is not sufficient to explain many features of post-traumatic response (Atchison, 1995; Green, Lindy & Grace, 1985; McFarlane, 1988a; Norman, 1988; Sutker, Uddo-Crane & Allain, 1991). Additional variables that either predispose an individual to the development of a disorder, or affect the development of a disorder during or after exposure to a traumatic event, must be taken into account.

To date, the majority of the research that has sought to identify the event characteristics associated with traumatic reactivity, has done so in the context of disaster research. However, disaster situations are one of the less common forms of traumatic incidents encountered by police in New Zealand. In order to understand the way in which event characteristics influence the reactivity of specific groups like the police, research must focus on the traumatic events which are largely encountered by that group. Only then will researchers move closer to defining the nature of traumatic stressors encountered by the police.

Measurement of Traumatic Stress

As can be seen by the work cited previously, the area of traumatic stress is well researched. Particularly, with regard to its effect on emergency service personnel, such as the police, fire service, ambulance staff and rescue workers. This does in no way imply that the field of traumatic stress is thoroughly understood. On the contrary, a comprehensive understanding of work-related stress is perhaps further from our reach than some may have believed. Before researchers and practitioners can claim to have a

thorough grasp of the area of work-related stress and psychological trauma, they need to focus on the development of valid and reliable assessment tools (Paton & Smith, 1995). This is particularly true in the area of the measurement of traumatic stressors where such assessment work is in the early stages.

Traumatic stressor schedules or traumatic stressor inventories have been employed in a number of organisations, most notably among high-risk occupations, to assist in identifying those employees who may be suffering adverse effects following exposure to a traumatic incident. Trauma schedules largely focus on the types of incidents thought to be potentially traumatic. By focusing only on the type of event, current trauma schedules may underestimate the extent to which individual reactions and event characteristics moderate the effects. According to Lazarus and Folkman (1984) peoples' perceptions of events differ to the extent that the degree of threat or challenge in a given event, is related less to the actual type of event, and is more a consequence of the way event characteristics are appraised. So events that may be threatening for some people, may be perceived as challenging by others, resulting in a positive resolution of the event. An individuals subjective definition of a traumatic situation is highly dependent on the ability of a person's schema to accommodate the exceptional demands of a traumatic situation, and instigate plans to deal with it effectively (Paton & Smith, 1996). Although an increased risk of PTSD can be attributed to certain broad types of events, the salience of one event to an individual is difficult to predict (Paton & Smith, 1995). This claim was substantiated by the work of Stephens et al., (1997) which suggested great variance in the effects of certain types of stressors on a sample of 527 New Zealand police officers. While some experiences in police work appeared to be associated with an increased risk of PTSD (e.g. the death of a fellow officer) other events had only varying effects on those involved (e.g. death of a member of the public).

Another failing of popular trauma schedules is that they typically only concentrate on the impact phase of a traumatic incident, and give little consideration to the fact that exposure to a traumatic event is a process which is modified over time

(Atchison, 1995). According to Atchison (1995), a traumatic event manifests itself through a number of different issues and stressors at various points in its evolution and resolution. To begin with there may be a degree of threat in the form of cyclone warnings or tinder dry bush, followed by the actual impact of a traumatic event, which is then superseded by the occurrence of funerals, public inquiries, or a prolonged injury, all of which contribute to the traumatic impact of an event and occur over a period of time. In order for the nature of trauma to be fully understood, these and other stressors need to be documented so the most toxic can be accurately identified.

Defining the nature of traumatic stressors has been referred to as one of the most crucial tasks in both the study of work-related traumatic stress and the diagnosis of PTSD (Peterson et al., 1991). Yet it is a task that has received very little attention from researchers. If researchers are to establish an accurate definition of traumatic stressors, it must be acknowledged that the fallout from a traumatic event is not only limited to the factors that characterise the impact phase, such as threat, exposure, and loss, but that traumatic stressors may extend over a long period of time. Furthermore, if the relationship between trauma and subsequent pathology is to be understood, characteristics of the event itself must be captured by measuring trauma among members of at-risk occupations (Atchison, 1995). It is by examining individual constructions of traumatic events among members of the New Zealand police, that the present study hopes to move toward a greater understanding of the relationship between trauma and psychological morbidity in this specific at-risk occupation.

AIMS AND OBJECTIVES

Aims

The present study aims to investigate how a sample of officers from the New Zealand police construct their work-related traumatic experiences. The information gained through assessing individuals' perceptions of traumatic events will be used to identify the salient event characteristics in defining the nature of traumatic stressors.

Objectives

The present study intends to expand on the work of researchers such as Paton and Smith (1995, 1996) and Atchison, (1995) in the area of trauma measurement, by investigating police experiences of traumatic events. Due to the dearth of research in the area of trauma measurement, the present study is largely exploratory in nature; both in the area it is addressing and in the methodology it will employ. As a result, the present study is not guided by any hypothesis regarding what the researchers hope to find. Instead one of the main objectives of the research is to make a contribution to the understanding of trauma measurement, a contribution that will undoubtedly generate more questions than answers. However, the questions raised by the investigation will help guide the direction of future research in the measurement of trauma, an area that despite its obvious importance is currently under-explored.

METHOD

This section will describe the method used to meet the objectives of the research. An interview format employing the repertory grid method was chosen to collect the data for the current research. Due to the personal nature of the data, it was thought that this could best be tapped via the use of a one-to-one interview.

Participants

Participants in the study were sworn police officers from the New Zealand police. Participants were obtained from the geographical area known as Region three, which constitutes most of the lower North Island and includes Taranaki, Hawke's Bay, and Manawatu. The Manawatu and Taranaki districts were relatively equally represented with 23 and 20 participants respectively. A further 11 participants were obtained from the Hawke's Bay district.

Of the 54 active sworn police officers that participated in the research, 48 were males and 6 females. The distribution of female participants in the study was 11.1%, slightly less than the 13.2% of sworn female staff which constituted the New Zealand police at December 31, 1995 (Miller, 1996). The information obtained from the first two participants, both of whom were women, was dropped from further analysis. Abandoning the data obtained from the first two participants was necessary as a number of alterations were made to the interview procedure following the first two interviews. As a result, the data analysis and all subsequent demographic information are based on the involvement of 52 participants. A summary of the demographic and police service information for the present sample is provided in Table 1.

Participants ranged in age from 24 years to 54 years. The majority of the participants (31) were between the ages of 25 and 39 years of age. The age distribution of participants in the present study appears in line with recent demographic data, which indicates that most sworn officers in the New Zealand Police fall within the age range of 25-39 years, with the age group 28-35 years being particularly well represented

(Miller, 1996). A further 10 participants were between the ages of 40-44 years, with six participants aged 45-49 years. Only two participants were aged between 20-24 years, a figure indicative of current trends in policing, which point towards a decline in those aged 19-23 years as a result of recruitment policies favouring more mature applicants. Finally, only three participants were represented in the 50-54 age group category. Length of service among participants ranged between eight months and 35 years, with a mean length of service of 13.2 years, a figure slightly higher than the mean length of service reported by Miller (1996) of 11.4 years. However, a considerable number of participants had less than nine years service (24). A further 15 participants boasted between 10 and 19 years service, while nine officers had between 20 and 29 years in the police. Finally, four participants had spent 30 or more years in the police. Three of the participants had served as traffic officers with the ministry of transport prior to its merger with the police in 1992, while a fourth had served as an officer in the United Kingdom, prior to joining the New Zealand police. The mean length of service figures incorporated the experiences of these two groups, as all four participants recounted at least one incident during the interview that occurred while they served either as traffic officers or as a police officer overseas. Furthermore, past demographic data collected by the police has also included the years that police spent as traffic officers in its calculations of mean length of service among its members (Miller, 1996).

The majority of participants held the rank of constable (26), with senior constables (7), sergeants (6), senior sergeants (5), detectives (3), and detective sergeants (2). A further three participants occupied the ranks of detective constable, detective senior sergeant, and Inspector. With regards to the specific branch of the police which they were currently involved in, 33 were assigned to general duties, nine were in the CIB, three were involved in community policing and youth aid respectively, two were involved in traffic safety, one belonged to the criminal intelligence section, and one worked in the dog section. In addition to these duties, several participants were also members of the armed offenders squad (AOS), one as a police negotiator.

Table 1**Summary of Demographic and Police Service Information**

Variable	N	Percentage
Age		
20 – 29	13	25.0
30 – 39	20	38.5
40 – 49	16	30.8
50 – 59	3	5.8
Gender		
Male	48	92.3
Female	4	7.7
Length of Service		
0 – 9 years	24	46.2
10 – 19	15	28.8
20 – 29	9	17.3
> 30	4	7.7
Rank		
Constables	33	63.5
Sergeants	11	21.2
Detectives	7	13.5
Inspectors	1	1.9
Branch		
General Duties	33	63.5
CIB	9	17.3
Community Policing	3	5.8
Youth Aid	3	5.8
Traffic Safety	2	3.8
Criminal Intelligence	1	1.9
Dog Section	1	1.9

Procedure

Ethical permission for the study was obtained from the Massey University Human Ethics Committee. Approval was also obtained from the Health Services Division of Police National Headquarters, with support from Dr Ian Miller, Co-ordinator of Psychological Services.

Access to participants was gained through the organisation, with the assistance of the staff welfare officers responsible for region three. Officers were informed that participation in the study would involve a structured interview of between 1 and 1 1/2 hours duration. It was also emphasised that participation was voluntary, and completely confidential. Participant confidentiality was protected through the strict use of code numbers. This measure was explained to the participants and their confidentiality assured. Participants were also informed that while the results would be published, they would be presented as summarised statistics only. To the researcher's knowledge no participants were coerced into participating.

Participants were not compelled to provide any specific answers. Rather, it was stressed to the participants that there were no right or wrong answers, as the research was interested in each individual's experiences and perceptions of incidents they personally felt were traumatic. While the researcher did hope to find some similarities between responses with regard to the characteristics of an event that made it traumatic, participants were not coerced into providing them. The benefits the data would afford the organisation and its members in the form of aiding the development of training programmes, and support resources, was also highlighted to the participants. At the conclusion of the interview the researcher asked the participants if they had any further questions, or if the interview had raised any personal issues they wished to have addressed.

Participants were recruited for the study by means of a notice placed in the daily occurrences, which are discussed prior to the commencement of each shift (Appendix 1). A similar notice was also placed in the district newsletter that is produced weekly. The author also visited a number of stations around the region and introduced herself and the study. Officers interested in participating then contacted the researcher and organised a time and a place to conduct the interview. Volunteers were given three venue options for the interview, the police station, the researcher's home/motel room, or the volunteer's home. This was to ensure participants were interviewed in a location where they felt most comfortable. As a result, 36 of the interviews were conducted at

police stations, nine in the participant's own home, four at the researcher's residence, and three at administrative offices housed in buildings separate from the police station, such as regional and district offices.

The Repertory Grid Method

An interview technique was developed based on George Kelly's (1955) Role Construct Repertory Grid Test. The advantage of applying the repertory grid method to the present study was that it enabled participants to describe their attitudes towards an event in their own words, so they were not led into making ratings on items which did not concern them as individuals (Frewer, Howard, Hedderley & Shepherd, 1996).

The Repertory Grid technique has been used extensively as a means of articulating psychological constructs that mediate occupational well-being (Brook & Brook, 1989). Using this method allowed the researcher to draw upon the experiences of working police officers, to investigate their individual perceptions of an event and the psychological constructs that define traumatic experiences.

The Repertory Grid technique enables the assessment of individual perceptions, and allows the assessor to obtain a mental map of how the individual sees the world with a minimum of observer bias (Stewart & Stewart, 1981). While generally employed in the area of personal construct theory, the rapid development of new repertory grid procedures has resulted in their utilisation in a number of fields including clinical psychology, education, artificial intelligence, market research, management studies, vocational guidance and career development (Brook, 1992; Sewell, Mitterer, Adams-Webber & Cromwell, 1991). Repertory Grid methodology has also featured in research into police stress. Winter (1993) employed repertory grids to compare the personal construct systems of police officers whose response to stress involved law breaking or violence, as opposed to those officers referred for psychological assessment for other reasons.

The author used the initial interviews to pilot the Repertory Grid method and ascertain its suitability for the subject matter and the purposes of the research. As a result a number of minor changes were made. The resulting procedure still employed the general assumptions and techniques of the Repertory Grid method, only in a way more suited to the aims of the present research and its context. According to Sewell, Adams-Webber, Mitterer and Cromwell (1992), it is important that the design of the repertory grid is as consistent as possible with the conceptual formulation of the problem that the investigator wishes to address.

The repertory grid method can be broken down into three parts, the first being element elicitation. The types of elements that are obtained define the kind of interview to be conducted (Stewart & Stewart, 1981). Elements can include people, places events, or objects. For the purpose of the present research participants provided their own elements. The elicited elements were events that the participant found particularly distressing or traumatic. This helped ensure that the elements elicited were of personal relevance to each participant, and also facilitated later discussion about the event. As the elements were elicited, they were written onto separate cards measuring 7.5cm x 5cm, which were numbered according to how many elements were elicited.

The second stage in the repertory grid method is the construct elicitation, which is the fundamental process underlying repertory grid work (Stewart & Stewart, 1981). The data provided in the second stage is of most relevance to the present study. Constructs were elicited using the triad method, whereby participants were presented with random groups of three elements (traumatic incidents) which had been written on the separate cards in the element elicitation stage. Constructs (event characteristics) were elicited by asking if any **two** of the events were traumatic for a similar reason. Because the interviewer plays no part in suggesting the nature of the construct, they are a personal reflection of how each participant perceives the event. In some instances, participants in this study were unable to note any similarities between the elements that made them traumatic. That is, in some cases the events (elements) they identified were all traumatic for different reasons. When this occurred, each event characteristic was

noted down as a separate construct, rather than attempt to elicit similarities that were perhaps only superficial, and not the real reason behind the distressing nature of the event.

