

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.

**LOCUS OF CONTROL, TYPE A
BEHAVIOURS AND COPING STYLE
AS PREDICTORS OF POLICE
PERFORMANCE**

**A thesis submitted in partial fulfilment of
the requirements for the degree of**

**Master of Arts in Psychology at Massey
University, Palmerston North, New
Zealand**

Iain Saunders

2006

ABSTRACT

The current study explores the relationship between individual differences, related to the human stress response, and performance of Police Recruits in training at the Royal New Zealand Police College (N = 114). Data was collected during training sessions on stress management in Policing using scales from the Pressure Management Indicator (PMI) for Type A behaviour, Locus of Control and the use of positive coping. These variables were regressed against three performance data sets. Performance on two of the three dependant variables were found to be significantly and positively related to the PMI measures of the independent variables. Hierarchical regression analyses were carried out with mental ability, gender and age controlled for and predictive relationships were found for each of the dependant performance variables also, the strongest relationship being for overall Wing performance, variation in which was 68% accounted for by the model. Entry of the three PMI scales as a block explained significant unique variance in each performance measure over and above the variance explained by GMA. Further research is suggested to further explore the utility of measures of hardiness and stress tolerance for Police selection.

ACKNOWLEDGMENTS

The author wishes to thank the following:

My supervisor Dr Fiona Alpass for her enormous patience and assistance.

The kind support of Resource Systems Limited in supplying the testing resources for this research.

Members of the 221 and 222 Police recruit Wings, and my colleagues at the Royal New Zealand Police College for their willing participation and support of this study.

To Tusha, Max and Gigi, with apologies for the many many late nights which became early mornings, through which you have all supported me.

TABLE OF CONTENTS

Acknowledgements.....	i
Table of Contents	ii
List of Tables	v
Chapter 1 : Introduction.....	1
Chapter 2 : Occupational Stress	5
2.0 Origins of Stress as a Construct.....	5
2.1 An Operational Definition of Stress	9
Chapter 3: Individual Differences in the Stress Response	14
3.0 Overview	14
3.1 Type A Behaviour	15
3.2 Locus of Control	22
3.3 Use of Coping	26
Chapter 4: Occupational Stress in Policing	31
4.1 Sources and incidence of Police Stress.....	31
4.2 Gender as a Source of Organisational Stress in Police.....	34
4.3 Impact of Police Stress	42
Chapter 5: Police Selection in New Zealand	47
5.1 The General Duties Police.....	47

5.2 Recruiting Police in New Zealand.....	47
5.3 Police Selection	49
5.4 Hypotheses	51
Chapter 6: The Current Study.....	53
6.1 Design.....	53
6.2 Participants.....	53
6.3 Sample.....	54
6.4 Test Administration	54
6.5 Ethical Issues and Confidentiality	55
6.6 Apparatus	56
Chapter 7: Results	61
7.1 Overview	61
7.2 Data Screening	61
7.3 Independent Variables.....	62
7.4 Dependent Variables.....	64
7.5 Bivariate Relationships.....	64
7.6 Regression Analyses	66
7.7 Results Summary	75
Chapter 8: Discussion	76
8.1 Overview	76
8.2 Summary of Hypotheses.....	78

8.3 The Role of Gender.....	80
8.4 Police Training and Selection and the Current Study.....	81
8.5 Limitations and Future Research.....	85
8.6 Conclusions	86
References	87
Appendix One	106

LIST OF TABLES

<i>Number</i>	<i>Page</i>
Table 1. Norm Comparisons; PMI reported Norms and Participant Sample Means and Standard Deviations	63
Table 2. Dependant Variable Means and Standard Deviations (N=114)	64
Table 3. Pearson product-moment correlations for all variables (N = 114).	65
Table 4. Hierarchical regression of GMA, TABP, LOC and Coping onto Police Recruit Final Written Examination Performance, showing R, R ² , change in R ² , adjusted R ² and regression coefficient for all participants (N = 114)	67
Table 5. Hierarchical regression of GMA, Type A, LOC and Coping onto Police Recruit Final Practical Examination Performance, showing R, R ² , change in R ² , adjusted R ² and regression coefficients for all participants (N = 114)	71
Table 6. Hierarchical regression of Age, Gender, GMA, TABP, LOC and Coping onto Police Recruit Overall Wing Performance, showing R, R ² , change in R ² , adjusted R ² and regression coefficients for all participants (N = 114)	74

Chapter 1

INTRODUCTION

The nature of a Police officers' workplace dictates that on any given day, he or she will face many situations in which stress presents a real and at times immediate risk to their well being. Tasks which form the Police officers' work can contribute to both cumulative stress over time, and acute stress reactions from critical incidents such as attending traumatic road accidents, violent assaults or infant deaths.

Despite the acknowledgement internationally that Policing is indeed an occupation fraught with psychological hazards, (e.g. Hart and Cotton, 2002) Police in New Zealand currently do little to address this aspect of the role in their recruiting and training strategies. While stress tolerance is the second most heavily weighted specification for a general duties constable's role (New Zealand Police, 2005) there is no current measure designed to select staff suited to the stressful role that is a Police officer's lot.

Current concerns over an evolving labour market populated by a more transient, rationalist and less service minded population have lead most smaller, more agile organizations to adapt their human resources and hiring strategies to suit the market place. Strategies employed by many organizations include “telecommuting” flexible hours of work and part time roles. Unfortunately Police work does not lend itself to these strategies, placing the emphasis more heavily on well considered and careful hiring decisions that ensure those hired are suitable for the role and will remain in the service for some period of time. Police currently make a heavy demand on the labour market (in 2006 intending to recruit up to 700 new staff). Based on salary of those recruited alone, this facet of Police business represents an investment of around 35 million dollars of tax payers funds per annum.

An added concern for Police as an employer is the increase in litigation against Police, both locally and internationally, for negligent hiring, and poor stress management systems. Recent New Zealand cases (e.g. Brickell V Police), have seen the courts affirm the responsibility of Police as an employer to be aware of the risks to staff from psychological hazards associated with the traumatic and graphic nature of their role.

Existing selection processes focus strongly on general mental ability as a predictor of performance in Police work. Recent research (e.g. Salgado, 2003) suggests that Policing performance is not as well predicted by general mental ability as performance in other professions may be. Despite this Police currently administer three tests of mental ability as their only solid hurdles for selection to Police.

The purpose of the current study is to examine whether there is a currently unrealized strategic human resource advantage to be gained by selecting, and where appropriate training staff, based on individual differences that are believed to be associated with psychological hardiness which is acknowledged as required for the role but not reflected in the selection approach.

In particular this study examines the impact possessing features of personality related to higher stress tolerance may have on a trainee Police officers ability to perform well in their training. This will be achieved by examining three constructs related to stress tolerance or hardiness: the Type A-B behaviour type; Locus of Control; and the use of Social Support as a coping technique. Training performance data will be collected and compared to self report assessments from

the commencement of the 19 week basic Police Recruit course to assess the utility of these constructs for predicting the competence of Police trainees over and above general mental ability.

Chapter 2

OCCUPATIONAL STRESS

2.0 The Origins of Stress as a Construct

Stress as a human response to the environment and as a construct has been the subject of much study. As a feature of the workplace stress has become a prominent concern in recent years. Some of this increased concern may be as a function of awareness in the workforce, however evidence does exist to suggest that there is a real increase in the level of stress in contemporary lifestyles and workplaces (Williams & Cooper, 2002). Indeed Twenge (2000) contends in her study of anxiety levels in Americans, that levels of anxiety, a common sequelae of unmanaged stress, have increased an entire standard deviation in the past 50 years.

The term stress can find its roots in the physical sciences and engineering where, in the 17th Century, Robert Hooke, an engineer, discussed, with reference to bridges and similar structures, the concepts of load – referring to the weight placed upon a structure, and stress- referring to the area over which the load impinged and strain which was the resultant deformation due to the interplay

between load and stress (Hinkle, 1973). The social sciences adopted these terms and retain the themes in the modern research era with stress being seen as some type of external demand on a biological or psychological system.

In psychology and human science the genesis of our contemporary construct of stress is founded in the work of early 20th Century physiologists. In particular the study of Walter Cannon, a physiologist working around 1915, began describing stress as the emergency response of the human body (Greenburg 2003).

A commonality with all the early research is that it focuses on the construct of arousal to explain almost all stressors and the stress response (eg. Yerkes & Dodson, 1908). The inverted U shaped curve generated by graphing arousal against performance is a temptingly simple explanatory picture for the relationship between nearly any source of pressure and the human response to it. The U-shaped function as originally described by the Yerkes-Dodson Law is likely to approximate most performance and pressure relationships (Yerkes & Dodson, 1908; Xie & Johns, 1995)

Problematic within the theories of human stress at work are the methodological restraints for measuring the actual interaction between the worker and the environment. Naatanen (1973) proposes that the observation of the inverted U

curve as a function of the relationship between stressors and task performance cannot be differentiated from a problem of divided attention, in that the worker performing at the top of the curve, may in fact begin to assign more of his cognitive reserves to the stressor, and this may in fact lead to the decrements in performance on the down-slope of the curve, rather than the pure impact of stress leading to a distressed organism.

Seyle (1976), an endocrinologist, further advanced the concept of stress as a construct distinct from strain or arousal through his work with the bodies hormonal response to pressure. Seyle, in his early work from the 1950's proposed one of the more popular theories of stress, the general adaptation syndrome. This theory proposes that when an organism is exposed to stress, it experiences an initial arousal characterized by the fight or flight style response driven by the autonomic nervous system. This initial arousal is physiologically unsustainable which leads to a period of resistance and eventually to exhaustion or burnout (Lazarus, 1993).

In the occupational setting one of the most influential theories of stress is the demand – control model which finds its roots in the work of Karasek (1976). This simple model proposes that the basis of occupational stress can be traced to

two primary features of a given job. Those are the psychological demands of the job and the job's decision latitude (Karasek & Theorell, 1990). So roles which impose high demands psychologically but low levels of latitude for making decisions are likely to impose the greatest strain on the worker in the role, whereas the role that sees low demands but high decision making latitude will impact less on the well being of the worker.

The later work of Karasek and Theorell (1990) expanded the theory to include a feature of the individual to the theory which was the social support available to the individual in the work setting. Applying this later model the greatest strain or stress would occur in a worker with roles which impose high demands psychologically but have low levels of latitude for making decisions and low levels of social support.

Some criticism of the Karasek model can be found in the literature on the basis of its over simplification of the relationship between demand-control and subsequent strain (e.g. Rodriguez, Bravo, Piero, & Schaufeli, 2001). The addition by some researchers of individual character to account for the differences in each workers' reaction and personal style has been a feature of work in recent research on the model. An example of this work is that completed by de Rijk, Le Blanc, Schaufeli and de Jong (1998) which studied intensive care nurses. Their findings

suggested that the degree of job control the nurses perceived was only able to buffer the demands of their role when the nurses engaged in active coping strategies. An extension of that work can be seen in the work of Ippolito, Adler, Thomas, Litz and Holzl, (2005) who studied the role of individual differences within the Karasek demand-constraints-social support (DCS) model in soldiers on overseas deployment. In particular their study focused on the impact of active coping within the DCS model and tested the hypothesis that active coping would buffer the effect of job control on strain while passive coping would exacerbate the demands strain relationship. They found significant effects based on the coping methods employed by the soldiers, suggesting a significant role for appraisal and individual influence on the experience of strain in the workplace.

2.1 An Operational Definition of Stress for the Current Study

The current study focuses on the impact of individual differences on the experience of stress and performance as a function of those differences. The classic DCS model does not easily lend itself to research focused on the individual differences influential in predicting strain (and therefore performance) which may be influenced by strain.

Support for the evolution of the DCS model to include individual and situational factors is found in the literature on occupational stress. . The job demands-resources (JDR) model (Bakker, Demerouti, Taris & Schreurs, 2003), derived from the work of Karasek and Theorell, suggests there is a need for other variables above those proposed in the DCS literature. The emphasis of this model is still on the balance between competing variables but the variables considered are a lot broader than demands and control and social support. Job demands refers to more broad features of the role such as physical demands, social features and organisational dynamics that have a psychological cost. The JDR model depicts resources as those physical, psychological, social or organisational aspects of the job that are functional in achieving job related goals, and reducing job demands and the associated psychological or physiological costs, or that stimulate personal growth or development.

A dynamic model of workplace stress, such as that advanced by Williams and Copper (1998) is required to ground the understanding of the construct.

Williams and Cooper (1998), in their work developing the Pressure Management Indicator (PMI), defined stress as the imbalance between the demands placed upon the individual and the individual's resources for coping with those demands. This model of occupational stress is founded upon the work of Headey and Wearing (1992), Hart, Wearing and Headey (1993) and later work by Hart

and Wearing (1995). These studies developed the dynamic equilibrium theory of stress which challenged some of the inferences from the earlier stress literature focusing on individual differences (e.g. Costa & McCrae, 1980). This work suggested that static personality factors, such as Extraversion and Neuroticism, were the key factors in subjective well being (SWB), where SWB is seen as the operationalisation of the construct of strain. The work by Costa and McCrae (1980, 1984) asserted that the impact of life events on SWB were largely predicted by stable personality factors. By extension, were this the case, there should be little or no lifetime change in SWB or strain which is unsupported by the literature.

The argument at the foundation of the dynamic equilibrium theory is that stress is a state whereby the individual experiences disequilibrium in the system of variables relating people to their environment, and that this results in a related change in a person's state of well being (Headey and Wearing, 1989). The theory in essence depicts a person as having an equilibrium or normal pattern of life events and a normal or equilibrium of SWB. Both of these normal levels are seen as predictable on the basis of stable personality characteristics. This theory operates on the assumptions that when life, or perhaps work, events are all normal for the individual, no change in SWB will occur. A change in life events outside the normal range sees a shift in the SWB of the individual which is for the

most part temporary because of the equalizing impact of stable personality characteristics, and the person returns to their normal functioning levels. In researching this theory Headey and Wearing (1989) conducted a longitudinal study of 649 residents of the Australian State of Victoria. They found that over time SWB and life events ratings remained moderately stable but showed some change. In the same subjects however, the personality traits Extraversion, Neuroticism and Openness to Experience stayed almost entirely stable. The authors concluded that the changes in SWB related to the extent to which the individual deviated from their pattern of normal life events.

This theory and later work by Hart and Wearing (1995) asserts that no single variable can explain stress, and that facets such as personality, coping processes, along with positive and negative work experiences must be considered when examining and studying the experience of stress (Williams & Cooper, 1998).

