

STRESS IN BRITISH ARMY PERSONNEL

JOANNA SARAH HARVEY

A thesis submitted in partial fulfilment of the requirements of Liverpool John Moores University for the Degree of Doctor of Philosophy

This research programme was carried out in collaboration with the Ministry of Defence

September 1999

ABSTRACT

There is considerable research to date in the field of stress, particularly with respect to questionnaire research. There is, however, a lack of recent research on stress in the British Army which addresses either traumatic or organisational stress. This study considers soldiers' experiences of both occupational and traumatic stress, in addition to identifying the contribution of an individual's expectations and evaluations of a deployment, on mental well-being. Furthermore, this research methodology incorporates standardised psychological questionnaires, free response items and interviews with personnel, which serve to provide a comprehensive approach with high face validity.

This study aims to encompass the major aspects which influence the onset and course of stress, including stress experiences, individual differences and coping, in one model. Both studies incorporate traumatic and organisational stress, which is particularly relevant in the military profession, where there is risk of exposure to traumatic events. This study attempts to redress the paucity of research on stress in the British Army as a result of conflicts since WWII, in addition to countering the lack of research into occupational stress in the British Army, or information of a longitudinal nature. This study also provides a much needed 'baseline' of data across the British Army regarding stress experiences and reactions.

The study also incorporates qualitative aspects, where the respondents are asked what they define as stressful experiences, as opposed to completing a list of pre-defined 'stressors', in addition to incorporating interviews to validate the responses. Finally, an individual's evaluation of a situation, or belief in their actions is taken into account in this research. It is argued that this is of particular importance in a military operational context, when soldiers are no longer deploying in defence of their country against an external threat. It was therefore considered important to establish if there were any effects on psychological well-being based on an individual's evaluation of the deployment situation.

This research was conducted in two phases: Study 1 which is a cross-sectional study, proportionate to size across the British Army, and Study 2 which is a longitudinal survey, before and after a six month operational deployment to Northern Ireland. The

questionnaire material incorporates both standardised questionnaires and a specific Army questionnaire designed for the study.

Support was found for the proposed models of both general (Study 1) and operational stress (Study 2). Previous findings were supported concerning the interrelationships between neuroticism, anxiety, emotion focused coping and adverse life events, and were independent of mastery, self esteem, problem focused coping and well-being. Thirty three and thirty nine percent of respondents reported General Health Questionnaire (GHQ12) values above the cut off criteria for Study 1 and Study 2, respectively. Individual differences concerning reported mental health were noted, particularly with respect to age, marital status and the occurrence of a significant life event.

Recommendations addressed the lack of clear evidence for adopting a 'screening out' procedure based upon personality characteristics for mainstream Army deployments. It was suggested that the traumatic aspects of the research could benefit from an alternative questionnaire to the Impact of Events Scale (IES), due to some of the difficulties found in using the questionnaire. It was also suggested that coping strategies should be investigated in greater detail, within a more context specific manner with tighter response definitions. Finally, it is believed that the impact of cumulative operational deployments on the mental health of soldiers needs to be thoroughly researched.

ACKNOWLEDGEMENTS

I would like to acknowledge my supervisor, Dr Andy Guppy, for his guidance and assistance with the study, those military personnel who took part in the study and the Commanding Officers and their units who were very helpful during my visits, Lt Col John McIntosh, who gave me considerable support and help and those personnel in MOD and DERA who provided me with assistance.

CONTENTS

	<i>Page</i>
Chapter 1 Stress: theories and models	1
1.1 Stress Models	1
1.2 Effects of Stress	8
1.3 Measurement of Stress	13
Chapter 2 Organisational Stress	15
2.1 Definitions	15
2.2 Models	16
2.3 Organisational Stressors	22
2.4 Home/ work Interface	30
Chapter 3 Traumatic Stress	33
3.1 History of Battle Trauma	33
3.2 Definitions of Stress	34
3.3 Rates and Causes of Combat Stress Reactions	36
Chapter 4 Individual Characteristics	45
4.1 Relationships Between Variables	45
4.2 History of Relevant Research	46
4.3 Individual Differences	48
Chapter 5 Coping Techniques	64
5.1 Coping	64
5.2 Theories of Coping	66
5.3 Variability of Coping	70
5.4 Coping Strategies	72
5.5 Individual Differences in Coping Strategy Use	75
Chapter 6 Intervention Strategies	77
6.1 Focus of Intervention	77
6.2 Objectives of Stress Management	81
6.3 Good Practice for Intervention	87
Chapter 7 Rationale	89
7.1 Brief Summary of the Literature	89
7.2 Limitations of Current Research	91
7.3 Rationale for Current Research	93