The final part of the repertory grid method was to create a full grid so that the constructs could be treated as a scale, and not simply as words. Using a five point likert scale, participants were asked to rate each construct on each element with regard to how important each construct was in making each event (element) distressing. Participants' ratings were then entered onto a 10 x 11 cell grid. A five point likert scale was chosen (as opposed to a seven-point scale) as five point scales are easier to visually inspect and a seven-point scale is generally getting close to most peoples limit of discrimination (Stewart & Stewart, 1981). In addition to producing quantitative data amenable to statistical analysis, the rating procedure highlights the most significant constructs (event characteristics).

While researchers have examined the reliability and validity of grid measures, no definitive psychometric data exists on the repertory grid in the context of the present research. According to Bannister and Mair (1968, p.156), the numerous grid modifications and adaptations means "There is no such thing as *the* grid, and there can be no such thing as *the* reliability of *the* grid". It is therefore the responsibility of the researcher to demonstrate the reliability and validity of their grid in the context it is employed. Reliability and validity relies heavily on the statistical analysis used to interpret the grid.

The Interviews

The interview schedule was divided into two parts. The first part dealt with outlining the purpose of the research, the format the interview was going to take, gaining written informed consent from each participant, and obtaining some basic demographic data. Participants were also provided with an information sheet, which reiterated the purpose of the research and outlined their rights as a participant

(Appendix 2). A copy of the consent form and the form used for gathering the demographic data can be found in Appendices 3 and 4 respectively.

The second phase of the interview was concerned with the participants' experiences with, and perceptions of traumatic incidents, and was divided into three subsections: elicitation of elements, or specific traumatic incidents that the participant found traumatic; construct elicitation; and the rating of each construct on each element.

Standardised instructions were used with all participants and were given as follows: The interviewer asked each participant to identify no more than 10 incidents that they found particularly traumatic or distressing. As each event was elicited they were written down separately on numbered cards. It was then explained that the events they identified would be presented to them in random groups of three. Working from a list of predetermined triads the researcher placed three cards, each inscribed with a separate traumatic event, in front of the participant in numerical order. The triads were composed so that each incident would appear at least twice in the triads presented to the participants to avoid valuable constructs being omitted from the research. Participants were then asked "If any two of these events were traumatic or distressing for a similar reason?" This question facilitated the elicitation of the constructs. Participants were informed they were free to move the cards around and experiment with various pairings if this aided the process of construct elicitation. If participants had trouble understanding the instructions the interviewer provided a further elaboration of the instructions "For instance two of these events may have been distressing for the same reason, while the third was traumatic for a different reason." The participants were also informed that if all three of the events were distressing for different reasons, and there were no similarities, they could simply inform the interviewer that this was the case, and then identify the varying reasons for the traumatic impact of each event. This process continued until the participant could no longer elicit any new constructs. Participants were also asked to identify any positive aspects they took away from each event. Each construct elicited by the participant was written down the left hand side of a 10 x 11 cell grid, each cell measuring approximately 2cm x 1cm. The number of events

each respondent identified as being traumatic was written along the top of the grid from left to right. Starting from the top of the grid working left to right participants were then asked to evaluate, on a scale of 0-5, how important each construct was in making each event traumatic. A rating of one indicated the construct was hardly important at all, while a five indicated a particular construct was highly important in making the event traumatic. A zero was used to indicate when a construct was not applicable to the event in question.

RESULTS

Descriptive Statistics

The Interviews

Each interview took between 35 minutes and two hours to complete. The considerable variation in length was due to three main factors. Firstly, the number of events each participant recalled as being traumatic. Secondly, the amount of detail participants provided regarding each event. While some participants simply recounted the bare facts pertaining to an incident, others delved into more detail about each traumatic incident, and the circumstances surrounding it. Finally, the number of constructs elicited from each individual also served to increase the duration of the interview. Generally, those who identified more traumatic incidents subsequently identified more constructs or event characteristics. This was largely due to the fact that a greater number of traumatic events allowed for more triadic comparisons to be used for the purpose of construct elicitation.

Traumatic Incidents

A total of 327 traumatic incidents were elicited from 52 participants. The number of traumatic events referred to by the participants ranged from two events to 11 events, with a mean of 6.3 events per participant. Table 2 illustrates the average number of traumatic events elicited by participants according to their length of service. As can be seen by Table 2, officers with between 20 and 29 years service in the police identified on average 5.3 traumatic events, which is slightly below the total mean for the sample population of 6.3. Participants in the zero to nine years and 10-19 years service categories were very close to the overall mean of traumatic events elicited, while those with 30 or more years police service were slightly above with seven incidents per respondent.

Table 2
Mean Number of Traumatic Events Elicited by Participants According to
Length of Service

Variable	Mean
Length of Service	
0 – 9 years	6.25
10 – 19	6.73
20 – 29	5.30
> 30	7.00

Constructs

The average number of constructs elicited from each participant was very similar to the average number of events. The total average number of constructs elicited was 7.60, including both positive and negative constructs. Positive constructs referred to the benefits that a participant was able to take away from a situation. Negative constructs were the event characteristics that participants identified as contributing to the traumatic impact of an event, such as the victim's age, the extent of the injuries, or the number of people killed. The average number of negative constructs elicited was 6.77, compared to only .79 for positive constructs. Twenty-three respondents did not mention any positive constructs, while 21 participants mentioned only one. A further four participants identified two positive constructs, while four participants mentioned three positive constructs.

A total of 97 constructs both positive and negative, were identified by participants. The constructs constitute event characteristics, or reasons why an individual found an event traumatic or beneficial. The total constructs were intuitively reduced from 97 down to 62 constructs by the researcher to aid the manageability of the data and to make it more amenable to analysis. Table 3a

contains a list of the 53 negative constructs and their frequencies. The frequencies refer to how often a construct was indicated by the participants as being an event characteristic that contributed to the traumatic impact of an incident. Although a participant may have mentioned that a particular construct, for example the age of the victim, was significant in making several of the events they identified traumatic, it was only recorded once for each participant. Similarly, Table 3b contains the nine positive constructs. The subsequent rating of each construct on each event accommodated for the fact that some constructs were applicable to a number of events. As can be seen from Table 3a the age of the victim, or in some cases the offender was the most frequently reported factor, with 34 of the 52 participants nominating it as a factor that contributed to an events impact. This was followed by the ability to identify with the victim or incident, dealing with the family of the victim, personally knowing the victim or those involved, and incidents which were particularly messy or gory, all of which were identified by between 23 and 29 respondents. While these and a number of other constructs were relatively popular (e.g. extent of injuries/abuse, frustration, inexperience, number of fatalities), Table 3a indicates that over half of the constructs (30) featured less than five times, for instance media attention, angry, paperwork, working conditions, feelings of guilt, and inter-organisational problems. Personal satisfaction and feeling good about the job was the most frequently reported positive construct, followed by gained confidence and experience (Table 3b). A third of the positive constructs elicited were only identified by one participant each, including earned respect, utilised skills, and gained appreciation of own situation.

Table 3a
Frequencies for the 53 Negative Constructs Reported as Reasons for the
Traumatic Impact of an Event

Construct	Frequency
1 Age of the victim/offender	34
2 Identified with Victim/Incident	29
3 Dealing with Family of Victim	27
4 Knew Victim/Colleague	27
5 Particularly Messy/Gory	23
6 Extent of Injuries/Abuse	14
7 Frustration	13
8 Directed at Self/Threat to Self/Incurred Injury	10
9 Inexperience	10
10 Number of Fatalities	9
11 Involved Death/Dealing with Bodies	8
12 Felt Helpless	8
13 Innocent Victim/Lack of Control over Situation	8
14 Totally Surprising/Shock	7
15 A Lot to Deal with in Short Time	7
16 Dealing with Victims/Witnesses	7
17 Felt or Realised Vulnerability	6
18 Public Criticism	5
19 Affected Officer's Family	5
20 Major/Serious Incidents	5
21 Let Down (By Public/Colleague)	5
22 Unpredictable Situation	5
23 Prolonged Exposure to Trauma	5
24 High Level of Involvement or Responsibility	4
25 Accidental Death/Preventable	4
26 Angry	4
27 Affected Officer Personally	4
28 Management Inadequacies	4
29 Smell	4
30 Emotional Involvement in Situation	4
31 Shift Work/Exhaustion	3
32 Feelings of Guilt	3
33 Outcome of Incident Hard to Accept	3
34 Ongoing Nature of Event	2
35 Poor Working Conditions/Lack Resources	2
36 Event didn't Conform to Perceptions/Expectations	2
37 Thought About What Could Have Happened	2
38 Felt Sympathy/Pity for Victims and/or Family	2
39 Attitude/Expectations of Superior	2
40 Lack of Control over Situation	2
41 Lack of Support from Superiors	2
42 Attending Incident on Own/First on Scene	2
43 Impact of Event on Children	2
44 Pressure to Remain Objective	1
45 Inter-Organisational Problems	1
46 Trauma Triggered by Later Incident	1
47 Paperwork	1
48 Media Attention	1
49 People's Hatred/Hostility toward Police	1
50 Couldn't Deal with Emotions Immediately	1
51 Victims Become Personalised	1
52 Subjected to Harassment (Sexual)	1
53 Type of Death (i.e. execution style homicide)	1

Table 3b
Frequencies for the Nine Positive Constructs Reported as
Contributing to the Positive Resolution of Incidents

Construct	Frequency
1 Personal Satisfaction/Felt Good about Job	14
2 Gained Confidence/Experience	10
3 Learnt about Own Abilities	6
4 Appreciation of Life	3
5 Helping Victims/Aiding Recovery	3
6 Good Teamwork	2
7 Earned Respect	1
8 Utilised Skills	1
9 Gained Appreciation of Own Situation	1

Inferential Statistics

The statistical package chosen for the analysis of the data was SPSS/PC (Norusis, 1988). Although a number of packages exist for the analysis of repertory grid data, they were not used as they analyse the data from each grid separately. The analysis of each grid separately would not allow generalisations to be made regarding the factors that contribute to the impact of a traumatic event. A factor analysis was therefore chosen as the primary method of data analysis. Analysis proceeded in three main stages.

1. Correlations were obtained in order to explore initial relationships among the variables.
2. A factor analysis of the data was then conducted in order to simplify it and investigate whether any of the variables fell together to form coherent subsets, indicative of underlying processes, which could be used to explain the traumatic impact of some traumatic incidents.
3. Correspondence analysis was conducted in order to see if any relationship existed between the types of traumatic events identified by

participants and the constructs respondents employed to explain why a particular event was traumatic.

Data Screening

Prior to commencing the main analysis, the data was screened to identify data entry errors and outlying constructs, and to investigate the distribution of the variables and the possibility that the number of constructs could be condensed down, where there was evidence to suggest that some of the constructs represented similar reasons for the traumatic impact of a given incident.

Inspection of the frequencies for each variable revealed that two of the variables – “inter-organisational difficulties” and “trauma triggered by a later incident” – were only mentioned by one respondent each. Furthermore, both variables only received one rating with respect to their influence in making an event traumatic. That is, both variables were very specific, being mentioned by only one person respectively, with each variable only applicable to one incident. As a result it was decided to eliminate both constructs from further analysis, as neither variable would affect the other data statistically, or contribute to further analysis in any meaningful way. However, they will be considered in the discussion.

An examination of the correlation matrix was carried out to determine whether any of the variables correlated highly enough to allow the number of variables to be statistically reduced. A cut-off of .80 was chosen to signal that variables could be consolidated into one, as a correlation between variables of .80 or greater indicates a strong relationship among the variables. Several very high correlations, (all above .92) were observed between the variables labelled distrust, disillusionment, lack of leadership, and lack of feeling, therefore these four variables were re-labelled as ‘management inadequacies’. The scores on each of the four variables was then reduced to a single set of scores for the new

variable by calculating the mean score across the variables for each event. It was also decided to exclude the positive constructs from the factor analyses, as the main concern of this part of the study was to find underlying processes among the variables used by participants to explain the traumatic impact of traumatic events.

Factor Analysis

Prior to commencing the factor analysis, a number of checks were made to assess how amenable the data would be to factor analysis. The analysis was conducted on 327 cases, (the number of incidents identified as traumatic by 52 respondents). The ratio of cases to variables was 6.1 to 1. According to Tabachnick and Fidell (1989) it is 'comforting' to have a minimum of five cases to every variable. With respect to sample size, Comrey (1973) considers a sample size of 300 as good. The factorability of the data set was assessed via inspection of the correlation matrix containing correlations between all of the variables under investigation. The correlation matrix should contain several sizeable correlations in excess of .30 for factor analysis to be considered (Tabachnick & Fidell 1989). As this was the case, the analysis continued.

Principal components analysis with varimax rotation was performed through SPSS/PC on 53 variables. The choice of principal components analysis (PCA) as the method of factor extraction was based on the goals of the research. The present research was exploratory in nature, with no theoretical premises driving the expected results. Rather than seeking a theoretical solution to the data, which is generally the goal of factor analysis, the data analysis sought an empirical summary of the data set which is achieved through PCA (Tabachnick & Fidell, 1989).

As recommended by Tabachnick & Fidell, (1989) an initial run with principal components extraction was used to estimate the number of factors to be extracted, and alert the researcher to the presence of outliers. While the

presence of outliers was acknowledged they were disregarded because the large number of zeros in the data would have made dealing with outliers very problematic. The initial PCA extraction indicated a maximum of 21 factors with eigenvalues greater than one. It was decided to retain the default value of one for the eigenvalues, as reducing it would have extracted more factors with only small increments in the amount of variance explained by the factors. Furthermore, 21 factors were already a considerable number to interpret.