Williams and Cooper (1998, 2002) built on the work of Hart and Wearing and the dynamic equilibrium model in building the four way model of stress. This model is at the foundation of the development of the pressure management indicator (PMI), the apparatus used in the current study. Williams and Cooper (2002) depict the four way model of stress work as a balancing equation between coping resources and sources of pressure. They describe stress as a personal response to

an imbalance where the sources of pressure outweigh the resources for coping. Personality influences how the balance is perceived by the individual and therefore whether any situation is seen as a growing experience or stress.

In summary the current study examined the role individual differences, related to stress tolerance or hardiness, may play within a model such as the 4 way model of stress proposed by Williams and Cooper (2002). This model was developed out of the emergent support in the research literature (e.g Lazarus, 1990; Hart & Wearing, 1998; Dewe, 1991) for individual differences and their influence in the experience of stress. Participants in the current study, trainee Police officers, exposed to the same environment with the same external support and advice perform at differing levels. It is expected, as is suggested by the literature above, that some of the variance in the performance in Police training and practice may be related to variance in differences in the individual's subjective experience of stress rather than the environment, resources available or other stable human factors such as gender, or mental ability.

Chapter Three

INDIVIDUAL DIFFERENCES IN THE STRESS RESPONSE

3.0 Overview

The sometimes pronounced differences in the reaction to trauma reported in literature has increased awareness of the role of individual differences as determinants of reactivity to stressors (Paton, Smith, Violanti & Eranen, 2000). These differences are of acute interest to those in the business of employing emergency service workers in fields such as law enforcement, particularly in light of an increasing litigious employment environment and increasing statutory responsibilities placed with employers.

Individual differences implicated in influencing vulnerability to stress include learned behaviours, such as avoidance of threatening situations, social skills deficits which lead to difficulty in sourcing social support, hyper-vigilance of threat – relevant cues, inadequate problem solving skill, drug abuse and alcohol abuse (Scotti, Beach, Northrop, Rode & Forsythe, 1995).

In keeping with Scotti et.al.'s vulnerability factors, a number of specific individual differences will be explored in the current study, and all have their own body of research support. The individual differences of type a behaviour pattern, locus of

control and coping style will be used as operational representations of resilient or hardy personality types for the present study of Police staff in training.

3.1 Type A Behaviour Pattern (TABP)

Type A – B behaviours have received extensive research coverage since 1959 when cardiologists Friedman and Roseman observed behavioural differences in their coronary artery disease patients and it is from their work the term Type A Behaviour Pattern (TABP) was coined (Keinan & Koren, 2002). Friedman and Roseman found their coronary artery patients were often characterised by being ambitious, competitive hostile and impatient. This individual difference in behaviour is operationalised in most research as a continuum between Type A and the polar opposite, Type B. Type B behaviour pattern is marked by an absence of competitiveness, more patience and lower aggression.

Much of the early research on the construct of TABP focussed on the physical sequelae of this behaviour pattern, and particularly the link between the cluster of behaviours and coronary artery disease (Spector , 2001). This later evolved with interest being shown in the relationship between TABP and psychological variables, including those in the field of occupational stress and strain. In an

organisational context the Type A character is likely to be unable to control themselves when exposed to work pressures, may have an insatiable need for achievement and may become aggressive and overly competitive in the workplace (Wright, 1998). Simply put, higher Type A individuals are seen to be more susceptible to the impact of strain from workplace demands or stress in general (e.g. Price , 1982; Spector & O'Connell, 1994)..

The link between occupational stress and TABP may lie in the divergent subjective views of the Type A and Type B individual because the subjective appraisal of the demands a job places on the individual is central to the subjective experience of strain. (Clarke & Cooper, 2000; Lazarus & Folkman, 1984). An example of support for this link is found in the study by Glazer, Thomas and Izso (2004). Their work examined the impact of Type A and Locus of Control across 5 different cultures (United States of America, United Kingdom, Israel, Hungary and Italy.) The subjects were nurses from 19 different hospitals and totalled 2032. This study found a significant positive correlation ($r=0.12$) between the variables of Type A and Job Stress, such that higher job stress was related to higher Type A scores. A similar effect was found for external Locus of Control (LOC). Thus, both an external LOC and Type A scores were related to higher subjective experience of occupational stress. The feature of interest in this work was that in cultures in which there was a tendency towards externality of locus,

there tended to be a stronger impact between personality type and perception of job stress.

The link between psychological hardiness or tolerance for stress and TABP was investigated directly by Rhodwalt and Agustsdottir (1984). Their correlational study examined the relationship between perceived controllability of events and the experience of stress for those classified as Type A personalities. The subjects who were Type A found those life events that were either moderately controllable or uncontrollable as stressful regardless of their desirability. This susceptibility to strain as a result solely of appraised control on the behalf of the individual has clear implications for Police officers whose entire working day is largely dictated by exogenous factors and low control.

A number of studies have investigated TABP in the Police setting. Brown, Cooper and Kircaldy (1996) in their study of 500 senior serving Police officers found no significant effect for TABP on the subjective experience of stress in their occupation. In a New Zealand setting the work of Huang, Hewson and Singer (1984) found serving Police officers had significantly lower scores on a Type A measure than the general population rate. Within the sample, job family was found to have some impact however, with higher achieving staff having

higher Type A ratings than those who had achieved less in their careers but of similar service length.

Shaubroeck, Ganster and Kemmerer (1994) have also studied TABP in a Police setting in their study of 150 Police officers, alongside 153 firefighters in mid-western United States of America. The purpose of their work was to test the effect of job complexity on health in Type A individuals and their propensity to develop coronary artery disease. In doing so they hoped to test the moderating effect of the TABP on stress exposures and the development of cardiovascular disease over time. This prospective study is one of the few of such design which assessed actual disease development as opposed to precursor conditions such as angina and therefore is highly relevant in the assessment of the link between stressful Police roles, the TABP construct and negative health outcomes. Shaubroeck et.al. found that complex and demanding jobs correlated positively with the development of cardiovascular disease seven years on from their baseline measures, but only in Type A individuals. In their study they found Type B persons did not become over stimulated as a function of job complexity, therefore perceiving less threat or challenge as a result of job complexity and experienced no deleterious health effects as a function of complex roles.

The paradox that this finding creates is that the Type A personality will find enriched or complex jobs necessarily attractive and more satisfying, and indeed good job design practice encourages role enrichment to attenuate the impact of role stress (Spector , 2001).

Support for the paradox presented by the Shaubroeck et al. study above is found from medical research, this time independent of Police and emergency workers, but nonetheless relevant. The Karasek model of demand constraints has as a central tenet the concept of decision latitude holding an ameliorative effect for the strain created by demands of a role (Karasek, 1979). Therefore job complexity or a high demand role should be in some way made more tolerable by decision latitude. Iwanaga, Yokoyama and Seiwa (2000) studied 524 graduates who through experimental design were exposed to tasks in groups with the latitude variable manipulated by time allowance to complete their tasks. Heart rate was measured to assess the physiological stress response. Responsibility for performance of the group was manipulated by disclosure of personal scores or non disclosure. Type A individuals experienced significantly higher heart rate increases with responsibility, but latitude did not diminish the impact of the strain for those individuals. The authors concluded that personal responsibility and decision latitude may in fact be one of the key elicitors of stress in Type A individuals. By extension therefore roles in which there is high personal

accountability, such as Police work, and significant latitude for discretion and decision making may be harmful to the well being of high type A individuals.

The impact of overload stress on emergency services personnel with the TABP, like the work of Shaubroeck et.al., was the focus also of Kirmeyer's (1988) study of Police dispatchers and emergency call takers. Her small sample study (N= 72) found that in these Police Staff, Type A personality had a significant ($p < 0.01$) effect on lowering the threshold at which workers experienced overload as a function of having their work interrupted or of having to begin a higher priority task when still completing a lower priority task. This type of role complexity is a common feature of operational Police work and therefore tolerance for this type of overload is an essential feature of the contemporary Police officer.

Evidence for Type A as a biologically based individual difference has been examined also. Gan, Ismail, Wan Adnan, Zulmi, Kumaraswamy and Larmie (2004), studied the Type A – B responses of 48 healthy patients and examined their DNA for specific protein. They found a significant biological difference between Type A and B patients ($p = 0.032$). Their work concludes that the dopamine system in the human brain is implicated in the TABP.

Another biologically based study of blood lipids, hostility and TABP was conducted by Donker and Breteler (2004). They studied a sample of 212 male coronary patients of varying health status. In the patients in this study who were high in TABP measures, a more direct relationship between hostility and unhealthier levels of blood lipids was discovered, in support of the work of Richards, Hof and Alvarenga, (2000) which found men who reacted with strong angry affect to criticism or rejection had elevated unfavorable lipid levels. The implications for such a profile in high pressure occupations are impacts on health and well being as a function of work, an issue Police should be aware of in hiring staff.

Finally, and of relevance to Police work and therefore the current study, is the study by Emdad and Sondergaard (2005) of human memory and general intelligence in sufferers of Post Traumatic Stress Disorder (PTSD) who also displayed TABP. This study is of interest given the incidence of PTSD in New Zealand Police, with 21% of exits from Police in the 1990 to 1997 period being from post traumatic reactions and 67% of all exits being on broader psychological grounds (Black, 2002). In 2001 12.98% of the serving sworn staff in Police were referred for psychological counselling for trauma (New Zealand Police, 2002). Impaired memory is a significant risk to Police from lost evidence. Reduced cognitive function also has obvious implications for complex

investigative roles such as those in which detectives are exposed to trauma and high pressure. Emdad et al. found that in a population of PTSD sufferers, poor visual memory and low non-verbal intelligence test scores predicted Type A behaviours. Type A also predicted more subjective distress in PTSD sufferers.

Overall, from the Type A literature outlined, the established link between TABP and workplace strain and the experience of deleterious health effects from strain, point to this variable as being a significant, and currently un-recognised, individual difference of interest to Police in selecting staff for their high stress role.

3.2 Locus of Control

The second variable of interest in the present study is Locus of Control(LOC). The construct represents the degree to which an individual feels able to influence the events that go on around them and in their lives. Rotter (1966) developed the construct of LOC out of his work with social learning theory. He proposed that people vary in the way they perceive rewards and reinforcement. Some derive rewards or reinforcement internally and therefore are internally located and others derive the rewards and reinforcement externally thereby being classified as externals.

Kaczmarek and Packer (1996) conducted a job analysis on the role of a General Duties Constable. They identified an internal locus of control as being a valuable characteristic for that role due to its value in contributing to a stress tolerant personality when part of a constellation of other characteristics.

Some studies have researched more directly the relationship between LOC and Police stress. Cooper, Sloan and Williams (1994) conducted a study of 533 Police officers from a British constabulary and demonstrated a relationship between mental and physical health symptoms and external locus of control. They also demonstrated a significant negative relationship between and external LOC and job satisfaction.

Further work by Rahim and Psenicka (1996) recommended that when selecting for stressful roles, such as Police work, organisations should aim to recruit members with a high internal locus of control based on their study of 526 businessmen in the United States of America. They found that an internal LOC moderated the effects of stressors on psychiatric symptoms and propensity to leave a job at significant levels.

Of particular relevance to work performance, training and LOC, and therefore the present study, is work that has examined the relationship between learning, achievement orientation, motivation, self esteem and job performance with LOC. Generally speaking it is expected that those with higher levels of internal locus are more active and energetic. Internally located individuals are more independent, self reliant, optimistic and have higher self esteem than externals (Morling & Fisk, 1994).

Relevant studies into Policing and Locus of Control include the work of Lester (1982) who sought to investigate LOC and its apparent impact on Police perceived stress. Using Rotter's Locus of Control Scale (Rotter, 1966) he examined the LOC of 73 North American Police Officers. He discovered a positive correlation between an external locus and self reported stress in his sample ($r = .41, p < .01$) and concluded that Police officers who reported a more external locus were more prone to experience job stress.

The Brown et. al. (1996) study of senior Police officers in the United Kingdom which found no effect for Type A, did find a significant positive relationship between an external locus and reported stress ($r = .21, p < .001$). The authors concluded that officers in their study who felt they exerted a high degree of

personal control over work related issues were both physically and psychologically in better health..

In line with this finding, an earlier study of 312 fulltime Police and Fire personnel in the United States of America had discovered significant support for LOC as a moderator of the impact of workplace stress. Fusilier, Ganster and Mayes (1987) found an external locus of control predicted a far stronger reaction, based on excretion of epinephrine, to workplace stressors than was the case in internally located individuals. The authors of this study concluded that, among others, two relevant effects were found: that role stressors have detrimental health effects and certain stressor effects are contingent on aspects of the person and the situation they are in. That is, individual differences influence reactions to exposure to stressors and the health outcomes that flow from such exposure.

Foltz examined Police training performance and its impact on LOC. This study examining the stability of locus as a human factor of relevance for selection is of interest because were LOC amenable to change in training, its relevance for selection would be minimal. Her work however found no statistically significant shift in locus in a pre and post course examination of staff in training in the Indianapolis Police Academy, lending value to its utility as a prospective selection tool for staff (Foltz, 2000).

Janicak (1996) explored another use of LOC as a selection tool in emergency services in his 147 participant study of workplace accidents. Using a self-designed measure of LOC and applying logistic regression, Janicak was able to predict the likelihood (89%) of being involved in a workplace accident using the hazard level of the role and LOC as predictor variables.

Given the relationship between LOC and stress tolerance, this construct is expected to play a significant predictive role as an independent variable predicting recruit performance on the New Zealand Police recruit training course.

3.3 Use of Coping

The third independent variable to be investigated in the proposed research is the use of coping resources, or the extent to which a person uses positive methods of dealing with pressure and stress in the workplace. Coping has been described as the constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that have been evaluated as taking up or exceeding the resources of the individual (Lazarus & Folkman, 1994).

Broadly speaking, coping behaviours may be divided between two subgroups, problem focussed and emotion focused behaviours. Problem focussed coping

strategies tend to target cognitive and behavioural attempts at dealing with modification or elimination of a stressful situation or the experience of strain. Emotion focussed coping involves the individuals attempt to regulate the emotions evoked by the strain being experienced (Matud, 2004; Williams & Cooper, 2002). Lazarus (2000) in his review of the coping literature and the methodologies being employed to investigate the phenomena, suggested there is an inherent danger in pitting the two types of coping against each other and labelling one as healthy and the other as unhealthy. Indeed, he posits, it is likely both strategies are engaged together in any given situation.