Although the initial PCA extraction indicated the possibility of a 21-factor solution, further analyses were conducted to ascertain the most suitable factor solution for the data. In addition to inspecting the eigenvalues following an initial principal components extraction, a second criterion for estimating the number of factors to be extracted, the scree test, was also consulted (Cattell, 1966). In the scree test the factors are plotted in descending order along the abscissa with the eigenvalues plotted as the ordinate. The scree plot is then inspected for a point where a line drawn through the plotted points changes direction. In the present analysis the scree test appeared to indicate a break between five and six factors, although, a second possible break was also identified between the eighth and ninth factors (see Figure 1). After the ninth factor however, no clear break between the points was apparent and the plotted factors decreased gradually in a negative direction.

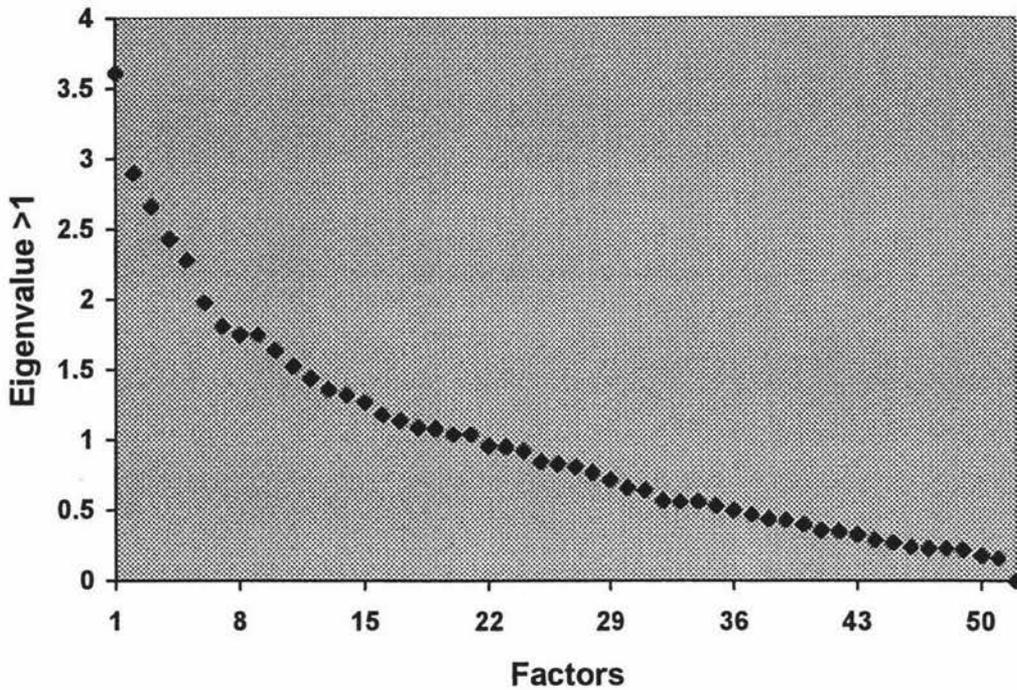


Figure 1. The Scree Plot of Extracted Factors

The scree plot is not exact, and requires considerable judgement on the part of the researcher in determining where the discontinuity in the plotted eigenvalues occurs. To enable a more objective decision to be made regarding the number of factors to be extracted, several analyses were conducting with PCA extraction and varimax rotation, each specifying a different number of factors, between five and nine, to be extracted each time. As suggested by Comrey (1973) a cut off value of .45 (20% overlap between the variable and factor) was used for the inclusion of a variable in the definition of a factor. Several additional indicators were then examined to determine the number of factors to be extracted, including the revised scree plots, residual correlation matrices, strength and stability of the resulting factors, the amount of variance explained, and the presence of simple structure. As a result of these analyses, a six factor solution was chosen as the most accurate representation of the data.

Although a six factor solution was chosen, a five factor solution was also quite satisfactory. Firstly the presence of simple structure was noted, with several variables correlating highly with each factor and only one factor

correlating highly with each variable. Also the patterns of correlations present in the correlation matrix were represented in the factor solution (Tabachnick & Fidell, 1989). However, a six factor solution was selected because, in addition to the supplementary variance that it explained, 30.5% compared to 26.7% for a five factor solution, the sixth factor was very interpretable. It must be noted that only two variables loaded on the sixth factor, which usually suggests a weak factor, however, Tabachnick and Fidell (1989) advocate that sometimes the last few factors represent the most interesting and unexpected findings, which coupled with their ability to be easily interpreted, is a good reason for retaining factors of marginal reliability. Furthermore, both variables in factor six correlated together at .36, which exceeded the correlations between these two variables, and the other 51 variables in the correlation matrix with the majority of correlations falling well below .10. A six-factor solution was also supported by the presence of simple structure, and the patterns of correlations in the correlation matrix, which again corresponded with the variables in the factor solution.

Six factors were extracted from the data. The SMCs for the factor solution ranged between zero and one, indicating a satisfactory level of internal consistency between the factors. Community values tended to be low suggesting the majority of the variables were not well defined by the factor solution. With a cut off of .45 for inclusion of a variable in the interpretation of a factor, only 13 variables possessed community values in excess of .45.

Orthogonal rotation using the varimax technique was retained in the current analysis for its conceptual simplicity (its basic goal is to simplify factors), and the ease with which its output is interpreted. An oblique rotation was conducted using direct oblimin, however, the correlations in the factor correlation matrix were extremely low indicating no overlap in variance among the factors (Tabachnick & Fidell, 1989).

Table 4 presents the factors with interpretive labels and the rotated factor loadings for each of the variables. The order in which the variables appear in each factor is contingent on the size of the loadings that each variable contributes to each factor. Factor one was labelled 'emotional' as all of the variables loading on it greater than .45 were all related to emotions. For example surprising/shock, or witnessed hatred toward the police. Factor two was interpreted as 'lack of control' as the variables constituting the factor referred either directly to a lack of control, or to situations which can result in a loss of control. Factors three and five were quite similar as they both referred to job and organisational stressors. The variables that constitute factor three referred to aspects of the situation or organisation that were responsible for increased trauma or stress, such as prolonged exposure or a lack of support, and was therefore given the interpretive label 'work-related'. 'Training inadequacies' was the interpretive label conferred on factor five, as the three variables that loaded on factor five greater than .45 pertained to reactions that may arise as a result of inadequate training (e.g. felt helpless). Factor four was defined by four variables with loadings greater than .45. Its interpretive label, 'victim orientated', was mainly related to the first two variables, innocent and age, both of which are victim descriptors. Finally, factor six, the least defined of the factors with only two variables loading on it greater than .45, was labelled 'aspects of death' as both variables referred to factors which may define incidents involving death, such as the number of people killed or the manner in which they die.

Table 4

**The Six Factors Extracted with their Interpretive Labels and Rotated
Factor Loadings for Each Variable**

Factor I	Factor II
<u>Emotional</u>	<u>Lack of Control</u>
Witness Hatred toward Police (.87)	Altered Perceptions (.81)
Could Not Deal with Emotions Immediately (.87)	Pressure on Objectivity (.80)
Involved Death (.60)	Victims Personalised (.76)
Surprising/Shock (.60)	Not in Control (.72)
Affected Officer's Family (.60)	
Personally Affected (.52)	
Major/Serious Incident (.46)	
<hr/>	
Factor III	Factor IV
<u>Work Related</u>	<u>Victim Orientated</u>
Lack of Support (.84)	Innocent Victim (.70)
Attitude of Superior (.83)	Media Attention (.62)
Unpredictable (.68)	Age of Victim (.53)
Prolonged Exposure (.52)	Shift Work/Exhaustion (.51)
<hr/>	
Factor V	Factor VI
<u>Training Inadequacies</u>	<u>Aspects of Death</u>
Felt Helpless (.64)	Number of Fatalities (.50)
Paperwork (.51)	Type of Death (.45)
Inexperience (.46)	
<hr/>	

Correspondence Analysis

Correspondence analysis was employed to graphically illustrate any relationships between the types of events identified by participants as traumatic, and the constructs they elicited for explaining the traumatic impact of an event. Correspondence analysis was applied to the present research results due to its usefulness in analysing cross-tabular data in the form of numerical frequencies, and its ability to display graphical data simply while permitting interpretation and understanding of the data (Greenacre, 1993).

An initial correspondence analysis was performed on all of the constructs to ascertain whether any would need to be dropped from further analysis. Infrequently mentioned constructs can appear very strongly associated with certain types of incidents, (for instance, if a construct is only mentioned five times, at least 20% of its observations will be associated with each of the incidents it is mentioned for). These associations, which are strong in percentage terms but do not amount to many actual mentions, can dominate the correspondence analysis results, swamping associations which are less dramatic in terms of percentages but more substantial in the number of mentions. As correspondence analysis is an extension of the chi-squared test, the chi-squared rule of thumb (i.e. expected frequencies <1.5) was employed to indicate which constructs may be influencing the results in such a fashion. Constructs where the expected frequencies were less than 1.5 for more than half of the 14 incident types were dropped from further analysis, except for the constructs: threat, number of fatalities, responsibility, let down, and dealing with the victims' family, as these produced interesting interactions. More than half the constructs were subsequently eliminated from the analysis. Table 5 contains a list of the constructs retained for the correspondence analysis.

Table 5**Constructs Retained for the Correspondence Analysis**

Dealing with Family of Victim	Age of the Victim
Knew Victim/Offender	Identified with Victim/Incident
Particularly Messy/Gory	Extent of Injuries/Abuse
Threat to Self/Incurred Injury	Frustration
Management Inadequacies	Involved Death
Number of Fatalities	Inexperience
Totally Surprising/Shock	Public Criticism
Felt Helpless	Innocent Victim
A Lot to Deal with in Short Time	High Level of Responsibility
Felt Vulnerable	Affected Officers Family
Serious Incident	Let Down
Unpredictable Situation	Affected Officer Personally
Dealing with Victims/Witnesses	

Following examination of the expected frequencies, a second correspondence analysis was conducted with the reduced set of constructs. The second correspondence analysis produced four dimensions or axes which were interpretable. The remaining nine dimensions only accounted for a small percentage of the variation and were considered to be largely uninformative.

The horizontal axis of the first two-dimensional plot (Figure 2) indicates that the most unique relationships, situated toward the outer extremes of the axis, exist between the constructs 'threat or felt threatened' and 'let down' and the incident types public order disturbances, internal investigations, and incidents involving the death of a known colleague or threat or injury to oneself.

The location of constructs towards the intersection of the two axes suggest these constructs tend to occur regularly with several incident types, particularly those which also occupy the intersection of the two axes, and therefore share no really unique relationship with the event types. The constructs situated toward the outer limits of the axes, however, tend to occur only with certain incident types. The vertical axis indicates a relationship between the construct 'number of fatalities' and incidents involving multiple casualties. According to the inertia value on the vertical axis (13.23%) the constructs and incidents types do not differ to the extent that they do on the horizontal axis which records an inertia value of 34.43%. Many of the frequently mentioned constructs – situated around the intersection of the two axes – did not show any strong associations as they tended to be mentioned in connection with the majority of incident types. However, they are no less important. According to Figure 2, the constructs 'extent of injuries', 'gory/messy deaths', 'shock', 'identified with victim', 'innocent victim', 'age of the victim', 'dealing with the victims' family', and 'responsibility', occurred often with the incident types homicide, horrific deaths, motor vehicle accidents, dealing with the family, deaths of young children, suicides and sudden deaths.

Figure 3 presents the second two-dimensional plot between dimensions three and four. The horizontal axis indicates a relationship between the incident type job stressors and the construct 'number of fatalities'. The positive end of the vertical axis contains an association between the constructs 'public criticism', 'responsibility' and 'helplessness' and the incident types horrific deaths, suicides and public order disturbances. The negative end of dimension four alludes to a relationship between the constructs 'vulnerability', 'affected my family' and 'threat', and incidents which involve dealing with the family of victims, abuse of children, and the death of a known colleague or threat or injury to self. Constructs which appeared to occur frequently with a number of incident types in Figure 3 included: 'involved death', 'dealing with victims' family', 'extent of injuries', 'identified with victim', 'age of victim', 'serious incident',

'knew victim', 'dealing with victims and witnesses', and 'innocent victims'. These constructs appeared to be mentioned with the majority of incident types, in particular sudden deaths, motor vehicle accidents, other, deaths involving children, and multiple fatality incidents.