Stephens (1996) found in her study of 527 New Zealand Police officers, that the use of social support as a coping strategy predicted fewer post traumatic symptoms. The Fusilier et. al. (1987) study mentioned above operationalised coping behaviours in their study as the use of social support. They found some evidence for the buffering effect of social support on work stress in that those in their study who suffered from role conflict but used high levels of social support suffered fewer somatic health problems.

Another study previously described, Ippolito et.al.(2005) examined the differential impact of active and passive coping styles, building upon previous research demonstrating active coping, such as a problem focussed approach, being

beneficial and passive coping not beneficial to health of the individual (e.g. Jex, Bliese, Buzzell & Primeau, 2001.) Ippolito et al. specifically examined the buffering effect of passive versus active coping on the relationship between demands and strain in the Karasek model in 638 field deployed Soldiers. Their findings showed that perceived job control was able to moderate the relationship between demands and psychological health when the soldiers used active coping behaviours. This effect was lost for those engaging in passive coping behaviours. This study adds weight to the argument that individual differences in the strategies used to cope with demands can have sometimes complex but observable impact on strain.

The 1995 work of Hart et.al with 527 Police officers also found an impact for coping style on workplace well being. They conducted an analysis of a perceived quality of life survey and measured the predictive validity of several individual differences for that survey's overall outcome. Among the variables examined were problem focussed and emotion focussed strategies for coping. A finding of relevance to the current study in Police was that problem focused coping strategies were related to better well being in a member of Police.

In their study of Slovenian Police Ganster, Pagon and Duffy (1996) in a sample of 192 serving Police officers, found the use of social support as a preferred style

of coping, was positively related to psychological well being. Stephens and Long (2000) stated that a key aspect of social support as a coping mechanism lies in its provision of the opportunity to talk about traumatic or disturbing events.

The aspect of social support presented as influential by Jones, Flynn and Kelloway (1995) was its value in providing a sense of value in being part of a network rather than isolated. This is supported by other authors who found positive outcomes following traumatic exposure in the emergency services was a function of the use of social support structures including family and co workers. (DeAngelis, 1995; Fullerton, McCarrol, Ursano & Wright, 1992; Zellars & Perrew, 2001.) Kirmeyer and Dougherty, (1988) also found support for the buffering effects of social support in a Police setting in their study of 60 Police dispatchers. While no main effect was found for social support in the form of supervisory support, the presence of support was found to buffer the impact of higher workload. In fact this study found that greater supervisory support was related to the adoption of active coping by the worker in times of higher perceived workload.

Finally, the work of Patterson, (2003) with 233 Police officers from United States Police services found context specific buffering effects for two coping styles, problem focused and emotion focused. Specifically Patterson found that the

relationship between work events and distress or strain was buffered by the seeking of social support as coping. However, emotion focused coping strategies were able to buffer the relationship between life events and distress. This is further support for the need to view the individual as important in the study of strain in the work, and in particular to apply such knowledge to the selection of emergency services staff such as Police.

The present study investigated three types of coping in response to stress to measure the global coping strategies of the study participants: problem focused coping; work life balance as a coping style; and the use of social support as a coping style.

Chapter 4

OCCUPATIONAL STRESS IN POLICING

4.1 Sources and Incidence of Police Stress

During the course of an average career, a Police officer is generally exposed to traumatic events more often and more intensely than those in other occupations (Violanti 1997). The interaction with these traumatic events may be seen as more intimate than most occupations in the emergency services field and it is this feature that makes work-related stress a central concern in the selection, training and deployment of Police officers.

In New Zealand Miller (1998) reviewed the retirements of officers leaving between 1985 to 1990 and reported that in 69% of cases the reason for the exit was psychological factors. Of the same sample, some 16.9% were diagnosed as suffering from the effects of Post Traumatic Stress disorder arising from occupational exposure to psychological trauma.

The figures reported by Miller (1998) are in line with those reported internationally (Stephens & Miller, 1998) but the actual incidence of psychological

harm from trauma may be higher as these figures rely entirely on those leaving the organization and do not account for the remaining members labouring potentially under the same disorders.

The recent work of Hart and Cotton (2002) suggests that while on the face of it Police work would intuitively seem a stressful occupation, most Police are relatively well equipped to cope with traumatic job content, but less able to cope with the stress of the organization or the environment in which they operate, or perhaps job context. An individual's perception of the context of their experience therefore is an important part of the experience of stress for the member.

Some of the findings in the literature, in line with the Hart and Cotton view, contradict the highly face valid belief that the content of a Police officers role is stressful. Robinson (1982) surveyed 191 supervisory officers in the United Kingdom and found internal bureaucracy, paperwork load, politics within the service, lack of planning and resources and judicial system frustrations ranked the highest source of pressure from working in Police. The absence of any job content stressors is notable in this study and is mirrored in the work of Grimley (1982), also in the United Kingdom, who studied 223 Operational Detectives and found the top stressors to be insufficient autonomy to complete a job properly, autocratic management styles of superiors, lack of expertise in supervisors,

vulnerability to relocation, being under resourced, dealing with child victims, judicial system, and risk of complaints against them.

Miller (1998) studied New Zealand Police and their reported sources of stress and found negative media attention, high public expectations, perceived lack of supervisor support, increasing personal risk, frustration with the judicial system and the conflict between the aims of fighting crime and the economic constraints of the public service to be the leading stressors in the local context.

Physical danger and violence are sources of stress for some Police officers. Davidson (1980) asked Australian patrol staff to report the level of tension experienced from a list of what may be seen as stressful events. Only five events were listed as being very tense and also disliked, those being confronting a person armed with a firearm, child abuse, delivery of death notification, attending domestic disturbances and shootings. In this study many other events which were listed a very tense were also rated as positive experiences by the Police staff due to their excitement value.

An explanation for why Police would report some dangerous and traumatic incidents as actually desirable may lay in the research around trauma addiction which can be a feature of roles where the mundane is interspersed with the unpredictable exposure to excitement (Violanti, 1998). According to this research some staff may in fact become addicted to the trauma and associated excitement and begin to seek out incidents involving stress.

4.2 Gender as a Source of Organisational Based Stress.

Some of the impact of strain from being a Police Officer may also differ as a function of a member's gender. Evidence is outlined in this section that Policing is a more stressful occupation for female staff than their male counterparts, not due to task content but the organisational features which create gender specific stressors.

One of the key strategic goals of the New Zealand Police (NZP) to 2006 is to build a service that demographically mirrors the community it serves. Currently our society comprises approximately 50% women whilst female sworn members of Police total only 14.72%. Less impressive statistically are the numbers of women who advance through Police ranks to hold positions of supervisory rank.

Only 3.3% of staff at the rank of Superintendent or above are female, 5.1% of Inspectors, 3.2% of Senior Sergeants and 5.5% of Sergeants.

Compounding concerns over recruiting and progression is the impact of the retention of women officers. For example, in the year ending June 2002 the female sworn turnover was 7.3%, the highest of any Australasian police service, compared to 4.58% of men. Of the 493 staff that resigned from NZP during 2002, a staggering 36.5% were sworn women personnel. These high attrition rates are despite the implementation of policies of flexible employment options (FEO) and an outwardly hard line on issues relating to sexual harassment. The issue of female retention is also significant in relation to career advancement for women officers because high attrition rates result in a smaller selection pool for promotion.

The composition of Police services internationally is most commonly dominated by white men from middle class backgrounds and with a conservative outlook on life (Boni & Cirecelli, 2002). As a function of the role they perform they are often those who are physically strong with a macho image. In New Zealand approximately 70% of sworn staff classify themselves as Caucasian males. Traditionally and understandably, conservatism is a major feature of the police culture. It directly relates to intolerance of homosexuality, feminist issues and

propensity to drink and gamble and also increases the likelihood of internal sexual harassment and racial prejudice (Reiner, 1985).

This typical male image together with the over representation of males in supervisory roles, (96% of all Sergeants are male), places female staff within the traditional male power relationship in their working environment early in their career leading to absence of apparently successful female role models and mentors. This culture has been cited as a leading reason why New Zealand women resign from the service. In a study of those female staff that left prior to 1994 many claimed to have disengaged because they felt dominated and kept down by male attitudes and the patriarchal nature of the police organization (Penny, 2002). In a similar study of the New Zealand Defence Force (NZDF), Burton (1998) found that the pervasiveness of the masculinity of the military culture was a fundamental issue for under representation of women in levels of management. The pressures on them to conform to a masculine set of values and standards were strong.

The pervasiveness of the masculinity in a Policing context is evident in the changing career aspirations of sworn females. Both male and female officers tend to have similar levels of ambition amongst newly recruited officers however the same women officers soon display reduced levels of ambition after exposure to

the realities of the police service (Coffey 1992). In his study of female staff in the Northumbria Police Service, Green (1996) concluded that the influence of the male dominated culture impacted upon every aspect of the promotional aspirations of women. Green asserted that from application, recruitment, deployment, length of services and promotion women were constantly being measured against competencies felt to be important by their male managers and peers. The police culture submerged women officers in a constant battle for credibility and acceptance on 'men's terms'.

Kanter (1977) found that low numbers of women in organisations have been found to be an influential inhibitory factor in the equal treatment of women in the workforce and that token minority representatives are subject to more on-the-job pressure and scrutiny because they are more visible to the rest of the group and that visibility increases performance pressures. It has been suggested that if 25% of the workforce were women that was sufficient for them to have enough mutual support in the organisation (Oakley, 2000).

In a study of women in the NZP Criminal Investigation Branch (CIB) the majority of respondents believed their status as a small minority lead to a considerable degree of career disadvantage. Reasons given for this view included the lack of role models and mentors and the fact women stood out and received

much more scrutiny than their male counterparts (Hyman, 2000). Hyman also ascertained that having two or more women in an office or assigned to a squad was seen to make a major difference in avoiding isolation. The more even the gender balance, the fewer problems appeared to exist. Unfortunately in the New Zealand Police achieving gender balance on squads is rare, other than in departments such as Youth Aid or Child Abuse. Anecdotal evidence suggests that most operational squads hold a 'woman's position' and female officers are not considered eligible to transfer or promote to that area until the policewomen holding the position leaves.

In New Zealand Police there is no formal mentoring programme. Adams (2001) stressed in her research that in a strongly male oriented organisation where females have indicated feelings of isolation and discrimination it may be very beneficial to have a formal mentoring programme.

Differential staff deployment is an equally important phenomenon that has been examined and shown to negatively affect policewomen's subjective well being in the workplace. In being considered for promotion or specialist squad vacancies the amount of previous experience is crucial to a candidate's chances for success. However, it would seem that differential deployment patterns by mostly male

supervisors restrict women's policing experiences and inhibit their career options (Brown 1992).

Brown and Campbell (1991) found evidence of systematic gender bias in the tasks assigned to men and women uniformed constables. Even where the appropriate skills required for the task were not gender specific, differential deployment occurred. Schollum (1997) found clear gender differences in beliefs about deployment of male and female officers in New Zealand Police. Schollum (1997) reported that 17% of women compared to 55% of men agreed that female officers have the same opportunities as males to move into specialised jobs, 22% of women compared to 55% of men thought that women officers received the same encouragement to move into specialist jobs.

From an international perspective it appears that sexual harassment in the police force is pervasive and widespread. Studies in Australia, the USA and UK indicate that between 68% and 85% of female officers report being victims of varying degrees of sexual harassment (Brown 1998; Sutton 1995; The Police Chief, 1998). The most common offenders of the harassment were male colleagues and supervisors.

Harassment has the effect of de-professionalising the woman officer (Brown & Heidensohn, 1999). In effect it becomes a significant source of psychological strain for women. Research by Parker and Holdaway (1998) found that harassing behaviour was acutely associated with *positive* mental health for policemen. They concluded that as gender 'dominants' sexual harassment for men becomes part of a healthy joking culture whereas for women such behaviour serves to heighten pressures relating to job performance and increase strain.

Discrimination is more than sexual harassment, it also presents in the form of gender-based discrimination, bullying or undermining. In an Australian study of female police managers, Adams (2001) found that rates and types of discrimination changed as respondents were promoted to managerial levels. Early on in an employee's career, discrimination was primarily sexual harassment or gender based discrimination. As an employee moved into a managerial position, being undermined by one's peers based on gender was the primary form of discrimination.

In attempts to combat discrimination NZP followed the lead of many overseas police services with the introduction of legislation and policy pertaining to sexual harassment and equal employment opportunities. Whether it has been, or is likely to be, successful is questionable. In the United Kingdom, Brown (1998)

found evidence of a backlash against equity policies with harassment not only continuing but in some cases going underground and becoming more pernicious. In NZP and the NZDF taking a personal grievance in respect of discrimination or sexual harassment was seen as likely to lead to an adverse effect on the complainants career even if the action was justified (Burton 1998). Complaints were not dealt with as per policy and procedures and in some instances supervisors turned a blind eye to male officers that were known to be a problem (Burton 1998; Hyman 2000).

Part-time policing or flexible employment option (FEO) was introduced to New Zealand Police in 1993. The aim of FEO was to encourage women to continue their police service after becoming a parent. To date the initiative has not been overly successful with over 50% of officers resigning following maternity leave (Rose 2001; Waugh 1994). Of those that returned, maternity leave in itself was found to have a negative impact on career opportunities, mainly in terms of loss of opportunities for promotion or training (Adams, 2001).

The perception that the demands of policing, and the expectations of other officers, are incompatible with parenthood were supported by a UK study which found that women officers were deciding not to return to full-time work because

they believed that domestic responsibilities would have to come second to policing (Francis, 2000). Work-family conflict is a major source of pressure and strain for working women worldwide. Even highly ambitious Police women perceived work-family conflict as a major source of pressure (van Vianen & Fischer 2002). In an English study Holdaway and Parker (1998) revealed that women officers were three times more likely than men to refer to the potential conflict between work and domestic commitments as reasons they had failed to apply for promotion. Green (1996) concluded that it was clear there were few women in Police who had combined a young family with their career.

In male dominated organisations, such as police, a culture change is required to ensure women are retained and promoted to management positions. The changes need to infiltrate thinking at a top management level to emphasise that a good manager has a balanced life (van Vianen & Fischer, 2002).

4.3 Impact of Police Stress

Unmanaged strain from any source can have deleterious effects on health, both mentally and physically, and potentially lead to burnout (Maslach, 1982). Features of burnout are emotional exhaustion, depersonalization characterized by cynicism towards the public and reduced personal perception of one's own

accomplishments. Other outcomes from burnout may be depression, fatigue, demotivation, absenteeism, accelerated turnover and reduced productivity (Shaufeli & Enzmann, 1998). Police are not in a unique position with respect to this aspect of health risk from their occupation although burnout is a particular issue in human services occupations such as law enforcement (Black, 2002; Miller, 1998)

Where Police may differ from other occupations is in their potential exposure to trauma and critical incidents which perhaps sets them apart from some other social agents. While it is clear much of Police work is mundane and routine and the exposure to traumatic events is a low frequency event, (Black, 2002; Hart et. al. 2002) it is nonetheless a highly likely one over the course of a career.

Perhaps the most damaging sequelae of exposure to such trauma is post traumatic stress disorder (PTSD). The diagnosis of PTSD is made when the patient has been exposed to an event that involved actual or threatened death or injury to themselves or others and they experience symptoms persisting for over one month. The symptoms range from avoidance of stimuli related to the event, increased arousal that disturbs sleep and creates irritability and hyper-vigilance. To meet the diagnosis these symptoms must be experienced at levels that cause distress or impairment in the social or occupational functioning of the patient. (Davison & Neale, 1999). Prevalence of PTSD in New Zealand Police is thought

to be around 16.8% (Black, 2002), while internationally estimates vary but it is suggested they may rest in the vicinity of 26%. (Robinson, Sigman & Wilson, 1997.) These rates compare to the population rate of 1 – 3% (Davison & Neale, 1999).

General Physical health differences between the general population and Police may also occur. Rameriz, Federman and Kirsner, (2004) found, in a mortality study of North American Police services from 1950 to 1990, a higher than normal rate of all malignancies in Police officers. In New Zealand Police, Miller, (1998) reports the leading cause of death in serving sworn Police staff from 1990 to 1997 as being suicide (12 of 32 deaths or 37 %)

Operational effects of burnout as a function of strain are also reported in the literature. Kop, Euwema and Shaufeli (1999) investigated the relationship between burnout in 385 Dutch Police officers and its impact on their attitudes towards violence and their own use of violence. In the course of this work Kop et. al. found that sources of stress for the officers clustered around three groups; organisational stressors (such as paperwork load, bureaucracy, poor management and shift work schedules); emotionally demanding situations (such as informing families of a death dealing with child victims of sexual abuse, fatal accidents and unclean people); and poor effectiveness of Police actions (characterized by lack

of community respect, frustration with punishments for crime and limitations on their powers). The study found a positive relationship between burnout symptoms and attitudes to violence and the use of violence in the work setting. Overall they discovered that 18% of the variance in attitudes to violence was predicted by burnout ($p < .001$) and that 8% ($p < .001$) of the use of violent behaviour in the workplace was predicted by degree of burnout.

A later study also in a Dutch Police setting (Euwema, Kop & Bakker, 2004), examined an unusually positive impact of burnout in that when observed over a significant period of time, those officer suffering from the impact of burnout displayed less dominance in dealing with the public, which in turn predicted better outcomes to those incidents. This finding challenges the common conception of burnout, or the symptoms commonly reported as marking burnout, necessarily impacting on professional performance in the human service professions.

Finally, domestic violence and the Police family has been subject to its own body of research. Johnson, Todd and Subramanian (2005) studied the exposure to violence in the workplace and domestic violence in 413 Police families. They discovered a moderating effect for burnout between exposure to violence and usage of violence in the home. That is to say they found the relationship between

occupational exposure to violent episodes did not necessarily lead to Police officers using violence themselves, unless they scored higher on measures of burnout, in which case the relationship was moderate yet significant ($r=0.13$, $p<001$).

Chapter 5

POLICE SELECTION IN NEW ZEALAND

5.1 The General Duties Role

Job analyses conducted on the Police role in Australasia have found stress tolerance to be an essential characteristic of the general duties constable. This worker oriented analyses found a need for oral communication, written communication, conflict resolution, observation, memory, problem solving, judgment, decision making, reasoning, stress tolerance and interpersonal relations (Kaczmarek & Packer, 1996).

The Australasian Centre for Policing Research published a substantial and comprehensive document outlining the roles and duties of a front line, general duties constable. In lieu of detailed description of those duties, a copy of the result that job analysis is attached as appendix 1 showing tasks and their ratings by subject matter experts.

5.2 Recruiting and Selecting Police Officers in New Zealand

Prediction of performance through psychometric means for occupational settings is a growing area of interest for modern organizations. The strategic advantage to be realized from accurate human resource decisions particularly surrounding the hiring and deployment process is of particular importance in times of economic growth and low unemployment where, necessarily, the labour market is competitive and rationalist in its collective focus.

Policing employ a process of a selecting where multiple hurdles are set in front of the recruit applicant and failure at any of the hurdles is fatal for the application process (New Zealand Police, 2004). This approach minimizes the organisational risk associated with making false positive errors in the hiring of a candidate but necessarily must adversely impact on the rate with which false negative errors are made. This recruiting approach has historically been acceptable for Police, setting high standards for selection when the labour market was less active, employment rates were lower and Policing was seen as a more attractive profession by a more service minded, less rationalist market.(Miller, 2000)

Multiple changes have occurred in the internal Police framework also that have affected the workplace contract between the public and Police officers. In the last century Police officers engaged in a 32 year contract, based around their superannuation scheme, and remained an average of over 15 years. Evidence of the shrinking length of service and diminished career long commitment to Policing can be found in the figures for average service and age of members. In 1990 the average age of sworn Police was 33.5 and the average length of service 10.97 years. In 2000 the average age had crept to 36.5 years and length of service downward to 9.78 years. Less than 20% of sworn staff exceeded 15 years service in 2000 and 25% of serving sworn staff were less than 3.1 years experienced in Policing. (Miller, 2000).

Such a changing internal structure places even more importance on the hiring decisions made. In light of the competition within the labour market Police should take due care in hiring members who are able to survive not only the training environment, but who are robust enough to endure workplace stressors and strain over what remains a long average career span of 9.78 years.

5.3 Police Selection

Recent work in the field of applied prediction (Salgado, 2003) for occupational settings has highlighted the risks associated with Policing relying on general mental ability (GMA) for selection. The meta-analysis by Salgado, analyzing the validity of GMA for predicting work performance found the mean utility of GMA for predicting performance in most occupations was approximately .50. GMA in a Policing setting showed the lowest criterion related validity at approximately $r=0.26$ leaving most of performance in Police settings unexplained by GMA.

Hirsh, Northrop & Schmidt, (1986) examined Policing specifically and the impact of measures of cognitive ability as predictors of Police performance. Various measures of ability were used in this study which found high validity for cognitive ability as a predictor of training performance during basic training, but operational or workplace criterion validities in the range of 0.10 - 0.26. In line with the work of Salgado and Hirsh et al the author of the current study demonstrated a similarly poor level of utility for GMA in predicting performance within a New Zealand Police setting. Using New Zealand Police recruits the study examined 164 Recruits through their initial training period. Raw scores on Raven's progressive matrices were used to assess GMA and various measures of performance checked for Pearson product-moment correlations with GMA. This study found that practical performance (a measure of incident handling based on ratings when attending a mock incident) was only moderately related ($r = .18$) to GMA in such a training simulation of operational work. Indeed the written examinations in the New Zealand Police training were not well predicted by GMA as measured by Ravens matrices with the effect observed that over time in training GMA became less influential. The Recruits first examination was moderately correlated with GMA ($r = .21$) but by the third examination was very

weakly related ($r = .02$). The overall performance in the course, as assessed by a single mark, amalgamating all areas of the course, was also weakly related to GMA ($r = .10$).

The current New Zealand Police selection process uses the General Reasoning Test 2 which introduces three differently presented measures of GMA, a fluid measure, a numeric based measure and a literacy based measure. The preferred standard is a stanine level of 5 across all the measures of mental ability, with a minimum standard of stanine 4 being accepted for training. Most weighting in the decision making process is given to the abstract reasoning scale of the GRT2 as it is assumed this shows some ability to learn and is less culturally influenced. (Personal Communication – Auckland District Recruiting Manager, 2005)

The recruits in the current study were tested for GMA using the ACER ML-MQ which until 2004 was the standard measure used in the recruiting process. This measure presents candidates with numerical and verbal reasoning tasks. Prior to adopting the GRT2 Police used both ML-MQ scales (verbal and numeric ability) and combined them before arriving at a stanine score which was used to form a minimum required standard of stanine 5 compared to the general population. This was the only mental ability data available for candidates in the current study. The ML-MQ was found to contribute to Recruit performance significantly by Black (1995) and was in use for Police selection between 1991 and 2004.

Personality measures (the 15fq+) are administered in the New Zealand Police recruiting process but the information gathered is used solely as a guide to interviewing and in fact is often largely overlooked in the decision making process for selection. There is presently no measure of, nor attention paid to, resilience or stress tolerance as a feature of interest in the applicant, in spite of stress tolerance

being the second most highly weighted job specification in the job description for a general duties constable (New Zealand Police Intranet, 2005).

Of interest with this study is the observation of an over time diminished influence for GMA, from the first exam to the third exam, to the point where GMA is practically unrelated to final exam performance for Police recruits in New Zealand Police.

The issues of the validity of GMA for predicting Police performance, and the apparent disregard of the impact of other individual differences on Police performance are at the core of the rationale for the current study. While GMA is likely to be influential in Police performance the mechanisms by which it exerts itself have not yet been adequately investigated nor a reasonable, practical criterion been found for Police officers (Hirsh et al.).

5.4 Hypotheses

Having reviewed the literature and observed Police behaviour, the aim of this study was to investigate whether Police could realize any strategic human resource advantage from aiming to recruit individuals who are demonstrably hardy or resilient personalities. Of interest in also is whether there is any actual within incidence capability predicted by an individual having behavioural styles thought to be key features of a resilient person.

Specifically the following hypotheses were arrived at for the current study:

Hypothesis One: Lower ratings of type a behaviours, an internal locus of control and high use of coping behaviours will predict performance by subjects on the final written examinations in the New Zealand Police Recruit Course.

Hypothesis Two: That lower ratings of type a behaviours, an internal locus of control and high use of coping behaviours will predict the competence of Police trainees when attending an incident during practical examinations.

Hypothesis Three: That lower ratings of type a behaviours, an internal locus of control and high use of coping behaviours will predict the competence of Police trainees over the entire wing score.

Hypothesis Four: PMI subscales will add significantly to explained variance in performance measures over and above that explained by GMA and personal characteristics.

Chapter 6

THE CURRENT STUDY

Method

6.1 Design

The design of the study is a within-subject longitudinal study. Independent variables measured were type a, locus of control and use of coping resources as measured by the ratings for subjects on the Pressure Management Indicator (Williams and Cooper, 1998). The dependant variables observed were performance on Police recruit course written and practical examinations and overall achievement in the course as demonstrated by a wing overall percentage mark.

6.2 Participants

Participants in the study were 127 Police recruits who were members of recruit Wings 221 and 222 who volunteered for the study during their 19 week Police college training course. They volunteered during a two hour training session on pressure management and stress in Police which is delivered by the researcher at week 3 of their recruit training course. The data was collected from those volunteering within that session.

The composition of the participant group was 25.3% female and 74.6% male, representing a higher percentage of female staff to those in the general Police population (17%) (New Zealand Police, 2004). Of the sample studied 11 % identified as Maori, 6 % as Polynesian and the 83% as Caucasian, similar to the current ethnic make-up of the general Police population (New Zealand Police

Intranet, 2005). The average age of the participants in this study was 30.66 years of age (SD = 5.84) with a range from 21 years to 45 years of age.

6.3 Sample Selection

All members attending the stress training for Wing 221 and 222 were asked to participate (N=127). Only 5 members (3%) declined. After all data was collected and screened 114 of the 127 participants initially volunteering remained in the study.

Members were informed of the nature of the study and asked to complete a consent sheet when completing the Pressure Management Indicator. Those not wishing to participate were asked to shred their paper and return it to the tester while those participating were asked to return the sheets with their written consent to the tester. The consent form also requested access to the members training data for research purposes only.

6.4 Test Administration

The researcher is the presenter of a stress management package to Police recruits in week three of their recruit course. In the course of that two hour session the selected scales of the pressure management indicator were administered to the recruits and feedback given on the meaning of each scale. The testing was administered as part of a group exercise to everyone in the wing. Those willing to participate in the research were asked to return the forms. Those not wanting to participate were asked to note on the top of their questionnaire and to not complete the consent. Records of these members were destroyed. Recruits were invited to approach the researcher at any time to

discuss the properties of the measure and could withdraw consent for participation in the study at any time.

6.5 Ethical Issues and Confidentiality

The study was conducted in accordance with the New Zealand Psychological Society's ethical guidelines for research. The study was approved on behalf of New Zealand Police by the National Manager : Training and Professional Development for New Zealand Police and approved by the Manager of Initial Training Group at the Royal New Zealand Police College.

A guarantee of confidentiality was given to the participants and the hard copy of their testing kept separate from any other training records. The data was stored electronically on a stand-alone laptop computer independent of the Police training college mainframe system and results protected from all staff outside of the researcher. Training data is readily available to the researcher and analysis of this data is a portion of the researcher's job description and no issues presented themselves in respect of accessing personal information not already available to the researcher. All data collected was collected with the informed consent of the members concerned.

The Pressure Management Indicator contains no clinical scales or measures of mental ability. The testing did not form any part of the recruit's assessment during their recruit course and any risk of coercion to participate was minimised by instructions from the researcher, evidenced by the withdrawal of 5 members from the research.

6.6 Apparatus / Instruments

6.6.1 Independent Predictor Variables

All three independent variables of interest were measured using selected scales of the Pressure Management Indicator (PMI) (Williams & Cooper, 1998), namely subscales for:

Type A behaviours (TABP) - subscales for Drive, patience impatience are combined to arrive at a global TABP score. Higher ratings indicate higher levels of Type A behaviours. Items are scored on a six-point likert scale with 1=Very strongly disagree, to 6 =very strongly agree rating guideline. There are 15 items in the TABP section of the PMI such as “I am not especially achievement oriented” and “I am a fairly easy going individual, who takes life as it comes and who is not especially action oriented”.