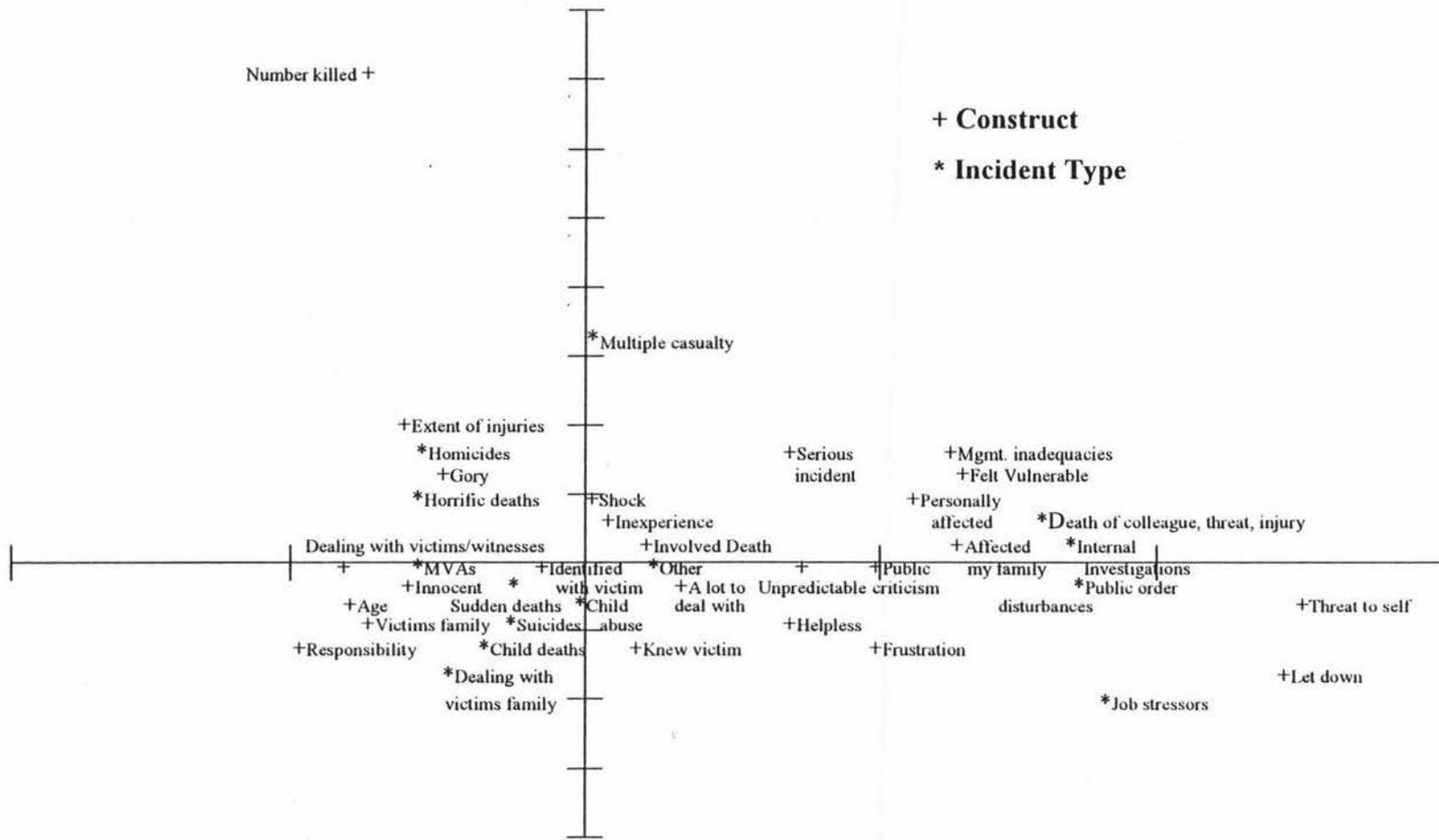


Figure 2. First Two-Dimensional Plot of Dimensions of Relationships Between Constructs and Incident Type

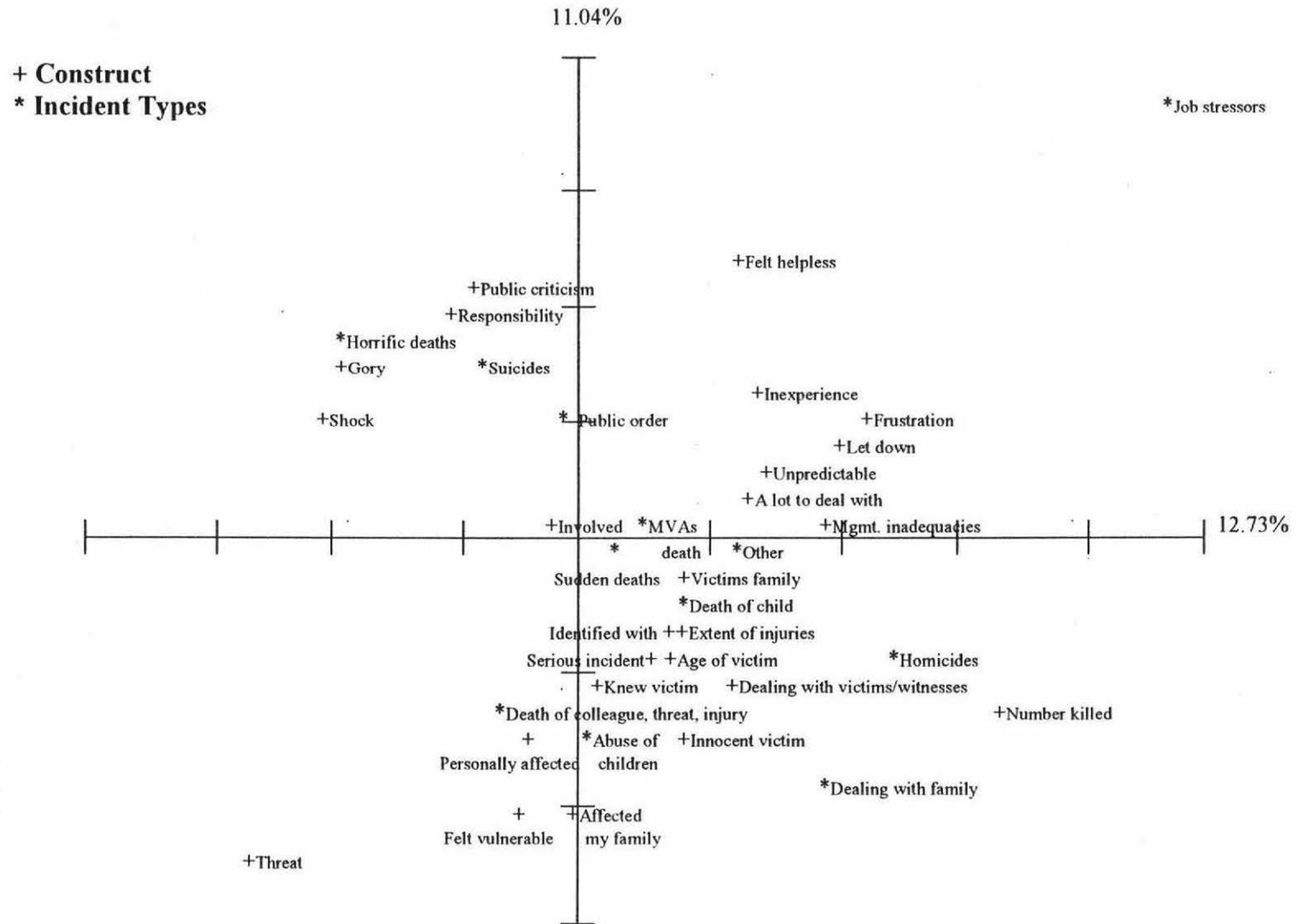


Figure 3. Two-Dimensional Plot of Dimensions Three and Four for the Relationships Between Constructs and Incident Types

Qualitative Analysis

To aid interpretation, the 327 events were categorised into 14 incident types by the researcher. Table 6 illustrates the 14 categories, and the number of times the incidents in each event category were identified by participants as traumatic. As can be seen by Table 6, participants in the present study referred to incidents involving the deaths of young children, including cot deaths, the most frequently. This was followed by incidents involving the death of a police officer, or situations in which the participant or a colleague was injured or their life threatened during the course of their work. Incidents which involved extensive injuries and/or horrific deaths were found to be the third most common category of events referred to by respondents as being traumatic. Included in this category were accidents involving trains as these were referred to as being traumatic, almost without exception, for the horrific nature of the injuries and the extent of dismemberment that generally accompanies these accidents. The category that received the least attention from the participants was that of sudden deaths (i.e. deaths from natural causes). Although these had the capacity to be unpleasant in cases of delayed discovery, they were not considered as horrific as a badly dismembered or mutilated body. Furthermore, the trauma associated with attending a sudden death was often because it was the first time the participant had attended a death on the job, or seen a dead body. A considerable number of incidents (28) did not fall into any of the previous 13 categories and so were designated the classification of 'Other'. Included in the category 'other' were incidents such as the death of a police dog, making an arrest, domestic incidents, alleged kidnapping of a child, missing person investigations, search and rescue, and attempted suicide.

Table 6
The 14 Event Types as Classified by the Researcher and Presented as
Frequencies and Percentages

Event Type Classification	Freq.	%
1. Incidents Involving the Deaths of Children Including Cot deaths	52	15.9
2. Events Involving the Death of a Known Police Officer or Injury or Threat to Life of Self	42	12.8
3. Incidents Involving Horrific Death and/or Injury	37	11.3
4. Fatal Motor Vehicle Accidents	34	10.4
5. 'Other' (e.g. Arrests, Non-Fatal MVAs, Death of Police Dog, Abusive Offenders, Search and Rescue, Observation Work)	28	8.6
6. Incidents Involving Multiple Fatalities	22	6.7
7. Suicides	19	5.8
8. Homicides	18	5.5
9. Internal Investigations	16	4.9
10. Public Order Disturbances Including AOS Call Outs	14	4.3
11. Dealing With Victims' Families	13	4.0
12. Abuse of Children and Child Custody Disputes	11	3.4
13. Job Stressors (e.g. Paperwork, Shift Work)	11	3.4
14. Sudden Deaths	10	3.1

DISCUSSION

This section will discuss the results from the study, which has examined the way in which a sample of the New Zealand police construct their experiences of traumatic incidents using the repertory grid method. The present study was guided by the findings of recent research, which suggest that reactivity to a traumatic event is more a function of the characteristics that define the event than the type of event itself. Firstly this section will examine the types of events identified as traumatic by the participants, and the extent to which they support previous findings. Following this, some of the more significant negative constructs elicited from participants will be discussed. The positive constructs, although not statistically analysed, will also be addressed. Using previous research to support their utility the discussion will then focus on the six factors extracted from the data, before addressing the relationships identified by the study between the types of events recalled by participants and the elicited constructs. Finally, this discussion will identify the general limitations of the study, and the implications of the results in terms of intervention strategies, and avenues for future research.

Type of Incident

An examination of the types of incidents identified as traumatic by the participants in the present study (Table 6) indicates that the findings are very much in line with those of previous research (Coman, 1993; Dyregrov & Mitchell, 1992; Stephens et al., 1997; Ursano & McCarroll, 1990; Violanti, 1996). Incidents involving the deaths of children were the most frequently reported traumatic events by the research sample. This finding is supported by the recent work of Coman (1993) and Violanti (1996), who found that injury or the non-accidental death of a child was one of the most frequently reported traumatic events by Australian and American police respectively. The finding that incidents involving the death of a known colleague, injury as a result of physical attack, and threat to life, are also significant stressors, was supported by Violanti (1996), who found that the death of a colleague and physical attack were among the three top ranked stressors in a sample of American police.

Support for the finding that particularly horrific deaths and multiple casualties also constitute significant traumatic events is documented by Ursano & McCarroll (1990).

Internal investigations were identified as traumatic on 16 occasions, ranking as the ninth most common type of traumatic event mentioned by participants. Internal investigations and disciplinary procedures are generally regarded as job stressors rather than traumatic events (Cummings, 1996). However, with the public demanding greater police accountability, internal investigations and police complaint inquiries are becoming more common. The need to consider the impact of internal investigations on the individual is highlighted by this fact, as well as their prevalence in research findings. Stephens (1996) found participants eager to discuss the stressful aspects of their work such as internal police inquiries; despite the studies focus on traumatic events. Internal investigations can lead to the loss of an officer's reputation, and in some cases their job. In addition to being "degrading" they can also place immense stress on an officer's relationships, both within and outside the job. These results suggest the need to recognise internal investigations as an important event characteristic that contributes to the development of traumatic stress.

While not as prevalent as internal investigations, job stressors (e.g. paper work and shift work) constituted a second form of organisational stress, referred to on 11 occasions in the present research. Although the focus of the current research was traumatic stress, the work stressors identified by participants could not be ignored. Similarly, Stephens (1996) whose research also focused on trauma issues, found participants reluctant to ignore other sources of stress at work. Qualitative data from interviews conducted by Stephens (1996) and other recent studies (e.g. Brown & Fielding, 1993; Evans & Coman, 1993), support the view that stress from job and organisational factors may exacerbate traumatic stress. It is possible that such a conclusion can be drawn from the present research based on the qualitative data from the interviews. For example, "Shift work...that can be a source of trauma because you just get so tired and strung out, that things that may not affect you or upset you do, and

the old frustration and tension sets in....” “You get tired and perhaps you are more susceptible to dwelling on things and worrying about them”.

While lending support to the findings of previous research, these results highlight significant shortcomings in the assessment of trauma in the police, and some areas of consideration that need to be developed. Most notably are cot deaths and incidents involving the deaths of young children. Despite their apparent toxicity, these incidents only warrant voluntary debriefing within the New Zealand police. Furthermore, the implications that internal investigations and job stressors hold for the well being of officers’ are not catered for by current police policies. More significantly, these results reinforce the difficulty of pinpointing the types of incidents most likely to affect individuals. The experiences detailed under the ‘other’ category (e.g. deaths of police dogs, making arrests, attempted suicides) emphasise the wide range of events encountered by police and their ability to exert a wide range of differing effects on different individuals. As one officer commented “ I still have nightmares about it (a minor incident) yet it seems like a nothing....I’ve got things that should be more traumatic that aren’t, does that make sense?”

Event Characteristics

Scrutiny of the event characteristics (constructs) identified by the participants reveals that, like the type of incident, a considerable number of the event characteristics have been well documented in the trauma literature (Dunning, 1994; Kroes & Gould, 1979; McCammon, 1996; Paton & Stephens, 1995; Stone & Schuldberg, 1990; Werner et al., 1992). These event characteristics include: age of the victim/offender; knew the victim, or identified with the victim/incident; particularly messy, horrific deaths, and extensive injuries; physical threat to self, and incurred injury; involved death; number of fatalities; poor working conditions or lack of resources; media attention; and major/serious incidents. In addition to being supported by previous research, the majority of these constructs were also the most frequently identified by participants. The fact that many of the constructs were supported by previous trauma literature, points to their utility in identifying those individuals at risk from developing serious

reactions to traumatic incidents, with possible implications for the development of the trauma policy of the New Zealand police.

In addition to these constructs, several other constructs mentioned by participants were of particular interest. The elicitation of the construct 'subjected to sexual harassment' was of interest due to the growing body of research that suggests sexual harassment is a significant source of stress for women in the workforce (Waugh, 1994; Kroes, 1982). While only mentioned by one participant, its appearance in the present study is of concern as the research only analysed the results of four women. Coupled with the possibility that sexual harassment is more prevalent in male dominated organisations such as the police, this finding indicates a need to ensure sexual or any other forms of harassment are condemned openly at the management level, and that procedures are in place to deal immediately and effectively with any complaints.