Scores for TABP drive subscale are calculated by subtracting four item scores from a constant of 21 so that scores can range from – 3 to 17. The patience impatience scale scores are calculated by simple addition of ratings on five of the 15 TABP items, leaving a possible score range of 6 to 30. Addition of these two for the global scale give possible score ranges of 3 to 47.

Coping Style – subscales for use of work life balance and problem focus are combined to arrive at global scale. Higher rating is higher use of problem focus and life work balance to cope with stress. The participant is oriented by a statement asking them to think how they deal with sources of pressure and rate items such as “ talk to understanding friends” and “ set priorities and deal with problems accordingly” on a six-point likert scale. This scale is anchored to ratings of 1=never used by me, to 6 =very extensively used by me.

Problem focus is calculated by simple addition of 6 of the 17 items giving a possible range of 6 to 36. The life work balance scale is calculated by simple addition of 4 further items from the 17 from the same section allowing a score range from 4 to 24. The global scale is a combination of these two scales allowing a range from 10 to 41.

Locus of Control – subscales for personal influence and control are used in the PMI. Higher rating is a more internal locus of control. The participant is oriented by a statement asking them to indicate the extent to which they agree with statements such as “most of us are subject to events we cannot influence or control” and “I like to be told what to do”. Ratings are sought on a six-point likert scale. This scale is anchored to ratings of 1=Very strongly disagree, to 6 =very strongly agree. The control subscale, the extent to which the participant is indicated to feel able to influence events, is calculated by subtracting the sum of 5 items from a constant of 35, allowing a score range from 5 to 30. Personal influence is the second subscale in LOC and is measured by simple addition of 3 items allowing a range of scores from 3 to 18. The combined global LOC scale therefore has a possible range of 8 to 48.

The whole tool contains 120 items with twenty four scales developed from those items. The participants in the current study were administered only the item sets described above. Raw scores were calculated using the standard scoring formulas described above to arrive at IV values for the three constructs of interest divided in facets as described above.

The authors of the PMI scales report reliability coefficients for each of subscales used in the present study as follows: social support $\alpha=80$, life-work

balance $\alpha=0.73$, problem focus $\alpha=0.80$, Type A drive $\alpha=0.72$, patience $\alpha=0.80$, control $\alpha=0.72$ and personal influence $\alpha=0.71$. (Williams & Cooper, 1998).

6.6.2 Control Variables

General mental ability (GMA) was estimated using the recruiting data available for each member. The test used at recruitment at the time of collection of this data was the ACER ML/MQ test of higher ability. Recruits need to fall with the stanine 4 to 5 or above to be recruited. The ACER is a well supported and robust measure of mental ability and tests a subject's numerical and literal based reasoning ability. It has been in use by New Zealand Police for many years and has reported internal consistency of $r=0.96$ for combined scales (ACER, 1971). This data was collected in order to control for the impact of GMA when regressing the independent variables onto the performance variables.

Gender was dummy coded 1 for male and 2 for female participants to also control for the effects of gender on performance. Age was also treated as a control variable in the study.

6.6.3 Police Performance Measures

Performance on the police training course was be measured using three variables. The first dependant variable was the score on the final written examination completed in the 18th week of recruit training.

The second apparatus for collecting dependant variable data was the final practical examination rater's form. The rating from the role play form allows for a dichotomous response from the rater with forced choice options between competent/not competent on multiple component tasks across 7 broad areas of practical skill. (e.g. field interviewing, maintaining staff safety, legal use of search and seizure powers, appropriate treatment of exhibits) Final scores are arrived at by massing each of the section marks together.

Raters at the Royal New Zealand Police College at the time of this study were all qualified workplace assessors and experienced Police officers. No reliability estimates are available for this tool, however the procedures around the ratings are very carefully administered including detailed briefings for raters and role-players prior to the assessments, prescriptive scripts for role players outlining responses to questions and actions, and a post incident debriefing and moderation process for markers and role players.

The role play is essentially an in-tray exercise or work sample test and involves the role player acting in the role of an offender about whom the Recruit has basic details in relation to their identity and suspected offending. The Recruit is sent to attend to the role play in much the same manner as they would in an operational setting. They have with them another staff member to consider and deploy as needed, and their full range of defensive tactics available (e.g. Pepper spray, batons, handcuffs.) The role play incidents are played out up until the point where an arrest decision is made and the offender secured or released without charge.

Ratings from these role plays form the basis for an assessment of the recruits' overall practical policing ability and are, at present, the last time a member is ever assessed in the process of carrying out their duties relating to arrest.

Finally the overall wing mark was collected which is an un-weighted aggregation of various performance measures across the recruit course inclusive of the recruit's examinations, practical tests, preparation of Police files and investigations, an academic essay, Police driving skill , firearms skill and self-defense training.

Chapter 7

RESULTS

7.1 Overview

The data presented in this chapter are presented to assess the role of the three independent variables in predicting the performance of New Zealand Police staff in training on exams and in practical settings. By extension it is hoped to examine the utility of measures of individual differences related to stress tolerance for predicting organisational fit and the likelihood of success

Specifically the global scales of TABP, Locus of Control and Coping behaviours are presented in regression analysis in which GMA is controlled for.

7.2 Data Screening.

Prior to any further analysis all data was screened for data entry errors, missed values and the assumptions for the multivariate data analyses presented.

All the variables in the data analysis were examined for skew. Variables for the total wing score and examination three had negative skew however transformations did not improve skewness and variables were left untransformed. All other variables were found to be sufficiently normally distributed for the proposed analyses.

The recommended number of participants per variable for multiple regression is no less than five (Tabachnick & Fidell, 1996). After removing those

participants with extensive missing data the current sample was 114 participants, within the accepted range.

7.3 Independent Variables

Means and standard deviations for the PMI subscales used in this study, and the published norms, are provided in Table 1 below. Global scale norms were not available for Type A , LOC and Coping. In the current study the global scales were arrived at as per the subscale calculation advice provided from the test provider (Resource Systems Limited , 1999) by simply combining the subscales.

The only independent variable to show significant difference between means for the published norm group and participants in this study is the Type A subscale for Drive ($t = 40.242$, $p < 0.001$). This is consistent with the findings of Huang et al., described earlier, which found New Zealand Police to be lower overall in TABP measures than the general population.

Other independent variables used in the study as control variables were gender age and GMA. Gender was dummy coded. The mean stanine scores for the ML/MQ at selection were 6.92, with a standard deviation of 1.33. Age of the sample was an average of 30.66 years of age with a standard deviation of 5.84.

Table 1. –

Norm Comparisons – PMI reported Norms and Participant Sample Means and Standard Deviations (SD)

Variable	Norm Group (N = 20,981)		Police Recruits Wing 221 & 222 (N = 114)	
	Mean	SD	Mean	SD
TABP Drive	15.83	3.20	8.09	2.04
TABP Impatience	18.60	3.61	16.80	2.93
LOC Control	17.19	3.31	18.36	2.66
LOC Influence	12.08	2.37	12.15	1.59
Cope	24.52	4.04	25.21	3.33
Problem Focus				
Cope	16.90	3.37	17.74	2.43
Life -Work				

7.4 Dependant Variables

Mean values for the dependant variables of Wing Scores, Final Examination and Wing Score overall are presented in Table 2 below.

Table 2.

Dependant Variable Means and Standard Deviations (N=117)

Variable	Mean	SD
Written Examination	82.583	7.899
Practical Examination	36.835	10.452
Wing Score Overall	81.715	6.177

7.5 Bivariate Relationships

Table 3 below presents the Pearson's correlations between the variables of interest in this study. All independent variables of interest in this study show strong positive correlations with the dependant performance measure variables. The higher use of Coping behaviours, a more internal Locus and higher TABP in the recruit population was positively related, in a bivariate sense, to performance in training. Gender and age also showed positive and significant relationship to all other variables of interest in the study.

Table 3.

Pearsons product-moment correlations for all variables.

	1	2	3	4	5	6	7	8	9
1.GMA	1.00								
2. Age	-0.006	1.00							
3. Gender	-0.008	0.249*	1.00						
4.Type A	-0.011	0.450**	0.270*	1.00					
5.LOC	0.026	0.574**	0.344**	0.658**	1.00				
6.Coping	-0.004	0.522**	0.290**	0.622**	0.749**	1.00			
7.Written Exam	0.150*	0.468**	0.436**	0.662**	0.757**	0.710**	1.00		
8. Practical Exam	0.066	0.162*	0.213*	0.425**	0.456**	0.522	0.626**	1.00	
9.Wing Overall	0.054	0.497**	0.354**	0.701**	0.780**	0.726**	0.852**	0.624**	1.00

* = $p < 0.05$, ** = $p < 0.01$; GMA = General Mental Ability

Consistent with the studies reviewed in previous chapters, GMA was poorly related to performance variables in the study. Some of this may be accounted for by the restricted range in the scores used. This weakness is compounded by the fact that the participants were screened during their selection for Police and prior to the study and the population is lower limit bound as a result.

7. 6 Regression Analyses.

Hierarchical regressions were used to regress the independent variables, controlling for GMA gender and age, onto the three dependant variables. This method was chosen for its ability to allow the researcher to control the order of entry and more stringently test the study hypotheses. It is most appropriate as each block is selected a priori in line with the hypothesis under examination. (Grimm & Yarnold, 1995)

The first block entered on each occasion was general mental ability (GMA) as measured by the ML/MQ, gender, which was dummy coded 1 for male and 2 for female, and age. This was done in order to control for the relationship between GMA and performance, the impact of gender that might be expected from Police culture as discussed in the review of the literature above and the influence age related factors may have such as experience in other similar organizations or roles. The three independent variables of primary interest in the study, TABP, LOC and Coping were entered as a block at the second step of each equation.

7.6.1 Final Examination Performance

Table 4 below describes the regression equation testing the relationship between performance on the final written examination and the three independent variables (Hypothesis 1).

At step one, GMA, gender and age scores accounted for 33.5% (adjusted R^2) of the variance of scores in final written examinations, $F(3,110)= 19.967$, $p<0.001$. Gender and Age were positively related to the dependent variables with females and older recruits scoring higher on the final written exam. GMA was unrelated to the dependent variable.

Table 4.

Hierarchical regression of GMA, TABP, LOC and Coping onto Police Recruit Final Written Examination Performance, showing R, R², change in R², adjusted R² and regression coefficients for all participants (N = 114)

Predictor	Step 1	Step 2
<u>Personal Characteristics</u>		
GMA	0.156	0.145*
Gender	0.342**	0.184**
Age	0.384**	-0.014
<u>PMI Scales</u>		
Type A		0.211*
LOC		0.377**
Coping		0.243*
R	0.594*	0.832**
Total R ²	0.353	0.693
Adjusted R ²	0.335	0.675
ΔR^2	0.353**	0.340**

* = P < 0.05, ** = P < 0.001; GMA = General Mental Ability, LOC = Locus of Control.

Entry of the second block, TABP, LOC and Coping increased the variance explained by the whole equation to 67.5% (adjusted R squared), $F = 51.82$, $p < 0.001$. The three variables accounted for 34% unique variance in exam performance when controlling for personal characteristic and GMA. The R²

change after entering the three PMI variables to the equation was significant, ($F(6,107) = 40.194, p < 0.001$).

Observation of the beta regression coefficients at both steps allows further observation of the relationships between variables. Gender and was positively related to performance at step 2 although the magnitude of this relationship reduced with the addition of the second block of variables. Age, although significantly related to the DV at step 1 appears to be mediated by the addition of the PMI variables. GMA was not significantly related to the DV at step 1 however becomes significant at step 2 suggesting a suppressor effect. Tabachnick and Fidell (1996) note that when IVs are correlated with each other, correlations and regression coefficients can be misleading. Sometimes a large regression coefficient does not directly predict the DV, but it predicts the DV well after another IV suppresses irrelevant variance.

In line with the correlations observed in Table 3 the most influential of the variables within the block in the second step of the equation was Locus of control, indicating that an internal locus of control was related to better performance in the written examinations. Greater use of coping behaviours was the next most influential factor in predicting examination performance indicating higher use of problem focused approaches to strain and the use of life work balance was predictive of better examination performance. TABP

was also positively related to performance. Hypothesis 1 was partly supported in that internal locus and greater use of positive coping, was related to superior final examination performance in this study. Within the study participants, higher TABP was positively related to higher performance however, counter to Hypothesis One.

7.6.2 Practical Examination Performance.

The hierarchical regression analyses described in Table 5 below tests the relationship between the independent variables and performance on the recruit's final practical examination (Hypothesis 2)..

This particular performance measure is perhaps the experience most closely aligned to actual operational duties in the training environment. Again Age, gender and GMA were entered into the equation as block one as control variables. At this step 3.7%(adjusted R square) of variance in practical ability was accounted for by age, gender and GMA, $F(3,110) = 2.612, p < 0.066$. Gender was a significant contributor to the equation at this step, such that being female was predictive of better practical performance. Age and GMA were unrelated to this performance measure at step 1.

At the second step the three PMI independent variables were entered and increased the explained variance to 28.8% (adjusted R^2) in practical exam performance ($F(6,107)=8.605, p<0.001$). The PMI variables accounted for 26% unique variance in performance when controlling for GMA and personal characteristic variables. The R^2 change when entering the PMI variables at Step 2 was significant, ($F = 8.605, p<0.001$) Examining the beta coefficients in this equation reveals the only significant contribution was made by the coping variable, suggesting the amalgam of problem focused coping style and a recruit with good life work balance, contributes to superior within incident performance as measured by the final practical examination. At the second step the role of gender became non significant. The relationship between practical skill and age however became significant ($p<0.05$) again suggesting a suppressor effect as described above.

Hypotheses 2 was only partly supported with in that greater use of positive coping, was related to superior practical examination performance in this study. Within the study participants, higher TABP was not significantly related to performance however, counter to Hypothesis Two.

Table 5.

Hierarchical regression of GMA, Type A, LOC and Coping onto Police Recruit Final Practical Examination Performance, showing R, R², change in R², adjusted R² and regression coefficients for all participants (N = 114)

Predictor	Step 1	Step 2
Personal Characteristics		
GMA	0.069	0.064
Gender	0.185*	0.057
Age	0.177	-0.220*
PMI Scales		
Type A		0.125
LOC		0.174
Coping		0.407*
R	0.251	0.571**
Total R ²	0.063	0.325
Adjusted R ²	0.037	0.288
ΔR^2	0.063	0.263**

* = P < 0.05, ** = P < 0.001: GMA = General Mental Ability, LOC = Locus of Control,

7.6.3 Overall Wing Performance

The final regression investigates the relationships of the predictor variables to overall performance on the nineteen week training course. The results from this analysis are presented in Table 6 below. Again the control variables of GMA, gender and age were entered first followed by the three independent variables in a single block.