Although only identified by one participant, trauma which is triggered following exposure to a later incident that in some way resembles the initial traumatic experience was of considerable interest, given that police officers are often placed in situations reminiscent of the original trauma (Martin et al., 1986). Furthermore, police are often placed in situations where the sights, sounds, and smells associated with the event can trigger vivid reminders in the months or even years that follow. In particular, distinctive smells can have a persistent influence on impact (Paton & Stephens, 1995). Consequently, smell was elicited as a construct with a number of the participants commenting on the very distinctive smell of death and how it contributed to the traumatic impact of an event. "It's the smell that gets you...it's not the visual, it's the smell". However, none of the participants conceded that the smell of a latter incident or any other event characteristic was responsible for their reaction to a previous event. A possible explanation for this is that while aspects of a traumatic event may remind police officers of a previous situation they attended, it is more likely that attendance at numerous traumatic incidents has a cumulative effect, whereby each traumatic event adds to the trauma of subsequent incidents. There is increasing evidence to support the

existence of a positive relationship between the number of traumatic events experienced and the severity of reactivity (e.g. Green, 1994; Violanti, 1996). Several participants commented on the cumulative nature of police work. For example "I can name a number of instances (that were traumatic) but I find it more a build up, just the constant wear and tear....you think your going well because its just an adrenaline affect but it all builds up". "I had been working in (a small town) all my career, in the sexual abuse, I think that's where the cumulative effect builds up".

A second construct, eliminated from the data analysis phase was 'inter-organisational problems'. Considering the degree to which police work coincides with other organisations and the scope for conflict that such interactions enable, its lack of acknowledgement was also quite surprising. Conflict between agencies as a result of co-ordination and communication problems often typify the early stages of a disaster, where police officers and fire-fighters are often both called upon to perform rescue tasks. Conflict may then arise as a result of inadequate disaster planning and a failure to assign responsibility for specific tasks to specific agencies (Paton & Stephens, 1995). A possible explanation for the infrequent use of this construct by the research sample is that conflict between agencies has generally been limited to disaster research, and has not been investigated in the context of general policing. Furthermore, the types of incidents that typify policing, such as attending road accidents, are usually characterised by greater role clarity between the various emergency services in attendance.

Positive Constructs

The participants in the research identified very few positive constructs, with less than one construct elicited from each officer. The most common construct was personal satisfaction and feeling good about the job. Similarly, police officers involved in the recovery of bodies following the Piper Alpha disaster reported that they believed they had fulfilled their duties successfully (Alexander and Wells, 1991). The construct 'gained confidence and experience' was also a popular positive construct, although several more participants mentioned the acquisition of experience than was subsequently recorded. The reason was that the acquisition of experience was viewed

by some as an asset that can be retrieved from almost any situation, that does not mean however, that it contributes to the positive resolution of an incident. An appreciation of life, although identified by only three participants in the present study, was also found among Air Force personnel involved in body recovery and identification duties following the mass suicide of nearly 1,000 people at Jonestown, Guyana (Jones, 1985). Given that police officers often encounter death, sometimes in grizzly circumstances, it was surprising that this construct was not more prominent. The reason for its limited acknowledgement, and the limited acknowledgement of positive outcomes as a whole in the present study, may have been related to the focus of the research and structure of the interviewing. The focus of the current research was police perceptions of traumatic events, an area that already carries negative connotations. The structure of the interviews was such, that after spending between half an hour to an hour describing their most traumatic experiences in policing, participants were then asked to identify the positives that they were able to take away from incidents. It was probably very difficult for officers to suddenly change from discussing a traumatic event and all of its related emotions, to trying to identify any possible benefits that they obtained from it, and as a result few positive constructs were elicited.

Common Factors in Event Characteristics

The Principal Components analysis was used to identify common factors underlying police officers' descriptions of event characteristics. The first factor identified was characterised by constructs pertaining to emotion. Incidents involving death were among these emotional events. Incidents which involve death and the exposure of responders to death, have been previously identified as one of the most salient event characteristics (McCammon, 1996). Not only can they be distressing because of the injuries sustained by the deceased, but also dealing with the victim's family and their subsequent emotions can be overwhelming. Dealing with the family of the deceased was one of the most frequently reported constructs by the research population, primarily because of the emotions of the family. "I think the ones that affect you more are when you're dealing with the ones that are still living...because you're dealing with the emotions of the family".

Major or serious incidents also evoke considerable emotional reactions. Werner, et al., (1992) found EMS volunteers were more emotionally affected by major, large scale incidents which involved multiple deaths and injuries. According to McCammon (1996), the enormity and scope of an event is one of the most important variables in determining the impact of an event.

Further to incidents that elicit strong emotional reactions, events that affect an officer's own family by jeopardising either the safety or stability of the family may increase the emotional stakes already associated with an event. According to one participant "You can deal with police work so long as it doesn't come to your home". The effect that an event has on a worker when their family is affected is referred to as role conflict. Dunning (1985) identified situations in disaster response, whereby a worker has to choose between ascertaining the safety of their family and meeting their professional responsibilities, which may produce role conflict resulting in elevated stress. According to Aldag and Brief (1978) role conflict is a troublesome aspect of police work. For the police, role conflict may involve being caught between the requirement of shift work, or working long hours away from home on an investigation, and the deteriorating condition of their family life.

Having reviewed a number of the variables that constitute factor one, it could be said that all events elicit emotions of some kind, especially as emotions are an inescapable part of being human. Nevertheless, the utility of this factor is not only evident in its support by previous research, but primarily in its identification of several emotional reactions (e.g. shock, surprise, hatred) and incident types, that are important in contributing to the traumatic impact of an event in the research sample. This knowledge can be applied in the development of training and preparatory programmes.

A 'lack of control' – factor two - was defined by four constructs: altered perceptions; threat to objectivity; victims become personalised; and lack of control. The first three constructs describe events, which may result in an individual losing their

sense of control over a situation. For instance, due to the nature of their work, police often work in close contact with victims and their families in order to obtain detailed personal information. As a result it may become difficult to refrain from personalising the victim, especially when they are young or someone who the officer may identify with. Maintaining a degree of emotional detachment however, is crucial for the preservation of objectivity. The personalisation of victims may place pressure on an officer's objectivity, culminating in feelings of a loss of control over a situation or inquiry. Furthermore, discrepancies between actual and expected events can result in perceived control problems (Paton, 1994b). This is particularly relevant to the variable 'altered perceptions' where participants attended a situation involving a death with preconceived perceptions about how a dead person would look. Their perceptions were altered or shattered however, by the fact that while they expected there to be visible signs of trauma on the person, there were none. This made it difficult to accept that the victim was deceased. The importance of feelings of control over a situation with regard to traumatic reactivity appears to have gone unexamined in police trauma literature. This does not undermine the utility of this factor and the constructs which comprise it. Instead it identifies possible avenues for future research

The interpretative label for factor three, 'work-related', encompassed aspects of both the event and the organisation. Aspects of the event included the unpredictability of a situation and prolonged exposure. Domestic situations, approaching occupants in vehicles, and armed offenders call outs are some of the unpredictable situations that police may find themselves in. Events that involve a degree of uncertainty heighten reactivity because they prolong the risk period and the outcome may be difficult to anticipate (Paton & Stephens, 1995). Prolonged exposure was mentioned mainly with regard to horrific motor vehicle accidents, and the hunt for an armed offender suspected of murdering a police officer, in which some participants expressed concern that they were exposed to a highly unpredictable and stressful situation for a prolonged period of time. One participant indicated that little regard was expressed for the well being of the officers involved in the search, with some working as long as 18-hour days on a five-day stretch in the initial stages of the search. This finding provides an interesting

comparison to Taylor and Frazer (1981), who noted that prolonged exposure was a factor given considerable attention during the recovery of bodies following the Erebus disaster, due to the condition of the bodies and the dangerous working conditions. None of the police officers that comprised the recovery team had any expectation of being replaced on the job unless it was for incompetence. When it was suggested that certain members of the recovery team should return to base for an appraisal of their physical and mental fitness, this was interpreted as a slur on their performance. Although the conditions underfoot threatened the safety of those on Mount Erebus, it is possible that the day time murder of a police officer may have exacerbated the effects of long hours spent searching for the suspect, because as police officers they could identify more closely with his death, also it exposed officers to the reality of their vulnerability as police.

Lack of support and negative superior attitudes were the organisational components found in factor three. The significance of these variables is supported by Kroes, Margolis and Hurrell (1974), who found that a lack of administrative support was one of the main organisational stressors among their sample of 100 Cincinnati police officers. Similarly Kroes and Gould (1979) reported that a lack of support was at the root of administration stressors.

The significance of victim profiles, such as age and the perceived innocence of the victim in determining the impact of a traumatic incident, were highlighted by factor four. A number of researchers have documented the importance of event characteristics such as the victims age (e.g. Dyregrov & Mitchell, 1992; Stone & Schuldberg, 1990; Ursano & McCarroll, 1990; Werner et al., 1992). Yet the significance of victim features such as age and innocence, have only been given passing recognition in current police policies on trauma. Although child and aged victims are identified as exacerbating factors in the traumatic impact of bizarre and multiple homicides, their recognition appears only to be a passing consideration. Furthermore, the guidelines governing mandatory debriefing referrals do not account for events characterised by the death of a child or baby, such as cot deaths. The results of the present study suggest the need for

the recognition of the effects that child victims have on an officer's reactivity, particularly with regard to specific events (e.g. cot deaths).

Despite the interpretative label 'victim orientated' the variables exhaustion and media attention also loaded on factor four. Due to difficulties in trying to incorporate four quite different variables under one label, it was decided factor four would be interpreted in terms of its two most compatible variables, age and innocent victim. Nevertheless, both media interest and exhaustion have been recorded in disaster research as significant event characteristics (Mitchell & Bray, 1990; Paton, 1994b; Taylor & Frazer, 1981). With the media becoming increasingly intrusive in an effort to satisfy the public's growing appetite for news and current affairs programmes, the capacity of the media to influence the reactions of officers to traumatic incidents has increased. Recent cases that have received widespread media attention, and in some instances condemnation of the police include, the Bain family murders, Janine Laws bungled homicide inquiry in Auckland, and more recently the disappearance of Ben Smart and Olivia Hope. The effect of such intense media speculation and condemnation signals a need for their influence to be assessed both during and after an inquiry.

Training inadequacies (factor five) can be linked to the inclusion of the variables inexperience and helplessness. Participants in the present study generally referred to inexperience when relating to their first encounter with a dead body. Werner et al., (1992) noted that the novelty of an incident, such as an officer's first experience with death, was one of the six most commonly mentioned features of traumatic incidents. The prevalence of the inexperience variable and its support from previous research emphasises the need for training to address these and other events. While the diversity of situations that officers encounter make it unlikely that training could comprehensively prepare an individual for all eventualities, the ability of training to reduce the trauma related with one's first encounter with a dead body for example, underlines its utility. The significance of inexperience or novelty in contributing to the trauma of an event, also highlights the responsibility of supervisors to be aware of the

capabilities and past experiences of those in their charge, and points to the possible utility of a mentoring system within the police.

Feelings of helplessness may also be traced to inadequate aspects of training. Like the members of many helping professions (e.g. ambulance, fire service, rescue workers) the police often operate under a 'helper stereotype' (Short, 1979; Paton, 1994b) which implies that they are resourceful and able to fix whatever has happened. This is not always the case and in order to reduce such feelings of helplessness, training strategies need to assist officers in creating expectations that are more open and less likely to be contested by characteristics of the event.

'Aspects of death' (factor six) comprised only two variables, number of fatalities, and type of kill. The number of fatalities resulting from a given event is firmly entrenched in trauma literature as a toxic event characteristic (Ursano & McCarroll, 1990; Werner et al., 1992). The significance of the type of death, which in the present study referred to the way in which a person died (e.g. execution style homicides), has received little attention in previous research. However, this does not negate the usefulness of factor six. The police trauma policy already recognises the significance of multiple deaths in determining reactivity to traumatic incidents, through its inclusion as an event characteristic for mandatory referral. The inclusion of bizarre homicides and incidents characterised by a "significant element of horror or repugnance" (New Zealand Police) in the mandatory post-incident debriefing schedule of the New Zealand police, also indicates a prior awareness of the significant impact that the type of homicide can have on an individual. These results suggest a need to try and define more accurately the elements which constitute bizarre and repugnant homicides. The identification of execution style murders as a traumatising aspect of some homicides provides a step in that direction.

Construct and Event Types

The purpose of the correspondence analysis was to address the specific relationships between the constructs and the type of incidents identified by participants. The analysis also provided a validity check for the results, as many of the relationships identified by the present study and illustrated in the correspondence analysis were supported by previous research findings.

According to the first two-dimensional plot, the constructs 'threat' and 'let down' appeared to be mentioned consistently in relation to the specific incident types of internal investigations, public order disturbances, and events involving the death of a known officer or threat or injury to oneself. Public order disturbances or incidents which jeopardise the safety of police officers, are generally characterised by feelings of threat due to the unpredictable nature of such incidents. Carlier & Gersons (1989) found high emotional intensity characterised by feelings of threat, anxiety, and helplessness among members of the Amsterdam police involved in riot and crowd control duties. The visible presence and accessibility of the police during public order disturbances, makes them a prime target for physical attacks. The relationship between internal investigations and threat was slightly more ambiguous. It is possible that feeling threatened may also be applicable to internal investigations, in terms of the threat which a police internal inquiry poses for an officers job or reputation, though there appears to be no research to support this assumption. The association between 'let down' and internal police investigations is more adequately supported by the police stress literature. A punishment centred philosophy, unfair discipline, and a lack of backing from the organisation in ambiguous situations (Kroes et al., 1974; Kroes, 1986), are organisational and administrative elements that police find stressful, and which may contribute to a sense of being let down by the organisation. Feeling 'let down' during involvement in public order disturbances or other threatening situations, may be due to either the failure of colleagues to provide the necessary assistance or in terms of a lack of resources. Failure to supply rural staff with sufficient equipment for their protection (e.g. vests and firearms) during the manhunt for an armed offender, evoked feelings of being let down by the organisation amongst a number of participants. The frequent and

significant association between events involving multiple casualties and the construct 'number of fatalities', was one of the least surprising relationships found between the constructs and event types. The sheer volume of fatalities encountered in large scale incidents is a significant traumatic stressor for emergency service workers (Werner et al., 1992).