Age, gender and GMA were entered into the equation as block one as control variables. At this step 28.8% (adjusted R square) of variance in overall wing performance was accounted for by age, gender and GMA ($F(3,110) = 16.24, p < 0.001$). Gender and age were significant contributors to the equation at this step, such that being female and being older was related to better overall performance. GMA was unrelated to this performance measure at step 1.

At the second step the three PMI independent variables were entered and increased the explained variance to 68% (adjusted R^2) in overall wing performance ($p < 0.001$). The PMI variables accounted for 39% unique variance in performance when controlling for GMA and personal characteristic variables. The R^2 change when entering the PMI variables at Step 2 was significant, $F = 41.018, p < 0.001$. Examining the beta coefficients in this equation reveals all three PMI variables made a significant positive contribution to overall performance such that a more internal locus of control, higher level of type A behaviours and higher scores on positive coping made significant contributions to performance. At the second step the role of gender and age became non significant once again demonstrating the suppressor effect as seen in the previous DVs.

Hypotheses 3 was only partly supported in that greater use of all three IVs was related to superior overall examination performance in this study. Within the study participants, counter to Hypothesis three, higher TABP was positively related to higher overall performance. The contribution to explained variance in final wing score from the Type A behaviours, Locus of Control and coping behaviours was a 39% increment over and above that of the control variables of age, gender and mental ability.

Examining the contribution of the PMI variables to the explained variance in the three performance measures it can be seen that in all cases these variables contribute significantly more to the variance in performance

Table 6.

Hierarchical regression of Age, Gender, GMA, TABP, LOC and Coping onto Police Recruit Overall Wing Performance, showing R, R², change in R², adjusted R² and regression coefficients for all participants (N = 114)

Predictor	Step 1	Step 2
<u>Personal Characteristics</u>		
GMA	0.058	0.047
Gender	0.246*	0.076
Age	0.436**	0.011
<u>PMI Scales</u>		
Type A		0.261**
LOC		0.412**
Coping		0.217*
R	0.554**	0.835**
Total R ²	0.307	0.697
Adjusted R ²	0.288	0.680
ΔR^2	0.307**	0.390**

* = P < 0.05, ** = P < 0.001

7.7 Results Summary

The results of the regression equations described above show significant explanatory value for the variance in the three dependant variables.

Hypothesis one, was partly supported by the significant relationships between the variables of Locus of control and Coping, and the dependent variable, final written exam score.

Hypothesis two was partly supported by the significant relationship between Coping, and the dependent variable, final practical exam.

Hypothesis three was partly supported by the significant relationships between Locus of control and coping and the dependent variable, overall wing performance.

Hypothesis four was supported such that the block of PMI variables were found to contribute significant unique variance in the final written examination scores, the practical examination scores and the overall wing performance scores, over and above the control variables of gender, age and general mental ability.

Contrary to expectations, Type A was positively related to two of the performance measures. Suggested explanations for these findings are discussed in the following chapter.

In summary positive relationships were found for an internal locus of control, Type A and higher use of positive coping behaviour with three performance measures of recruits at the Royal New Zealand Police College.

Chapter 8

DICUSSION

8.1. Overview of Results

The most effective performers in hazardous jobs are those who experience the least stress. (Hogan & Lesser, 1996). Hogan and Lesser propose selection of personnel for hazardous work, such as law enforcement, must account for finding those who are psychologically well suited for the work. They define psychological suitability as meaning they do not feel stress associated with the risks of the work.

Currently New Zealand Police do not select staff on any explicit measure of stress tolerance for the hazards likely to be encountered in operational Policing. However the risk of exposure, even multiple exposure, to potentially traumatic events is substantial for Police staff. (Paton, Smith, Violanti, & Eranen, 2000).

Dunning (1999) identified dispositional factors in resilience as key factors in determining how an individual adjusts to trauma in the workplace and this characteristic of resilience offers an opportunity for organisational risk management strategies to be developed around selection.

The literature reviewed in the previous chapters supports the view that the three IVs studied in the current research are individual differences related to stress tolerance and the experience of stress in work environments. That tolerance for stress is a significant factor for well being and health in Policing is supported in the literature (eg. Kazmareck & Packer, 1996, Li-Ping Tang & Hammontree, 1992). Li Ping Tang and Hammontree found in their prospective study that hardy, stress tolerant Police officers did have higher rates of illness and

absenteeism if they reported higher levels of work related stress. However less stress tolerance in Police officers had high levels of absenteeism and illness regardless of their level of Police related stress at the start of the study. These results support the view that individual differences in the subjective experience of stress do lead to health outcomes for Police officers.

The current study sought to explore the contribution to variance in performance of Police trainees in New Zealand as a function of individual differences of TABP, LOC and the use of coping. These three constructs, as a constellation of behavioural styles, are supported in the literature as being related to the subjective experience of stress and as such fit the views of Lazarus and Folkman (1984) on individual factors in the stress experience. Their view is that to be stressful, an event or situation must be perceived as such by the individual. TABP, LOC and Coping style were also seen as important factors in the work of Williams and Cooper (1998) in their work developing the PMI built upon the four way model of stress where the components of coping resources, sources of pressure and individual differences are in a balanced equation in which personality factors are pivotal in influencing the outcome from pressure as either growth or stress.

Using a sample of training Police Officers in their basic 19 Week recruit course (N=114) data was collected on their performance in a final written examination, their ability to deal with a practical Police work sample as represented by a role play for their final practical examination, and finally their overall performance mark.

The central aim of this study was to investigate the potential utility of measures of resilience or stress tolerance for Police selection by predicting Police *performance*. This was seen as an extension to the literature implicating health and well being outcomes from such differences.

8.2 Summary of Hypotheses.

Hypothesis 1 predicted that lower ratings of type a behaviour, an internal locus of control and high use of coping behaviours would predict performance by Police trainees on the final written examination in the Police Recruit Course. This hypothesis was partly supported. A more internal locus of control and more use of the coping behaviours (problem focus and work life balance) was positively related to performance on the final written examination. GMA was not significantly related to the DV at the first step but was after the independent variables at step 2 were entered. This suggests a suppressor effect, such that GMA is related to examination performance, when variation irrelevant to exam performance is suppressed by the step 2 variables. Overall the equation explained a significant 69.3% of the variance in exam performance (Table 4)

Hypothesis 2 predicted lower type a ratings, an internal locus of control and high use of coping would predict competence of Police trainees when attending an incident during practical examinations. This hypothesis was partly supported in that internal locus and higher use of coping were related to better performance in the practical role play examination. Control variables age and GMA were unrelated to performance with gender the only variable positively related to the DV at step 1.

At step 2 a total of 28.8% variance was explained when entering the PMI scales into the regression model. Age became a significant variable at step 2 showing a moderate negative relationship (-0.22 , $p < 0.05$) with practical ability. Entry of the PMI scales appeared to have a suppressor effect.

The only other significant variable in the equation at step 2 was coping while the other two scales remained insignificant. Therefore, in this sample of Police recruits, being younger and making more use of coping behaviour was significantly related to better practical ability in the role played practical examination. This result showed a somewhat stronger relationship to practical Police skills performance than the validities reported by Hirsh et al. ($r = 0.10$ to 0.26 for workplace criterion validities) and Salgado (2003) ($r = 0.26$ for workplace criterion validities) in their respective analyses of GMA alone as a predictor of Police performance.

Hypothesis 3 predicted that lower ratings of type A behaviours, an internal locus of control and high use of coping behaviours would predict the competence of Police trainees over the entire wing score. This was partially supported by the finding that ratings on all three IVs were related to better performance across the overall 19 week course. The regression for this DV showed significant effects at step 1 for gender and age, so that while GMA remained unrelated, being older and female was related to better overall performance across the basic Police course. At step 2 these relationships were no longer seen and the PMI scales were the only significant predictors of performance in the study group, adding 39% of explanation to the overall performance in course as a whole.

Hypothesis 4 predicted the PMI subscales would add significantly to explained variance in performance measures over and above that explained by GMA and personal characteristics and was supported in that the block of PMI variables were able to explain significant unique variance in all three DVs, over and above the variance explained by the control variables of GMA, age and gender.

Contrary to predictions TABP scores were positively related in the equations for two of the DVs and the bivariate relationships were also positive for TABP and

the performance measures in this study. A possible explanation for this unexpected relationship is the significant difference between the population norm group level of type a and the sample level which was significantly lower for the drive subscale ($t = 40.242$, $p < 0.001$). The effect of this level of difference between means is that, as individuals in the study rated higher on type a, compared to the norm group population, their scores would be increasingly moderate type b rather than increasingly strong type a ratings. Even extremely high ratings in the current study would not be high ratings in the normal population.

The implication of this interpretation for selection is that higher type a ratings in comparison with the general population should not, on the basis of this study, be seen as supported as predicting better Police performance.

8.3 The Role of Gender

An effect observed in this study was the positive relationship between gender and performance measures, both at the bi-variate level and when tested against the DVs in the regression models. Female participants in this study were more likely to perform to higher standard on written examinations even after the entry of the PMI scales as IVs. Female gender was also a significant contributor to higher performance in the wing as a whole at step 1 of the regression for that DV (Table 6). Although this effect dissipated with the addition of the PMI scales, age and gender together explained a significant 30.7% of variance in the DV at step 1. No negative relationships were discovered at all for gender against performance measures of the DVs suggesting that if anything, in the sample studied, being female was predictive of better performance overall.

The positive relationship between female gender and Police training performance is worthy of future further study. A challenging question for Police research may be; if performance in training of sworn Police officers is (when objectively and reliably measured in a controlled training environment) positively related to being female, why then does membership of that gender also predict shorter career duration, higher dissatisfaction, poorer progression and promotion, and increased intention to leave as reported in the literature reviewed in chapter 4 of this study. Such a question is worthy of further investigation in order that Police retain the strategic human resource advantage realised by retaining better performing staff.

8.4 Police Selection, Training and the Current Study

The current study found a significant effect for the three PMI scales when entered as a block to regression equations for each of the aspects of training performance measures studied. (Hypothesis 4). The current study did not assess the relationship between TABP, LOC and coping and the stress response directly, but focused on performance. The inference is drawn however, from the literature reviewed that stress, a subjective response (Clarke & Cooper, 2000) will result where individuals do not possess tolerant personalities or behaviour styles. Support for Hypothesis 4 shows the ability of these three constructs, when measured together, to predict Police performance in a training environment in the sample studied.

Diligent and responsible selection practices should consider the fit between the individual and the role for which they are being selected (Spector, 2003). In the case of Police work, the literature reviewed in previous chapters indicates that stress tolerance and variables related to this should be considered when selecting personnel. Given current New Zealand Police selection practices, the

implications of the present study are suggestive of further investigation of the potential human resource advantage in selecting staff for resilience as predicted by TABP, LOC and coping behaviours.

Of practical operational relevance to Police work is the role of age and coping behaviours in predicting competence in the role play based practical examination. Miller, (2000) notes the average age of serving sworn Police creeping upwards and the average age of those being recruited doing the same. The present study showed that, in the sample studied; age was significantly and negatively related to practical Policing ability, such that being younger was related to better practical performance in this study.

Implications for Police training are also seen in the outcome of this study. Practical ability was significantly and positively related to use of positive coping strategies. Paton et al. noted that training is the organisational strategy most useful for developing resilience and minimising risk from psychological trauma. The current study may suggest further investigation into the implementation of, and return on investment from, training in problem focussed strategies to cope with stressful situations such as confronting offenders. Currently trainees receive 2 hours training on stress in policing and pressure management, focusing on the Occupational Health and Safety legal requirements and support available. Some refocus of this training onto the actual strategies for coping may be warranted on the evidence of the current study.

The training cost of a Constable up to permanent appointment at two years of service is approximately \$144,000 (Miller, 1998). Currently there is an absence of lateral entry to New Zealand Police, meaning all senior ranks and specialist roles (such as detectives, crime scene investigators, intelligence analysts and dog

handlers) are sourced from a closed, internal job market. These unusual organisational features make staff retention and attrition a greater concern for Police than most organizations. In general human resources literature attrition is a positive, healthy feature of the organization (Miller, 2000). The benefit is the exit of disinterested less productive staff and introduction of fresh ideas and energy. In police the benefit is moderated by the unusual internal structure in that the usual benefit of moderate turnover is outweighed to a great extent by the diminished applicant pool for senior or specialist roles.

A high number of the exits from New Zealand Police , 69% of all exits from 1985 - 1990 (Miller, 1998), relate to psychological harm. Of Miller's study 16% fitted diagnostic criteria for PTSD, these rates being in line with policing internationally (Miller & Stephens, 1998). Absenteeism as a reaction to Police stress also has its price with Black (2002) estimating 1590 lost days productivity per 100 new Police staff in their first two years of service. In the next 2 years Police will have approximately 1500 staff in this service bracket (New Zealand Police, 2005) exposing Police to a large financial and human resources risk from stress related workplace absences.

Human resource and economic costs are substantial financial risks to Police in terms of lost capability from turnover and retraining costs for new staff. Given the implications of this study; that performance may be predicted from the IVs studied, legal risks are also of relevance. A significant human resources related risk in Police arises from litigation relating to negligent hiring practices. Australasian Police are experiencing an increase in litigation against their various local and federal agencies (Martinelli & Pollock, 2000). The cost of such litigation, both economic and less tangibly in public confidence is large. The Australasian Centre For Police Research (ACPR) examined the contingent liability of Police

services in Australasia in 1998/1999. This figure measures the value of outstanding civil claims against Police in any one financial year but is exclusive of accident compensation claims and claims for injury to staff. New Zealand Police had the largest contingent liability of all Australasian services with an outstanding value of \$82 million. The next closest was Victoria at \$28.9 million showing New Zealand Police by far have the greatest risk exposure to litigation in the region. (Martinelli & Pollock, 2000) In light of the evidence of the low predictive validity of GMA for Police work and that New Zealand Police almost solely rely upon such a measure, some review of the selection battery used is indicated based upon this risk exposure.

While individual differences related to stress tolerance, such as TABP, LOC and coping behaviours may not be effective as antecedents of reactivity to critical events or workplace stressors and strain (Paton,1997), their value in terms of reduced absenteeism after exposure to trauma (Black, 2002) and faster recovery times (Lyons, 1991) post event are further potential sources of human resource advantage. The current study adds to this research by suggesting performance increments may be available, were the factors of TABP, LOC and Coping added to selection batteries.