The second two-dimensional plot was slightly more complex. The relationship between job stressors, such as paper work and shift work, and the construct 'number of fatalities' suggests that the number of fatalities involved in an incident contributes to the traumatic impact of job stressors. An explanation for this relationship can be attributed to the increased workload generated by large-scale incidents. The volume of paperwork associated with multiple fatality accidents can increase the pressure placed on the officers involved. Furthermore, accidents involving several casualties such as motor vehicle accidents and homicides, may result in the officer working past the duration of their shift leading to feelings of exhaustion, compounding the effects of shift work. Job stressors along with suicides, horrific deaths, and public order disturbances appeared to occur recurrently with the constructs 'public criticism', 'responsibility', and 'helplessness'. This relationship is possibly due to the fact that feelings of helplessness are particularly applicable to situations involving death, especially suicides (Carrier & Gersons, 1992), where aside from ruling out the possibility of foul play, there is little that the officer can do to make themselves feel useful. Alternatively, suicides do place a considerable amount of pressure and responsibility on those involved with making the right judgement concerning the cause of death. The aftermath of public order disturbances often carries with it criticism of the way the police handled the situation. Particularly as public scrutiny of police work is concentrated in the areas of their work that are socially sensitive, such as public order policing (Brown & Campbell, 1994). As with public order policing, dealing with the families of victims can also subject police to the stressors associated with public criticism. While not as publicised as other events, criticism encountered during dealings with family members can occur when the family and the victim have shared a less than amicable association with the police in the past, or when the cultural background of the victim demands that the body not be removed or autopsies performed.

The association between incidents that involve the death of a known colleague or threat or injury to an officer and the construct of 'threat' has been discussed previously. Feelings of vulnerability may also be expected to accompany events that threaten the safety of a police officer. The significance that a sense of vulnerability may have with regard to an officer's experience of traumatic incidents is quite well documented (e.g. Janoff-Bulman, 1985; Greening & Dollinger, 1992; Somodevilla, 1985). Often officers are socialised into believing that they are '10 foot tall and bullet proof', however, when this self-perception is 'shattered' either through injury on duty or the death of a colleague, officers may be left with a feeling of vulnerability which lasts for a long time (Violanti, 1996). Feeling threatened or vulnerable may also accompany dealing with the families of victims. As mentioned by a number of participants, it is not only the emotional involvement associated with informing relatives of a death that can exacerbate the impact of such a task, but the largely unpredictable nature of the families response, which may place officers in a position where they feel threatened or vulnerable. Especially when the relationship between the deceased and/or their family and the police has been strained. The association between the constructs and events involving the abuse of children or the removal of children from a parent or parents is a little more difficult to interpret. Like the informing of relatives, incidents which involve children tend to be highly emotive and volatile, particularly when officers are faced with the task of removing children from their parents, placing officers in a position where they may feel threatened or vulnerable.

Limitations of the Study

Measurement Issues

The data in the present study was obtained using an interval scale for the purpose of rating the constructs elicited from participants. While their ease of use, and ability to permit greater sensitivity in judging elements help justify their use (Sewell, Mitterer, Adams-Webber, & Cromwell, 1991; Anonymous Agri Marketing, 1995), rating scales are based on the implicit assumption that the scales used have approximately equal intervals. However, this may not be the case, as one participant's

rating of four on a particular construct may be another participant's rating of three or five. Consequently, some participants may have consistently rated constructs higher or lower, ultimately exaggerating or underestimating the impact of certain constructs.

A second measurement issue is the difference in focus between the assessment tool and the data analysis techniques used in the present study. The repertory grid method focuses on the assessment of people's individual perceptions of what is important to them (Berryman, Howells & Lloyd-Evans, 1985). Subsequently, repertory grid analysis techniques analyse the data of each grid separately, producing results and interpretations applicable only to the person who was assessed using the grid. In order to maximise the utility of the results, data analysis techniques were applied which allowed general conclusions to be drawn about the sample population. The combination of assessment tools, which assess the individual, with analysis techniques that seek to generalise the results to the sample population, may have placed a number of limitations on the findings. Firstly, it created a number of problems with the raw data, which may have affected the factor analysis and correspondence analysis by producing inaccurate factors, or overestimating the strength of relationships between some incident types and the constructs. Some of the factors extracted by the analysis were not as easily interpreted as would have been desirable. Furthermore, a number of important constructs, as indicated by their frequency of elicitation, were not represented in any factors, which was disappointing and may have been an artefact of the differences in the underlying goals of the assessment tool and analysis techniques used.

In order to prepare the raw data for analysis an assumption had to be made with respect to the constructs elicited from each individual. Fifty-three event characteristics were analysed with respect to 52 participants. However, participants only elicited an average of seven constructs each, therefore ratings or scores were only available for the constructs that a particular individual had mentioned. Where a score was not available for a construct because the construct had not been elicited, it was assumed the constructs that were not elicited from the respondent were not applicable to any of the traumatic events they identified. Therefore in situations where a rating (between 1-5)

was not available, because the respondent had not indicated a particular construct, a zero was inserted to indicate when a construct was not applicable to a particular event. This assumption resulted in the raw data containing a large number of zeros. This assumption was quite problematic for the data analysis at times inhibiting the ability to carry out certain tests on the data (e.g. Bartlett's test of sphericity), and may have influenced the number of factors extracted and their composition.

Response Bias

The response bias of social desirability or the tendency to provide socially desirable responses (Kline, 1993), may have prevented some officers from discussing fully their traumatic events. This bias was of particular concern among a number of officers who commented that "nothing really bothers me". Even though they did go on to discuss a number of incidents, it is possible that the events they referred to were not particularly traumatic, but merely provided for the benefit of the interviewer. In addition, the male macho image, which is very much entrenched in the police culture, may have also restricted some participants' responses. Although the number of incidents, identified by participants as traumatic, averaged approximately six, which is a reasonably satisfactory number, the possibility that some participants withheld discussion on a greater number of traumatic events for fear of looking weak cannot be discounted. The implications for the present research includes the loss of information that may have strengthened the findings or contributed to new insights. Brook (1986) maintains however, that the repertory grid is indirect enough to decrease the natural tendency of people to give socially desirable answers while still enabling the accumulation of evaluative information as seen through the eyes of the respondent.

Generalisability

The sample of police officers that volunteered for the present study reflected the distribution of the New Zealand Police on most of the demographic variables that were measured. One important exception was the proportion of female participants who took part in the study, which was below the already low distribution of women found in the New Zealand police. Unfortunately, the lack of female participants in the present study

makes it difficult to make any meaningful comparisons. Future research should therefore aim to 'over-sample' from the female population to ensure that gender differences in response to traumatic events are adequately examined.

The small sample obtained for the research limited the extent to which the results could be generalised to the sample population. Although respondents were obtained from three different regions, participants were often only taken from two or three towns or cities within that region, leaving large areas unsampled. There may have been a number of incident types that were not identified or adequately represented by the sample, due to variations between areas concerning the types of incidents they most often attend. As a direct consequence several important constructs may have been missing or unintentionally omitted from the results. For this reason, the areas under investigation need to be more evenly sampled.

Due to the small sample size in the present study only basic demographic details were obtained from the participants, with the omission of demographic variables such as ethnic group, marital status, and level of education. As the sample size limited the ability of any reliable and meaningful comparisons to be made between the participants and the police population of the lower North Island, accumulation of more sophisticated demographic data was not required.

Implications

The results of the present study suggest a number of factors underlying the event characteristic identified by police officers. Identification of the common denominators, present in a traumatic event, which may heighten reactivity, signals a number of significant implications for the provision of training and support, as well as the development of organisational policies. A comprehensive inventory of event stressors will facilitate the identification of high-risk situations, providing a basis for anticipating the intensity of reactions, and alerting the organisation to possible support requirements (Paton, 1996c). Focusing on common denominators will also expedite training needs analysis, the development of training programme content, as well as the design of

realistic simulations, while also contributing to the organisational development process through identification of the organisational systems and practices necessary to promote effective response (Paton, 1996b).

Training Implications

When repeated exposure to traumatic events is an occupational reality, as it is with the police, the provision of training and preparatory programmes designed to enhance response effectiveness and safeguard psychological wellbeing is a priority. In order to prepare individuals psychologically for the demands of their work, Paton (1994b) advocates that a complete preparatory programme increases an individual's awareness of the possible emotional and psychological consequences that may be associated with an event. The present research identified a number of emotions that participants had associated with the trauma of a particular event, including helplessness, guilt, pity, anger, threat, vulnerability and frustration. By alerting police officers to the types of psychological reactions which may accompany certain events, for example, the feelings of helplessness which may accompany a suicide or cot death, officers will then be in a better position to accept their reactions as a normal healthy response to the situation. Furthermore, stress inoculation training should also include information about the relationships between event characteristics and performance effectiveness (Paton, 1996b). To use the example of suicides and cot deaths again, police officers often feel helpless at these incidents as there is usually little they can do, either to ease the grief of the family or in a professional sense, as opposed to a homicide inquiry which provides officers with the opportunity to utilise their skills and feel effective. Training initiatives should attempt to alert police officers to situations and event characteristics that may leave them feeling ineffective and helpless.

The diversity and unpredictability of police work makes it unlikely that training could comprehensively prepare recruits for all eventualities. However, the need to reduce the novelty or surprise associated with a given event was illustrated by Werner et al., (1992), who found that the novelty associated with experiences such as an officers first encounter with a dead body, was one of the most commonly mentioned features of

a traumatic incidents. Encountering a deceased person is one of the more predictable scenarios that a police officer will face once they have left the college. In order to prepare personnel for war graves service during the gulf war Deahl, Gillham, Thomas, Searle, and Srinivasan (1994) included mortuary visits as part of their preparatory programme. Although the condition of the body and the circumstances surrounding attendance at a sudden death can vary considerably, by exposing police recruits to a dead body in the controlled environment of a mortuary, recruits would be better placed to deal with any emotions or surprises that such an encounter may elicit. While attending a sudden death with a more seasoned officer, may prevent some fledgling officers from discussing the event for fear of appearing weak, sharing such an experience with other recruits may encourage informal discussion between them.

Policy Implications

Police organisations have become increasingly aware of the need for support for those individuals who have encountered traumatic event. In the New Zealand police this recognition culminated in the development and introduction of the Police Trauma Policy in 1992. Such strategies focus on clinical interventions rather than organisational change interventions. Organisational issues highlighted by the present study, include the significance of supervisor support, and job and organisational stressors in mediating reactivity to traumatic events. Police supervisors have the capacity to be one of the most influential factors in an officer's adaptation to a traumatic event. However, the hierarchical structure of the police organisation limits the ability and/or the willingness of some supervisors to provide emotional and social support to officers involved in traumatic events, or ambiguous situations (Violanti, 1996). Attending to the issue of supervisor support will be the first step in an organisational change intervention. Following from this is the need to promote the willingness and capability of supervisors to provide support for those below them (Paton & Stephens, 1995). To enhance the ability of supervisors to provide such support, training programmes for supervisors need to be developed which concentrate on the human side of policing, including facets of mental health, sociology, human relations and perhaps event programmes which deal with marital and family issues (Richard & Fell, 1975). Such programmes could help

supervisors become more sensitive to their own limitations and those of their subordinates. The dividends which may result from more supportive management practices was illustrated by Alexander and Wells (1991) who attributed, at least in part, the absence of traumatic reactivity in a group of police officers involved in body recovery and identification duties, to a shift away from the usual autocratic style of policing to more participative and supportive leadership practices (Paton & Stephens, 1995).

Future Research

The results of the present study provide a number of promising avenues for future research. As an exploratory study the results are encouraging, particularly for the future application of repertory grid in the study of traumatic events. Future research could base itself on the findings of the present study, as has been the case in previous uses of repertory grid techniques (Frewer, Howard, Hedderley & Shepherd, 1996). By utilising the event types elicited by the repertory grid method in the present study, respondents could be supplied with a list of traumatic events, from which constructs would be elicited, allowing the factors identified in the present research to be tested.

At present, trauma research is constrained by its focus on pathological reactions to traumatic events. Despite the existence of evidence which suggests that people can gain meaning from adverse situations, and that such meaning can be adaptive (Affleck, Tennen, Croog & Levine, 1987; Jones, 1985). The present research identified a number of positive trauma responses, however, due to the focus of the research and the interviews on the negative aspects of trauma, many participants failed to identify the existence of positive trauma responses. Future research must take a more balanced approach to the study of negative and positive reactions to traumatic events. Joseph, Williams and Yule (1993) assessed the positive and negative responses of survivors of a minor disaster by asking respondents "If the disaster has changed your outlook on life for better or worse"(p.273). Identifying the factors associated with enhanced psychosocial functioning, will provide a greater understanding of the way trauma impacts on individuals, allowing researchers and practitioners to refine their risk

assessment of pathology, and tailor preventative intervention efforts accordingly (Lyons, 1991).

Future support intervention strategies that may follow on from the accumulation of such knowledge, could include a change in the focus of debriefing models away from the identification of negative reactions, to a debriefing format which first asks the individual what positives they derived from the experience. Support interventions concerned with a more neutral approach to the experience of traumatic incidents, could also look to a possible change in those responsible for administering support interventions. Debriefing and support for workers exposed to traumatic incidents is usually supplied by practitioners who operate from a psychiatric diagnosis background, one which emphasises the identification of pathology as opposed to positive resolution. Although clinical knowledge is significant for the accurate diagnosis and treatment of pathology, support providers should also possess a comprehensive awareness of the research developments in the organisational literature, which advocates the possibility of positive resolution and the identification of the factors that enhance psychosocial functioning.