In summary the present study suggests that there may be an unrealised strategic human resource advantage available by further studying, and incorporating into selection protocols, measures of individual differences in stress response, namely the TABP, LOC and coping. These three variables appear in the literature to be related to stress tolerance as an individual difference, and in the current study to be significantly related to performance in Police training.

8.5 Limitations and Future Research

Limitations in the current study should be noted. A key limitation in the present study is the absence of a measure of perceived stress or subjective well being which may have allowed more in depth examination of the role of stress tolerance. While the literature supports the view that TABP, LOC and Coping behaviours as a group of variables should be related to the subjective experience of stress, no measure of subjective well being was collected due to time restraints and restraints on access to the participants. This data may have allowed a stronger link to be established between the IVs studied and the impact of them on strain experienced from the Police training course, and subsequent performance.

The sample, while adequate to meet statistical assumptions was of moderate size and this may limit the ability to generalise from these results. Finally the use of training data as DVs may be seen as a limitation to this utility of this research. While all Police officers must complete the Royal New Zealand Police College basic recruit course, no data is available on the relationship between training performance and operational performance. Attempts to mock-up the real world experience of Police work such as in the practical examination may not accurately or entirely represent the operational performance of these staff.

Future research is suggested to investigate utility of the variables TABP, LOC and Coping for Police selection in New Zealand and measuring their operational validity for Police work.

8.6 Conclusions

Investigations into the prediction of Police performance by psychometric means found GMA to be less well related to Police performance than it is to performance in most other occupations (Hirsh et al.; Salgado, 2003). The current study sought to establish if individual differences related to tolerance for stress were able to explain variance in Police performance over and above GMA, and therefore offer improved selection, occupational well being, training and retention of personnel.

The belief that the psychological consequences of being exposed to workplace trauma are mediated by personal characteristics is documented in the literature. (Adams & Stanwick, 2002; Paton, 1997) and may be of particular relevance in hazardous roles such as police (Hogan et al.). It is also clear that tolerance for stress as an individual difference may lead to faster recovery from psychological trauma and reduce absenteeism (Lyons, 1991, Black, 2002).

The current study sought to build on the research into individual differences in the stress response in examining the impact of individual differences related to stress tolerance on performance of Police officers in a training setting. Type A behaviour, locus of control and use of coping behaviours were found to, when examined as a group of variables, explain significant variance in all performance measures examined. As such it is recommended further research be conducted into the utility of these measures for Police selection with view to ameliorating the impact of stress as cost in Policing both for those serving in the profession and the organisation.

REFERENCES

Abramis, D.J. (1994). Work role ambiguity, job satisfaction, and job performance: Meta-analysis and review. *Psychological Reports, 75*, 1411-1433.

Adams, K. (2001). *Women in senior police management*. Report Series No: 138.2. Adelaide: Australasian Centre for Policing Research.

Alexander, D. A. (1993). Stress among police body handlers. A long term follow up, *British Journal of Psychiatry 163*, 806 - 808

Australian Council for Educational Research, (1971) *Manual for Acer Higher Test - Forms M and W*, Melbourne.

Bakker AB, Demerouti E, Taris T., Schaufeli WB, & Schreurs P. (2003) A multi-group analysis of the Job demands-Resources model in four home care organizations. *International Journal of Stress Management, 10*, 16-38.

Bargh, J.A., & Chartrand, T.L., (1999) The unbearable automaticity of Being, *American Psychologist, 54*, 462 - 478.

Beehr, T.A., Jex, S.M., Stacy, B.A. & Murray, M.A. (2000). Work stressors and coworker support as predictors of individual strain and job performance. *Journal of Organizational Behavior, 21*, 391-405.

Beehr, T.A., King, L.A., & King, D.W. (1990). Social support and occupational stress: Talking to supervisors. *Journal of Vocational Behavior, 36*: 61-81.

Black, J. (1998) Does an applicants personality contribute to a successful job application? Paper presented to the Annual Conference of the New Zealand Psychological Society, Wellington.

Black, J. (2000). Personality testing and police selection: Utility of the 'big five'. *New Zealand Journal of Psychology*, 29(1), 2-9.

Black, J. (2001). *Personality, Mental Health, and Self-Reported Stress: Implications for absenteeism in the New Zealand*, Unpublished Manuscript.

Boni, N., & Circelli, M. (2002) *Contemporary issues facing women in policing*. : Australasian Centre for Policing Research. Report 138-3

Brown, J. M. (1998). Aspects of discriminatory treatment of women police officers serving in forces in England and Wales. *British Journal of Criminology*, 38, 265-282.

Brown, J., & Campbell, E.A. (1991). Less than equal. *Policing* 7, 324-333.

Brown, J., Coffey, S., & Savage, S. (1992) *Policewomen's career aspirations*. Police Studies In. Boni, N., & Circelli, M. (2002) *Contemporary issues facing women in policing*. Australasian Centre for Policing Research. Report 138-3

Brown, J.M., Cooper, C.L., & Kirkcaldy, B. (1996) Occupational stress among senior police officers. *British Journal of Psychology*. 68, 31-41.

Brown, J., & Heidensohn, F. (1999). *Contrasts in policing: lessons from international comparisons*. Paper presented at the Second Australian Conference: Women and Policing, Brisbane,.

Burton, C. (1998) *Report of the gender integration audit of the New Zealand defence force*. Wellington: New Zealand Defence Force

Clarke, S. G., & Cooper, C. L. (2000). The risk management of occupational stress. *Health, Risk & Society*. Vol 2(2), 173-187.

Coffey, S. (1991) *Power of entry, career preferences for policewomen..* Unpublished Manuscript..

Coffey, S., Brown, J., & Savage, S. (1992). Policewomen's career aspirations: some reflections on the role and capabilities of women in policing in Britain. *Police Studies*, 15(1), 13-19.

Cooper, C.L., Sloan, S.J., & Williams, S. (1994), *Occupational Stress Indicator*, Windsor, NFER- Nelson

Costa, P.T., & McCrae, R.R.. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38, 668-678.

Davison, G.C., & Neale, J.M., (1999). *Abnormal Psychology*. New York. Wiley Press.

Davidson, M. J., & Veno, A. (1980). Stress and the policeman. In C. L. Cooper & J. Marshall (Eds.), *White collar and professional stress* (pp. 131-166). Chichester: John Wiley & Sons.

- DeAngelis, T. (1995). Firefighters' PTSD at dangerous levels. *Monitor: American Psychological Association*, February, 36.
- Dewe, P. J. (1991). Primary appraisal, secondary appraisal and coping: Their role in stressful work encounters. *Journal of Occupational Psychology*, 64, 331-351.
- Donker, F.J.S., & Breteler, M.H.M. (2004). Blood lipids?: a shortcut from hostility to CHD? *Psychology and Health*, 19, 197-212.
- Dunning, C. (1999), *Post-intervention strategies to reduce police trauma: a paradigm shift*, in Violanti, J.M. & Paton, D. (Eds), *Police Trauma: Psychological Aftermath of Civilian Combat*, Charles C. Thomas, Springfield, IL
- Emdad, R., & Sondergaard, H.P. (2005) Impaired Memory and General Intelligence Related to Severity and Duration of Patients' Disease in Type A Posttraumatic Stress Disorder. *Behavioral Medicine. Vol 31(2)*, 73-84.
- Euwema, M.C., Kop, N., & Bakker, A.B., (2004). Burnout and dominance in professional interactions. *Work & Stress*, 18, 1-16.
- Foltz, S. P. (2000). The effect of Police Academy training on self-esteem and Locus of Control in law enforcement recruits. *Dissertation Abstracts International: Section B: the Sciences & Engineering*, 60(8-B), Mar 2000 4220, US
- Fox, M.L., Dwyer, D.J., & Ganster, D.C. (1993). Effects of stressful job demands and control on physiological and attitudinal outcomes in a hospital setting. *Academy of Management Journal*, 36, n2, 289-318.

- Francis, D. (2000). Family ties. *Policing Today*, 6(1). 20-22.
- Fullerton, C. S., McCarroll, J. E., Ursano, M. D., & Wright, K. M. (1992). Psychological responses of rescue workers: Fire fighters and trauma. *American Journal of Orthopsychiatry*, 62(3), 371-378.
- Funk, S.C. (1992), Hardiness: A review of theory and research. *Health Psychology*, 11(5) 335 -345.
- Fusilier, M. R., Ganster, D. C., & Mayes, B. T. (1987). Effects of social support, role stress, and locus of control on health. *Journal of Management*, 13, 517-528.
- Gallatin, L. (1989). *Electronic monitoring in the workplace: Supervision or surveillance?* Boston, MA: Massachusetts Coalition on New Office Technology.
- Gan, S.H, Ismail, R., Wan Adnan, W.A., Zulmi, W., & Larmie, E.T. (2004) Relationship between Type A and Type B personality and debrisoquine hydroxilation capacity. *British Journal of Clinical Pharmacology*, 57,(6), 785 - 789.
- Ganster, D.C., & Schaubroeck, J. (1991). Work stress and employee health. *Journal of Management*. 17, (2), 235-271.
- Ganster D., Pagon M., & Duffy M. (1996) *Organizational and interpersonal sources of stress in the Slovenian police force*. In: Ganster D., Pagon M., Duffy M. , (Eds.) *Policing in Central and Eastern Europe*. Ljubljana, Slovenia: College of Police and Security Studies.
- Glazer, S., Stetz, T A., & Izso, L. (2004) Effects of personality on subjective job stress: a cultural analysis. *Personality and Individual Differences*. Vol 37(3), 645-658.

Gottfredson, L. S. (1994). The science and politics of race norming. *American Psychologist*, 49, 955-963

Grimm, L.G., & Yarnold, P.R.,(2002) (Eds) *Reading and Understanding Multivariate Statistics*. New York. Wiley,

Glass, D.C.(1977). *Behavior Patterns, Stress and Coronary Disease*. Hillsdale: Lawrence Erlbaum

Green, T.A. (1996) *The problem with promotion*. Unpublished masters thesis, Sussex University, Brighton

Grimm, L. G., & Yarnold, P. R. (1995). *Reading and understanding multivariate statistics*. Washington, DC: American Psychological Association.

Grimley, P. (1982) Unpublished Study In: 1983 *Report of the Lancashire Constabulary Workshop on Stress in The Police Service*, Lancashire Constabulary Press.

Hart, P.M., & Cotton, P., (2002), *Conventional Wisdom is often misleading: Understanding the realities of Police Stress Within an Organisational Health Framework*, In, M Dollard(Ed.)*Occupational Stress in the Service Professions*, (2002) Melbourne. University of Melbourne Press,

Hart, P.M., & Wearing, A.J., *Occupational Stress and Well-Being: A Systematic Approach to Research, Policy and Practice*. In P Cotton (Ed.) *Psychological Health In the Workplace: Understanding and Managing Occupational Stress*, (1995) (pp 185-216). Australia: The Australian Psychological Society Ltd

- Hart, P.M., Wearing, A.J., & Headey, B. (1993). Assessing police work experiences: development of the Police Daily Hassles and Uplifts Scales. *Journal of Criminal Justice*, 21.
- Harvey, M.R.. (1996). An ecological view of psychological trauma and trauma recovery. *Journal of Traumatic Stress*, 9, 3-23.
- Headey, B., & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology*, 57, 731-739.
- Headey, B. & Wearing, A.J. (1992). *Understanding Happiness: A Theory of Subjective Well-Being*. Melbourne: Longman Cheshire.
- Hinkle, L.E. (1973)The concept of 'stress' in the biological and social sciences. *Science, Medicine and Man*, , 1(1), 31-48.
- Hills, H. & Norvell, N. (1991). An examination of hardiness and neuroticism as potential moderators of stress outcomes. *Journal of Behavioural Medicine*, 17,(1) 31-38.
- Hirsh, H. R., Northrop, L. C., & Schmidt, F. L. (1986). Validity generalization results for law enforcement occupations. *Personnel Psychology*, 39, 399-420.
- Hogan, J. & Lesser, M.(1996). Selection of personnel for hazardous performance. In J.E. Driskell & E.Sala (Eds.) *Stress and Hman Performance*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Holdaway, S., & Parker, P. (1998) *Equal opportunities in South Yorkshire Police*. (Internal Report). University of Sheffield.

Hyman, P. (2000) *Opportunities for and barriers to the recruitment, progress, and retention of women in the criminal investigation branch*. (Internal Report). Wellington: New Zealand Police

Huang, M.S., Hewson, V.A., & Singer, A.E. (1983) Type A Behaviour in the Police and General Population. *Journal of Psychology*, 115, 171 - 175.

Iwanaga, M., Yokoyama, H., & Seiwa, H.. (2000) Effects of personal responsibility and latitude for Type A and B individuals on psychological and physiological stress responses. *International Journal of Behavioral Medicine*. Vol 7(3), 204-215

Ippolito, J., Adler, A.B., Thomas, J.L., Litz, B. T., & Holzl, R..(2005) Extending and applying the demand-control model: The role of Soldiers Coping on a Peacekeeping Deployment. *Journal of Occupation Health Psychology*, 10.No.4, 452 - 464.

Janicak, C.A., (1996) Predicting accidents at work with measures of locus of control and job hazards. *Psychological Reports*. Vol 78(1), 115-121.

Jex,S.M., Bliese, P.D., Buzzell,S., &Primeau, J.(2001). The impact of self efficacy on stressor-strain relations : Coping style as explanatory mechanism. *Journal of Applied Psychology*, 86, 401-409

Johnson, L.B., Todd, M., & Subramanian, G.(2005). Violence in Police Families: Work-Family Spillover. *Journal of Family Violence*. Vol20.(1), 3-12.

- Kanter, R.M. (1977), *Men and Women of the Corporation*. New York: Basic Books
- Kappeler, S., & Kappeler, V. (1992). A research note on section 1983 claims against the police: Cases before the Federal District Courts in 1990. *American Journal of Police*, 11(1), 65-73
- Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-306.
- Karasek, R., & Theorell, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books
- Karasek, R.A., Theorell, T., Schwartz, J.E., Schnall, P.L., Pieper, C.F., & Michela, J.L. (1988). Job characteristics in relation to the prevalence of myocardial infarction in the U.S. Health Examination Survey (HLS) and the Health and Nutrition Examination Survey (HANES). *American Journal of Public Health*, 78, 910-918.
- Kaczmarek, A., & Packer, J. (1996) *Defining the Role of A General Duties Constable*. Melbourne. Australian National Police Research Unit.
- Kaczmarek, A. & Packer, J. (1997). *Determination of a Job-Related Test Battery for the Psychological Screening of Police Applicants*. Melbourne. Australian National Police Research Unit.

Keenan, G, & Tal, S., (2005), The Effects of Type A Behaviour and Stress on the Attribution of Causality. *Personality and Individual Differences, Vol 38*, Issue 2, Pp 403–412.

Kirmeyer, S. L., Coping with competing demands: Interruption and the Type A pattern.(1988) *Journal of Applied Psychology, Vol 73(4)*, 621-629.

Kirmeyer, S.L., & Dougherty, T.W. (1988). Work load, tension, and coping: Moderating effects of supervisor support. *Personnel Psychology, 41*, 125-139.

Kline, P. (2000). *Handbook of Psychological Testing (Second Edition)*. Cornwall, UK: Routledge.

Kroes, W. H. (1976). *Society's victim--the policeman--an analysis of job stress in policing*. New York: Thomas.

Kop, N., Euwema, M., & Shaufeli, W. (1999). Burnout, job stress and violent behaviors among Dutch police officers. *Work and Stress, 13*, 326- 340.

Lambert, C.E., & Lambert, V.A., (1999). Psychological hardiness: State of the science. *Holistic Nursing Practice, 13(3)*, 11-19.

Landy, F.J. (1985) *Psychology of Work Behaviour*, Chicago. Dorsey Press,.

Lazarus, R., & Folkman, S. (1984). *Distress, appraisal and coping*. New York: Springer.In. Kaczmarek, A. & Packer, J. (1997). *Determination of a Job-Related Test*

Battery for the Psychological Screening of Police Applicants. Melbourne. Australian National Police Research Unit

Lazarus R.S. (1993) Coping theory and research: past, present and future. *Psychosomatic Medicine* 55, 234-247

Lazarus, R.. (2000). Toward better research on stress and coping. *American Psychologist*, 55, 665-673.

Li-Pint Tang, T., & Hammontree, M.L.(1992). The effects of Hardiness, Police Stress and life stress on Police on Officers' Illness and Absenteeism. *Public Personnel Management*, 2, (4) 493 - 510

Lyons, J.A. (1991)Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress*. 4 93 - 111. In. Paton, D. (1996). Training disaster workers: promoting well being and operational effectiveness.. *Disaster prevention management*. 5(5), 11 - 18.

Martinelli, T. J., & Pollock, J. M. (2000). Law enforcement ethics, lawsuits, and liability: Defusing deliberate indifference. *The Police Chief*, 67(10), 52, 54-56, 58, 61, 63, 65, 67. In: Boni, N, Issues in Civil Litigation Against Police, Current Commentary , No.5 - 11/02, ACPR.

Maslach, C. (1982). *Burnout: The cost of caring.* Upper Saddle River, NJ : Prentice Hall.

Matud, M.P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37, 1401-1415.

Miller, I., (1998). Attrition in the New Zealand Police: Proceedings of the disengagement summit., Wellington :New Zealand Police.

Miller, I. (2000) . *Human Resource Strategies New Zealand Police*. Unpublished Internal Report. Wellington.

Morling, B. A., & Fiske, S. T. (1994). *Control*. In V. S Ramachandran (Ed.), *Encyclopedia of Human Behavior* Vol. 1, pp. 719-728. San Diego, Academic Press.

Naatanen, R. (1973). *The inverted-U relationship between activation and performance: a critical review*. In: S. Kornblum (Ed.). *Attention and performance IV*. New York: Academic Press.

New Zealand Police National Headquarters, Wellington. In Black, J., (2000) *Personality, mental Health and self reported stress: Implications for Absenteeism in the New Zealand Police*, Unpublished Manuscript, Wellington.

New Zealand Police,(2005) *Annual Report for the year ended 30 June 2005*, Wellington. Government print: .

New Zealand Police, (2001) *Human Resources Strategic Plan to 2006*, Wellington Government print:

Newton, T.J, & Keenan, A. (1990). The moderating effects of type A behaviour pattern and locus of control upon the relationship between change in job demands and change in psychological strain. *Human relations*, 43, 1229-1255.

Oakley, J. (2000). Gender-based barriers to senior management positions: Understanding the scarcity of female CEOs. *The Journal of Business Ethics*, 27, 321-334.

Olea, M.M., & Ree, M.J.(1994.), Predicting pilot and navigator criteria: Not much more than g., *Journal of Applied Psychology*. 79(6): 845 - 51

Paton, D & Stephens, C. (1996). *Training and support for emergency responders*. In Paton, D. & Violanti, J. *Traumatic Stress in critical occupation*, Springfield Ill: Charles C Thomas.

Paton, D., Smith, L.M, Violanti, J.M, & Eranen, L., (2000). *Work related traumatic stress: Risk Vulnerability and resilience*. In J.M. Violanti, D. Paton & C. Dunning(Eds.).*Post-traumatic stress intervention*. USA: Charles C Thomas.

Patterson, G.T., (2003). Examining the effects of coping and social support on work and life stress among police officers. *Journal of Criminal Justice* 31, 215 - 226.

Penny, T. (2003) *Human resources Issues In Policing*, Unpublished Manuscript, Wellington

Price, A.P. (1982). *Type A Behaviour pattern. A model for research and practice*. New York :Academic Press Inc.

Rahim, A. & Psenicka, C. (1996). A Structural Equations Model of Stress, Locus of Control, Social Support, Psychiatric Symptoms and Propensity to Leave a Job. *Journal of Social Psychology*, 136, 69-84.

Ramirez, C.C., Federman, D.G., & Kirsner, R.S.(2004). Skin cancer as an Occupational disease: the effect of ultraviolet and other forms of radiation. *International Journal of Dermatology Vol44*, 95 –100

Recruitment and Education in the Queensland Police Service: A Review, Queensland Criminal Justice Commission, 1983.

Rhodewalt, F., & Agustsdottir, S.(1984) On the relationship of hardiness to the Type A behavior pattern: Perception of life events versus coping with life events. *Journal of Research in Personality. Vol 18(2)*, 211-223.

Richards, J. C., Hof, A., & Alvarenga, M. (2000). Serum lipids and their relationships with hostility and angry affect and behaviors in men. *Health Psychology, 19*, 393-398

Rijk, A. de, Blanc, P.M. Le, Schaufeli , W.B., & Jonge, J. de. (1998) Active coping and need for control as moderators of the job demand-control model: Effects on burnout. *Journal of Occupational and Organizational Psychology. 71*; 1-18

Robinson, P. (1982) *Unpublished Study In: Report of the Lancashire Constabulary Workshop on Stress in The Police Service*, Lancashire . Constabulary Press.

Robinson, H. M., Sigman, M. R., & Wilson, J. P. (1997). Duty-related stressors and PTSD symptoms in suburban police officers. *Psychological Reports, 81*, 835-845

Rodríguez, I., Bravo, M.J., Peiro, J.M., & Schaufeli, W.B. (2001) The demand-control support model and locus control: a longitudinal study. *Work and Stress*, 15; 97-114

Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcements, *Psychological Monographs*, 80, No. 609

Sackett, P. R., & Wilk, S. I. (1994). Within-group norming and other forms of score adjustment in pre-employment testing. *American Psychologist*, 49, 929-954

Salgado, J.F., Anderson, N., Moscoso, S., Bertua, C., de Fruyt, F. & Rolland, J.P., (2003) A meta analytic study of general mental ability for different occupations in the European community, *Journal of Applied Psychology*, Vol. 88, No6. , 1-23.

Sargent, L.D., & Terry, D.J. (1998). The effects of work control and job demands on employee adjustment and work performance. *Journal of Occupational and Organizational Psychology*, 71, 219-236.

Salgado, J.F. Personnel selection method. In C.L. Cooper & I.T. Robertson (Eds.) *International review of industrial and organisational psychology*. Vol 14(pp1-54). Chichester: Wiley.,

Schaubroeck, J; Ganster, D.C.; Kemmerer, B. E. (1994) Job complexity, "type A" behavior, and cardiovascular disorder: A prospective study. *Academy of Management Journal*. Vol 37(2), 426-439

Schaubroeck, J., Jones, J.R., & Xie, J.L. (2001). Individual differences in utilizing control to cope with job demands: Effects on susceptibility to infectious disease. *Journal of Applied Psychology*, 86, 265-278.

Schaufeli, W., & Enzmann, D. (1998) *The burnout companion to study and practice: A critical analysis*. Taylor and Francis.

Scotti, J. R., Beach, B. K., Northrop, L. M. E., Rode, C. A., & Forsyth, J. P. (1995). *The psychological impact of accidental injury: A conceptual model for clinicians and researchers*. In J. R. Freedy & S. E. Hobfoll (Eds.), *Traumatic stress: From theory to practice* (pp. 181-212). New York, NY: Plenum

Schollum, M.C. (1997). *Survey of sworn staff in the Hawkes Bay Police District*. Hawkes Bay Police District and Police national Headquarters

Selye, H.. (1976) *The Stress of Life*. New York: McGraw Hill, 1956.

Sherer, M. & Maddux, J.E. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, 51, 663-671.

Spector, P., (2003) *Industrial and Organisational Psychology: Research and Practice 3rd Edition*, John Wiley and Sons, Florida

Spector, P.E., Dwyer, D.J., & Jex, S.M. (1988). Relation of job stressors to affective, health, and performance outcomes: A comparison of multiple data sources. *Journal of Applied Psychology*, 73, 11-19.

Spector, P.E. & Jex, S.M. (1991). Relations of job characteristics from multiple data sources with employee affect, absence, turnover intentions, and health. *Journal of Applied Psychology, 76*, 45-53.

Spector, P. E., & O'Connell, B. J. (1994). The contribution of individual dispositions to the subsequent perceptions of job stressors and job strains. *Journal of Occupational and Organizational Psychology, 67*, 1-11

Steel, R.P. & Mento, A.J. (1986). Impact of situational constraints on subjective and objective criteria of managerial job performance. *Organizational Behavior and Human Decision Processes, 37*, 254-265.

Stephens, C., & Long, N. (2000). Communication with police supervisors and peers as a buffer of work-related traumatic stress. *Journal of Organizational Behavior, 21*, 407-424.

Stephens, C., & Miller, I. (1998). Traumatic experiences and post-traumatic stress disorder in the New Zealand Police. *Policing: An International Journal of Police Strategies and Management, 21(1)*, 178

Sutton, J. (1995). *Women in policing: A study of New South Wales Police*. Australia, Sydney: New South Wales Police Service.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: Harper Collins

Twenge, JM. "The age of anxiety? Birth cohort change in anxiety and neuroticism, 1952 - 1993", *Journal of Personality and Social Psychology*; 79(6): 1007-1021.

Van Vianen, A.E., & Fischer, A.H. (2002). Illuminating the glass ceiling: The role of organisational culture preferences. *Journal of Occupational and Organisational Psychology*, 75, 315-337.

Van Veldhoven, M., Taris, T.W., de Jong, J & Broersen, S. (2005), The relationship between work characteristics and employee health and well being: How much do we really need?, *International Journal of Stress Management*, Vol.12, No1., 3-28.

Violanti, J. (1997). The residuals of Police Occupational Trauma. *The Australasian Journal of Disaster and Trauma Studies*. Vol, 1997-3

Waugh, A. (1994) *A case study of policewomen's experience in New Zealand*. Wellington: Victoria University of Wellington.

Williams S., & Cooper, C. (1998), Measuring Occupational Stress: Development of the Pressure Management Indicator. *Journal of Occupational Health Psychology*. Vol 3, No 4 306 – 321.

Williams S., & Cooper, L. (1999), *Dangerous Waters: Strategies for improving wellbeing at work.*, Wiley and Sons, Chichester.

Williams S., & Cooper, L. (2002), *Managing Workplace Stress: A best practice blueprint.*, Wiley and Sons, Chichester

Wall, T.D., Jackson, P.R., Mullarkey, S. & Parker, S.K. (1996). The demands-control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology*, 69, 153-156.

Xie, J.L. & Johns, G. (1995). Job scope and stress: Can scope be too high? *Academy of Management Journal*, 38, 1288-1309.

Yerkes, R.M. & Dodson, J.D. (1908). The relation of strength of stimulus to rapidity of habit formation. *Journal of Comparative Neurological Psychology*, 18, 459-482. In, Landy, F., (1985) *Psychology of Work Behaviour*, Chicago. Dorsey Press.

Zellars, K. L., & Perrewe, P. L., (2001) Affective personality and the content of emotional social support: Coping in organizations. *Journal of Applied Psychology*. Vol 86(3), 459-467.

Table 13: The core group of job activities for the General Duties Constable position and corresponding ratings for importance (imp), frequency (freq) and difficulty of learning (diff).

Activities	imp	freq	diff
Use firearms	1	4	3
Maintain a safe working environment	1	1	3
Investigate incidents / offences	2	1	3
Respond to reported crime, inquiries or requests for assistance	2	1	3
Prioritise tasks	2	1	3
Adapt communication strategies to meet the needs of individuals	2	1	3
Utilise problem-solving techniques	2	1	3
Record information using notes, plans, photos etc.	2	1	3
Establish good relationships with the community	2	1	3
Participate in team work or encourage team morale	2	1	3
Manage personal stress	2	1	3
Carry out taskings / allocated tasks	2	1	3
Respond to jobs via radio calls	2	1	4
Adhere to / apply the code of ethics / conduct	2	1	4
Provide customer service	2	1	4
Establish local knowledge of a specific patrol area	2	1	4
Use / maintain operational equipment	2	1	4
Utilise police databases	2	1	4
Keep up-to-date with current affairs	2	1	4
Undertake mobile patrols as a preventative measure	2	1	4
Use police communications equipment	2	1	4
Maintain communication with other members and sections	2	1	4
Maintain notebook / diary / mobile duty returns	2	1	4
Act in accordance with OH&S regulations and guidelines	2	1	4
Complete departmental forms / reports	2	1	4
Use safe driving procedures	2	1	4
Use keyboard skills	3	1	3
Provide information to the community	3	1	4
Prevent / detect traffic offences	3	1	4
Adhere to guidelines relating to uniform	3	1	5
Deal with aggressive people	2	2	2

Ratings 1 = High, 5 = Low