Conclusion

In conclusion, the results of the present study identified a number of event characteristics responsible for the perceived trauma associated with a wide variety of events encountered by police officers. While many of the event characteristics elicited from the participants in the present study have been well supported by the findings of previous research, their diversity also highlights the difficulty of defining the nature of traumatic stressors. The findings of the present study therefore signal the need for more research to be conducted into defining the nature of traumatic stressors, and identifying the factors that facilitate positive adaptation. The implications for the accumulation of such information can be expected to reverberate through an organisation, such as the police, via its impact on the design and administration of training and support interventions, selection procedures and criteria, and in the policy development and managerial style of the organisation itself.

REFERENCES

- Adams-Webber, J.R. (1979). *Personal construct theory: Concepts and applications*. Toronto: John Wiley & Sons Ltd.
- Affleck, G., Tennen, H., Croog, S., & Levine, S. (1987). Casual attribution, perceived benefits and morbidity after a heart attack: An 8-year study. *Journal of Consulting and Clinical Psychology*, 55, 29-35.
- Aldag, R.J., & Brief, A.D. (1978). Supervisory style of police role stress. *Journal of Police Science and Administration*, 6, 362-267.
- Alexander, D.A. (1993a). Stress among police body handlers: A long-term follow-up. *British Journal of Psychiatry*, 163, 806-808.
- Alexander, D.A. (1993b). The piper alpha oil rig disaster. In J.P. Wilson & B. Raphael (Eds.), *Handbook of traumatic stress syndromes*. New York: Plenum Press.
- Alexander D.A., & Wells, A. (1991). Reactions of police officers to body-handling after a major disaster: A before-and-after comparison. *British Journal of Psychiatry*, 15, 547-555.
- Andersen, H.S., Christensen, A.K., & Petersen, G.O. (1991). Post-traumatic stress reactions amongst rescue workers after a major rail accident. *Anxiety Research*, 4, 245-251.
- Anonymous (1995) Rating the rating scales. *Agri Marketing*, 33, 41.
- Anson, R.H., & Bloom, M.E. (1988). Police stress in an occupational context. *Journal of Police Science and Administration*, 16, 229-235.
- Armstrong, K., O'Callahan, W., & Marmar, C. (1991). Debriefing Red Cross disaster personnel: The multiple stress debriefing model. *Journal of Traumatic Stress*, 4, 581-593.
- Aronoff, J., & Wilson, J.P. (1985). *Personality in the social process*. Hillsdale: Lawrence Erlbaum.
- Atchison, M. (1995). *Measuring stressors in post traumatic stress disorder*. Paper presented at the Australian Society for Traumatic Stress Studies Annual Conference, Hobart, Tasmania, Australia.
- Bannister, D., & Mair, J.M.M. (1968). *The evaluation of personal constructs*. London: Academic Press.

- Berryman, J.C., Howells, K., & Lloyd-Evans, M. (1985). Pet owner attitudes to pets and people: A psychological study. *The Veterinary Record*, *21*, 659-661.
- Brook, J.A. (1986). How to assess management training. In R.J. Brook, G.C. Arnold, T.H. Hassard, & R.M. Pringle (Eds.), *The fascination of statistics*. New York: Marcel Dekker.
- Brook, J.A. (1992). Use of repertory grid in career counselling. *The Career Development Quarterly*, *41*, 39-50.
- Brook, J.A., & Brook, R.J. (1989). Exploring the meaning of work and nonwork. *Journal of Organizational Behavior*, *10*, 169-178.
- Brown, J.M., & Campbell, E.A. (1990). Sources of occupational stress in the police. *Work and Stress*, *4*, 305-318.
- Brown, J.M., & Campbell, E.A. (1994). *Stress and policing: Sources and strategies*. West Sussex, England: John Wiley & Sons Ltd.
- Brown, J., & Fielding, J. (1993). Qualitative differences in men and women police officers' experience of occupational stress. *Work and Stress*, *7*, 327-340.
- Buchanan, G. (1994). *Trauma within the New Zealand Police*. Unpublished paper, Massey University, Palmerston North, New Zealand.
- Carlier, I.V.E., & Gersons, B.P.R. (1992). Development of a scale for traumatic incidents in police work. *Psychiatria Fennica*, *23*, 59-70.
- Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*, 245-267.
- Coman, G.J. (1993). *Trauma, stress and coping of police officers: An Australian police survey*. Paper presented at the Stress and Trauma in the Workplace Conference, Adelaide, Australia, 23-25 April.
- Coman, G., & Evans, B. (1991). Stressors facing Australian police in the 1990s. *Police Studies*, *14*, 153-165.
- Comrey, A.L. (1973). *A first course in factor analysis*. New York: Academic Press.
- Cummings, J.P. (1996). Police stress and the suicide link. *Police Chief*, *63*, 85-96.
- Dash, J., & Reiser, M. (1978). Suicide among police in urban law enforcement agencies. *Journal of Police Science and Administration*, *6*, 18-21.

- Deahl, M.P., Gillham, A.B., Thomas, J., Searle, M.M., & Srinivasan, M. (1994). Psychological sequelae following the Gulf War: Factors associated with subsequent morbidity and the effectiveness of psychological debriefing. *British Journal of Psychiatry*, *165*, 60-65.
- Dyregrov, A., & Mitchell, J.T. (1992). Work with traumatized children: Psychological effects and coping strategies. *Journal of Traumatic Stress*, *5*, 5-17.
- Dunning, C.M. (1985). Prevention of stress. In National Institute of Mental Health. *Roles stressors and supports for emergency workers*, U.S. Printing Office (DHHS Publication No. ADM 85-1408). Washington D.C., 126-139.
- Dunning, C. (1994). Trauma and countertransference in the workplace. In P.J. Wilson & J. D. Lindy (Eds.), *Countertransference in the treatment of PTSD*. New York: Guilford Press.
- Evans, B.J., & Coman, G.J. (1993). General versus specific measures of occupational stress: An Australian police survey. *Stress Medicine*, *9*, 11-20.
- Fell, R.D., Richard, W.C., & Wallace, W.L. (1980). Psychological job stress and the police officer. *Journal of Police Science and Administration*, *8*, 139-144.
- Ford, R.E., Alexander, B., & Lester, D. (1971). Fear of death of those in a high stress occupation. *Psychological Reports*, *29*, 502.
- Freeman, K. (1979). CMHC responses to the Chicago and San Diego airplane disasters. *Technical Assistance Denter Report*, *2*, 10-12.
- Frewer, L.J., Howard, C., Hedderley, D., & Sheppard, R. (1996). What determines trust in information about food-related risks? Underlying psychological constructs. *Risk Analysis*, *16*, 473-486.
- Friedman, P. (1968). Suicide among police: A study of ninety-three suicides among New York Policemen 1934-1940. In E. Schneidrean (Ed.), *Essays in self destruction*. New York: Science House.
- Friedman, R.J., Framer, M.B., & Shearer, D.R. (1988). Early response to posttraumatic stress. *EAP Digest*, *8*, 45-49.
- Fullerton, C.S., McCarroll, J.E., Ursano, R.J., & Wright, K.M. (1992). Psychological responses of rescue workers: Firefighters and trauma. *American Journal of Orthopsychiatry*, *62*, 371-378.
- Ganster, D.C., Fusilier, M.R., & Mayes, B.T. (1986). Role of social support in the experience of stress at work. *Journal of Applied Psychology*, *71*, 102-110.

- Gersons, B.P.R. (1989). Patterns of PTSD among police officers following shooting incidents: A two-dimensional model and treatment implications. *Journal of Traumatic Stress, 2*, 247-257.
- Green, B.L. (1994). Psychosocial research in traumatic stress: An update. *Journal of Traumatic Stress, 7*, 341-362.
- Green, B.L., Lindy, J.D., & Grace, M.C. (1985). Posttraumatic stress disorder: Toward DSM-IV. *The Journal of Nervous and Mental Disease, 173*, 406-411.
- Green, B.L., Wilson, J.P., & Lindy, J.D. (1985). Conceptualizing post-traumatic stress disorder: A psychosocial framework. In C.R. Figley (Ed.), *Trauma and its wake*. New York: Brunner/Mazel.
- Greenacre, M.J. (1993). *Correspondence analysis in practice*. London: Academic Press.
- Greening, L., & Dollinger, S.J. (1992). Illusions of invulnerability: Adolescents in a natural disaster. *Journal of Traumatic Stress, 5*, 63-75.
- Greller, M.M., Parsons, C.K., & Mitchell, D.R.D. (1992). Additive effects and beyond: Occupational stressors and social buffers in a police organisation. In J.C. Quick, L.R. Murphy, & J.J. Hurrell, Jr. (Eds.), *Stress and well-being at work*. Washington, D.C.: American Psychological Association.
- Hart, P.M., Wearing, A.J., & Headey, B. (1995). Police stress and well-being: Integrating personality, coping and daily work experiences. *Journal of Occupational and Organizational Psychology, 68*, 133-156.
- Hartsough, D.M. (1988). *Variables affecting duty-related stress after an air crash disaster*. A final report to the Natural Hazard Research and Applications Information Center, University of Colorado, Boulder, CO. Quick Response Research Report No. 26.
- Hodgkinson, P.E., & Stewart, M. (1991). *Coping with catastrophe: A handbook of disaster management*. London: Routledge.
- House, J.S. (1981). *Work stress and social support*. Reading, MA: Addison-Wesley.
- Janoff-Bulman, R. (1985). The aftermath of victimization: Rebuilding shattered assumptions. In C.R. Figley (Ed.), *Trauma and its wake*. New York: Brunner/Mazel.
- Jones, D.R. (1985). Secondary disaster victims: The emotional effects of recovering and identifying human remains. *American Journal of Psychiatry, 142*, 303-307.

- Joseph, S., Williams, R., & Yule, W. (1993). Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. *Journal of Traumatic Stress, 6*, 271-279.
- Joseph, P., Yule, W., & Williams, R. (1992). Crisis support, attributional style, coping style, and post-traumatic symptoms. *Personality and Individual Differences, 13*, 1249-1251.
- Josephson, R.L., & Reiser, M. (1990). Officer suicide in the Los Angeles Police Department: A twelve-year follow-up. *Journal of Police Science and Administration, 17*, 227-229.
- Kirmeyer, S.L., & Dougherty, T.W. (1988). Work load, tension, and coping: Moderating effects of supervisor support. *Personnel Psychology, 41*, 125-139.
- Kline, P. (1993). *The handbook of psychological testing*. London: Routledge.
- Kroes, W. (1982). Job stress in policewomen: An empirical study. *Police Stress, 4*, 10-11.
- Kroes, W. (1986). *Society's victim: The police officer*. Springfield, Illinois: Charles C. Thomas.
- Kroes, W.H., & Gould, S. (1979). Stress in policemen. *Police Stress, 1*, 9-10.
- Kroes, W.H., Margolis, B., & Hurrell, J.J. (1974). Job stress in policemen. *Journal of Police Science and Administration, 2*, 145-155.
- Labovitz, S., & Hagedorn, R. (1971). An analysis of suicide rates among occupational categories. *Sociological Inquirer, 421*, 67-72.
- LaRocco, J.M., House, J.S., & French, J.R.P., Jr. (1980). Social support, occupational stress and health. *Journal of Health and Social Behavior, 21*, 202-218.
- Lazarus, R.S., & Folkman, S. (1984). *Stress appraisal and coping*. New York: McGraw-Hill.
- Lyons, J.A. (1991). Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress, 4*, 93-111.
- Malloy, T.E., & Mays, G.L. (1984). The police stress hypothesis: A critical evaluation. *Criminal Justice and Behavior, 11*, 197-224.
- Mann, J.P., & Neece, J. (1990). Workers' compensation for law enforcement related posttraumatic stress disorder. *Behavioural Sciences and the Law, 8*, 447-456.

- Manolias, M.B., & Hyatt-Williams, A. (1993). Effects of postshooting experiences on police-authorized firearms officers in the United Kingdom. In J.P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes*. New York: Plenum Press.
- Martelli, T.A., Waters, L.K., & Martelli, J. (1989). The police stress survey: Reliability and relation to job satisfaction and organisational commitment. *Psychological Reports, 64*, 267-273.
- Martin, C.A., McKean, H.E., & Veltkamp, L.J. (1986). Post-traumatic stress disorder in police and working with victims: A pilot study. *Journal of Police Science and Administration, 14*, 98-101.
- McCammon, S.L. (1996). Emergency medical service workers: Occupational stress and traumatic stress. In D. Paton & J.M. Violanti (Eds.), *Traumatic stress in critical occupations: Recognition, consequences and treatment*. Springfield, Illinois: Charles C. Thomas.
- McCammon, S., Durham, T.W., Allison, E.J., & Williamson, J.E. (1988). Emergency workers' cognitive appraisal and coping with traumatic events. *Journal of Traumatic Stress, 1*, 353-372.
- McFarlane, A.C. (1986). Post-traumatic morbidity of a disaster: A study of cases presenting for psychiatric treatment. *The Journal of Nervous and Mental Disease, 174*, 4-14.
- McFarlane, A.C. (1988a). The aetiology of post-traumatic stress disorders following a natural disaster. *British Journal of Psychiatry, 152*, 116-121.
- McFarlane, A.C. (1988b). The longitudinal course of posttraumatic morbidity: The range of outcomes and their predictors. *The Journal of Nervous and Mental Disease, 176*, 30-39.
- McFarlane, A.C. (1989). The aetiology of posttraumatic morbidity: Predisposing, precipitating and perpetuating factors. *British Journal of Psychiatry, 154*, 221-228.
- Milham, S. (1983). *Occupational mortality in Washington State 1950-1959*. DHHS (NIOSH) Publication No. 83-116. Washington D.C.: U.S. Government Printing Office.
- Miller, I. (1996). *Demography and attrition in the New Zealand police 1985-1995*. Unpublished report: New Zealand Police.

- Miller, I., & Ford, I. (1991). *Patterns of exit from the New Zealand police: A study of disengagements 1985-1992*. Unpublished report: New Zealand Police.
- Mitchell, M. (1990). The police after Lockerbie: What were the effects? *Police*, 23, 30-31.
- Mitchell, J., & Bray, G. (1990). *Emergency services stress: Guidelines for preserving the health and careers of emergency service personnel*. Englewood Cliffs, NJ: Brady.
- Myers, D.G. (1989). Mental health and disaster: Preventive approaches to intervention. In R. Gist & B. Lubin (Eds.), *Psychosocial aspects of disaster*. Chichester, U.K.: Wiley.
- Nelson, Z., & Smith, W. (1970). The law enforcement profession: An incidence of suicide. *Omega*, 1, 293-299.
- New Zealand Police. (1992). *Post trauma and critical incident support for members of Police*. (Policy Circular 31/8/9). Unpublished circular: New Zealand Police
- Norman, E.M. (1988). Post-traumatic stress disorder in military nurses who served in Vietnam during the war years 1965-1973. *Military Medicine*, 154, 238-242.
- Norusis, M.J. (1988). *SPSS/PC + Advanced statistics V2.0*. Chicago. SPSS Inc.
- Paton, D. (1989). Disasters and helpers: Psychological dynamics and implications for counselling. *Counselling Psychology Quarterly*, 2, 303-321.
- Paton, D. (1994a). Disaster relief work: An assessment of training effectiveness. *Journal of Traumatic Stress*, 7, 275-288.
- Paton, D. (1994b). Disaster relief work: Schemata, response capability and psychological well-being. *Occasional Papers in Psychology*, 19, 1-28.
- Paton, D. (1996a). Traumatic stress in critical occupations. In D. Paton & J.M. Violanti (Eds.), *Traumatic stress in critical occupations: Recognition, consequences and treatment*. Springfield, Illinois: Charles C. Thomas.
- Paton, D. (1996b). Preparing relief workers for disaster work. In D. Paton & N. Long *Psychological aspects of disasters*. Palmerston North: The Dunmore Press Ltd.
- Paton, D. (1996c). Training disaster workers: Promoting well-being and operational effectiveness. *Disaster Prevention and Management*, 5, 11-18.
- Paton, D. (1997). Managing work-related psychological trauma: An organisational psychology of response and recovery. *Australian Psychologist*, 32, 46-55.

- Paton, D., & Smith, L.M. (1995). Work-related psychological trauma: A review of methodological and assessment issues. *Australian Psychologist, 30*, 200-209.
- Paton, D., & Stephens, C. (1995). Preparation, debriefing and support for disaster workers: A critical review. *Occasional Papers in Psychology, 21*, 1-26.
- Paton, D., & Smith, L.M. (1996). Psychological trauma in critical occupations: Methodological and assessment strategies. In D. Paton & J.M. Violanti (Eds.), *Traumatic stress in critical occupations: Recognition, consequences and treatment*. Springfield, Illinois: Charles C. Thomas.
- Peterson, K.C., Prout, M.F., & Schwarz, R.A. (1991). *Post-traumatic stress disorder. A clinician's guide*. New York: Plenum Press.
- Pogrebin, M.R., & Poole, E.D. (1991). Police and tragic events: The management of emotions. *Journal of Criminal Justice, 19*, 395-403.
- Reiser, M. (1974). Some organizational stressors on police officers. *Journal of Police Science and Administration, 2*, 156-159.
- Richard, W.C., & Fell, R.D. (1975). Health factors in police job stress. In W.H. Kroes & J.J. Hurrell (Eds.), *Job stress and the police officer: Identifying stress reduction techniques*. Washington D.C.: U.S. government Printing Office.
- Sewell, J.D. (1983). The development of a critical life events scale for law enforcement. *Journal of Police Science and Administration, 11*, 109-116.
- Sewell, K.W., Mitterer, J., Adams-Webber, J., & Cromwell, R.L. (1991). Omnigrd-PC: A new development in computerized repertory grids. *International Journal of Personal Construct Psychology, 4*, 175-192.
- Sewell, K.W., Adams-Webber, J., Mitterer, J., & Cromwell, R.L. (1992). Computerized repertory grids: Review of the literature. *International Journal of Personal Construct Psychology, 5*, 1-23.
- Selye, H. (1978). The stress of police work. *Police Stress, 1*, 1-3.
- Short, P. (1979). Victims and helpers. In R.L. Heathcote & B.G. Tong (Eds.), *Natural hazards in Australia*. Australian Academy of Science, Canberra.
- Smith, R.S. (1985). Sealing over and intergration: Modes of the solution in post-traumatic stress recovery process. In C.R. Figley (Ed.), *Trauma and its wake*. New York: Brunner-Mazel.
- Somodevilla, S.A. (1978). The psychologists role in the police department. *The Police Chief, 45*, 21-23.

- Somodevilla, S.A. (1985). Alternatives to traditional law enforcement. In J.T. Reese & H.A. Goldstein (Eds.), *Psychological services in law enforcement*. Washington D.C.: U.S. Government Printing Office.
- *Stephens, C., Long, N., & Miller, I. (1997). The impact of trauma and social support on posttraumatic stress disorder: A study of New Zealand police officers. *Journal of Criminal Justice*, 25, 303-314.
- #Stephens, C. (1996). *Organisational factors contributing to the psychological effects of traumatic stress in police*. Paper presented at the Australian National Occupational Stress Conference, Brisbane, Australia.
- Stewart, V., & Stewart, A. (1981). *Business applications of repertory grid*. Maidenhead, Berkshire, England: McGraw-Hill Book Company Ltd.
- Stone, B.L., & Schulberg, D. (1990). The nature of a traumatic stressor: Handling dead bodies. *The Journal of Nervous and Mental Disease*, 178, 396-398.
- Stratton, J.G., Parker, D.A., & Snibbe, J.R. (1984). Post-traumatic stress: Study of police officers involved in shootings. *Psychological Reports*, 55, 127-131.
- Sutker, P.B., Uddo-Crane, M., & Allain, A.N. (1991). Clinical and research assessment of posttraumatic stress disorder: A conceptual overview. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 3, 520-530.
- Tabachnick, B.G., & Fidell, L.S. (1989). *Using multivariate statistics*. (2nd ed.). New York: Harper.
- Taylor, A.J.W., & Frazer, A.G. (1981). *Psychological sequelae of operation overdue following the DC10 air crash in Antarctica*. No. 27, Victoria University Pub. Psychology, Wellington.
- Taylor, A.J.W., & Frazer, A.G. (1982). The stress of post-disaster body handling and victim identification work. *Journal of Human Stress*, 8, 4-12.
- Territo, L., & Vetter, H.J. (1981). Stress and police personnel. *Journal of Police Science and Administration*, 9, 195-208.
- Terry, W.C. (1981). Police stress: The empirical evidence. *Journal of Police Science and Administration*, 9, 61-7.
- Thompson, J. (1993). Psychological impact of body recovery duties. *Journal of the Royal Society of Medicine*, 86, 628-629.
- Thompson, J., & Solomon, M. (1991). Body recovery teams at disasters: Trauma or challenge. *Anxiety Research*, 4, 235-244.

- Ursano, R.J., & McCarroll, J.E. (1990). The nature of a traumatic stressor: Handling dead bodies. *The Journal of Nervous and Mental Disease*, 178, 396-398.
- Vena, J.E., Violanti, J.M., & Marshall, J. (1986). Mortality of a municipal worker cohort III: Police officers. *Journal of Industrial Medicine*, 10, 383-397.
- Violanti, J.M. (1996). Trauma stress and police work. In D. Paton & J.M. Violanti (Eds.), *Traumatic stress in critical occupations: Recognition, consequences and treatment*. Springfield, Illinois: Charles C. Thomas.
- Violanti, J.M., Vena, J.E., & Marshall, J.R. (1986). Disease risk and mortality among police officers: New evidence and contributing factors. *Journal of Police Science and Administration*, 14, 17-23.
- Waugh, A. (1994). *A case study of policewomen's experience in New Zealand*. Unpublished report.
- Weinrich, S., Hardin, S.B., & Johnson, M. (1990). Nurses respond to hurricane Hugo victims' disaster stress. *Archives of Psychiatric Nursing*, 4, 195-205.
- Werner, H.R., Bates, G.W., Bell, R.C., Murdoch, P., & Robinson, R. (1992). Critical incident stress in Victoria State emergency service volunteers: Characteristics of critical incidents, common stress responses, and coping methods. *Australian Psychologist*, 27, 159-165.
- Williams, R. (1993). Trauma in the workplace. In J.P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes*. New York: Plenum Press.
- Winter, D.A. (1993). Slot rattling from law enforcement to lawbreaking: A personal construct theory exploration of police stress. *International Journal of Personal Construct Psychology*, 6, 253-267.

Appendix 1: Police Notice Seeking Participants

Participants Required for Trauma Research

Sally McDowell is a Masterate student studying at Massey University. For her thesis year Sally is investigating police perceptions of traumatic incidents, and is currently looking for approximately 60 sworn members of the New Zealand police from region three to take part in her study. Participation in the study will involve an interview of between 1-1 1/2 hours duration. Participant confidentiality will be assured through the strict use of code numbers, which will be available only to the researcher. Permission for the study has been granted by Police National Headquarters, with ethical permission from Massey University Human Ethics Committee. Those interested in taking part in the study or who may have some further questions can contact Sally at home on (06) 357-2033. Alternatively, interested parties can also contact Mike Hubbard, Staff Welfare Officer for Region three on (06) 351-3796 or 021-443-052. Sally will also be visiting a number of the stations in and around region three over the next few weeks.

Appendix 2: Information Sheet

Measuring Traumatic Stressors

INFORMATION SHEET

Researchers from Massey University are conducting research on the nature of traumatic incidents and their implications for well-being and operational practices. The researchers are Associate Professor in Psychology, Dr Douglas Paton, Assistant Lecturer Dr Christine Stephens, and Masterate student Ms Sally McDowell.

The research is being conducted as part of a continuing research programme into traumatic stressors within the New Zealand Police. Officers who have experienced traumatic incidents are invited to volunteer to be interviewed about the nature of their experiences. The information obtained from the interviews will be used to develop a questionnaire measure of traumatic stressors, which will be administered in a second stage of the research.

The research requires the participation of approximately 60 police officers from the Manawatu, Taranaki, and Hawke's Bay regions. All parties involved in the data collection will sign confidentiality statements.

Please do not hesitate to contact any of the researchers if you have any queries about the interview or the research in general. You may contact us either by fax at (06)350 5673 or by phoning Douglas Paton (06)350 6151, Christine Stephens (06)350 4146, or Sally McDowell (06)357 2033.

WHAT IS THE PRESENT STUDY ABOUT

The study is concerned with investigating officers' perceptions of, and experiences with traumatic events. More specifically, the aim of the study is to identify the various characteristics that define each traumatic event, making some incidents more distressing than others. This information will be used to further develop the existing trauma policy within the police and contribute to the development of training programmes for police officers.

ELIGIBILITY

You are eligible to take part in the study if you are a sworn member of the New Zealand police.

WHAT YOU WILL BE ASKED TO DO

Participation will involve a 1-1/2 hour interview that will be taped with the permission of the participant. Participant confidentiality will be protected by the strict use of code numbers to identify all interview data. The code numbers will be available only to the researchers. Participants will be required to sign a consent form prior to the

commencement of the interview that will inform them of their right to refuse to answer any particular question, and to withdraw from the study at anytime.

If the interview is taped, we will ask you whether you wish to have the tape returned to you, wiped clear, or archived.

The results may include quotations from those interviewed. **Quotations will only be used if you give your permission for their use.**

The information obtained from this research will benefit police officers generally as a result of improved trauma policy and training provision. However, participants should be aware that these benefits are likely to occur at some point in the future, so no immediate benefits may be apparent to participants.

Should you have any concerns arising from your participation, please contact one of the researchers. If necessary they can arrange for confidential referral to an appropriate agency.

All information will be treated in strictest confidence. The interview data will be available only to the researchers and stored in a secured area. Participants will be given the opportunity to be provided with a summary of results at the conclusion of the study. The New Zealand Police will not be furnished with any information about participants, nor will they have access to any raw interview data, other than in the form of statistical and other summaries. No reference to individuals will be contained in these summaries, nor will they contain information about geographical location that could be used to identify individuals.

YOUR RIGHTS AS A PARTICIPANT

All participants:

- Have the right to contact the researchers at any time during the research to discuss any aspects of the study.
- Have the right to refuse to answer any questions.
- Have the right to withdraw from the study at any time.
- Have the right to ask for the tape to be turned off at any time.
- Provide information on the understanding that all information will be held in complete confidence by the researchers, to be used only for the purposes of the research. It will not be possible to identify individuals in any reports of the results.
- Have the right to decide what will happen to the interview tape on completion of the research (to have it electronically wiped clean, returned to the interviewee, or archived).
- Have the right to receive summary information about the results of the study on its completion.

Appendix 3: Consent Form

Measuring Traumatic Stressors**CONSENT FORM**

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate and I understand that I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide information to the researchers on the understanding that my name will not be used without my permission. If any quotations are used for publication, every care will be taken to ensure the anonymity of the speaker. The information will only be used for this research and publications arising from the research project.

Please delete as appropriate

I agree/do not agree to the interview being audio taped.

I also understand that I have the right to ask for the audiotape to be turned off at any time during the interview.

Once the data from the taped interview has fulfilled its purpose, I would like (please tick one option):

- I. The tape to be wiped clean
- II. The tape to be returned to me
- III. The tape and its contents to be archived

I agree to participate in this study under the conditions set out in the information sheet

Signed: _____

Name: _____

Date: _____