7.4	Model Proposed	95
7.5	Cross Sectional Approach (Study 1)	96
7.6	Longitudinal Approach (Study 2)	97
7.7	Research Objectives	98
Chapter 8	Methodology	101
8.1	Study 1: Cross Sectional Study	101
8.2	Study 2: Longitudinal Study	111
8.3	Methodological Constraints	116
8.4	Ethical Considerations	118
8.5	Treatment and Analysis of Data	119
Chapter 9	Results of Study 1	120
9.1	Sample Representativeness	120
9.2	Described Experiences of Stress	122
9.3	Descriptive Data Analysis with Important Variables	126
9.4	Mental Health and Psychological Measures - Group Differences	130
9.5	Multiple Regression Analyses/ Restricted Path	139
Chapter 10	Results of Study 2	145
10.1	Sample Response and Demographic Details	145
10.2	Described Experiences of Stress	147
10.3	Descriptive Data Analysis with Important Variables	149
10.4	Changes Between Time 1 and Time 2	154
10.5	Expectations, Evaluations and Understanding of the Deployment	159
10.6	Multiple Regression Analyses	162
Chapter 11	Discussion	171
11.1	Stressors Described	171
11.2	Relationships Between the Psychological Measures	180
11.3	Expectations, Evaluations and Understanding of the deployment	193
11.4	Predictions of Mental Health Problems and Turnover	197
11.5	Contributions to the Development of the Theory of Stress and Coping	205
	Conclusions	212
	Recommendations	215
	References	218

<u>APPENDICES</u>	280
1. Cap badge inclusion into Arms/ corps groupings	281
2. Interview structure	282
3. Stress questionnaire, Study 1	284
4. Covering letter for Study 1	297
5. Study 2 Time 1 questionnaire	298
6. Study 2 Time 2 questionnaire	304
7. Categories of stressor, Study 1	312
8. Frequencies of stressors by rank, Study 2	314
Frequencies of stressors by unit/ attachment, Study 2	
9. Grouping of variables for MRA, Study 2	316
10. Factor analysis of coping variables	318
11. Analyses of group differences, Study 1	323
12. Analyses of group differences, Study 2	320

Tables

	<i>Page</i>
1-1 NATO common military stressors and responses	12
8-1 Classification of personnel into Arms and Corps	100
8-2 Classification of personnel by rank	100
8-3 Distribution of questionnaires, proportionate to size	103
8-4 Categorisation by unit	112
9-1 Response rate of sample, Study 1	120
9-2 Rank and family status	121
9-3 Operational experience	121
9-4 Number of personnel who have undertaken operational deployments	122
9-5 Breakdown of sphere in which stressor occurred	124
9-6 Frequency of stressor types	124
9-7 Stressors within the organisational sphere	125
9-8 Stressors within the deployment sphere	125
9-9 Stressors within the home/ social sphere	125
9-10 Inter-scale correlations for Study 1	129
9-11 Breakdown of GHQ12 scores	131
9-12 Most frequently endorsed traumatic events - IES	132
9-13 Reported mental health problems by rank	135
9-13a Psychological measure scores by rank	135
9-14 Reported mental health problems by age	136
9-14a Psychological measure scores by age	136
9-15 Reported mental health problems by arms/ corps	136
9-15a Psychological measure scores by arms/ corps	137
9-16 Reported mental health problems by marital status	137
9-16a Psychological measure scores by marital status	137
9-17 Reported mental health problems by the occurrence of a significant life event	138
9-17 Psychological measure scores by the occurrence of a significant life event	138
9-18 Reported mental health problems by stress education	139
9-18a Psychological measure scores by stress education	139
9-19 MRA - Desire to leave the Army	141
9-20 MRA - Psychological variables on Own Morale	141

9-21	MRA - Psychological variables on GHQ12	141
9-22	MRA - Demographic variables on GHQ12	142
9-23	MRA - Demographic variables on Own Morale	142
10-1	Number of responses in each Study phase	146
10-2	Sample characteristics	146
10-3	Categories and frequencies of stressors	148
10-4	Inter-scale correlations and descriptive analysis for Study 1	150
10-5	Inter-scale correlations and descriptive analysis for Study 2	151
10-6	Mental health problems by rank: comparisons T1 and T2	155
10-7	Mental health problems by unit: comparisons T1 and T2	156
10-8	Mental health problems by marital status: comparisons T1 and T2	156
10-9	Mental health problems by relationship: comparisons T1 and T2	157
10-10	Mental health problems by age: comparisons T1 and T2	157
10-11	Mental health problems by recent significant life event: comparisons T1 and T2	157
10-12	Mental health problems by stress education: comparisons T1 and T2	158
10-13	Impact of T1 expectations and understanding on T1 GHQ12	160
10-14	Impact of T1 expectations and understanding on T2 GHQ12	160
10-15	Impact of T2 expectations and understanding on T2 GHQ12	161
10-16	Prediction of T1 GHQ12 levels, initial analysis	165
10-17	Prediction of T1 GHQ12 levels, final analysis	166
10-18	Prediction of T2 GHQ12 levels from T1 data, initial analysis	167
10-19	Prediction of T2 GHQ12 levels from T1 data, final analysis	167
10-20	Prediction of T2 GHQ12 levels from T2 data, initial analysis	168
10-21	Prediction of T2 GHQ12 levels from T2 data, final analysis	169

FIGURES

	<i>Page</i>
2-1 Model of Occupational Stress (Beehr and Newman 1978)	19
2-2 Core relationship of occupational stress (Beehr 1995)	22
7-1 Process of stress	94
7-2 Attitudes and evaluations with respect to an operational deployment	97
9-1 Use of GHQ12 and IES Questionnaires	133
9-2 Path of influence of stress outcomes	140

CHAPTER 1

Stress: theories and models

Introduction

Stress is a commonly used term within today's society, generally taken to mean that certain pressures are being applied to an individual which they find difficult to cope with. The engineering concept illustrates the physical cracks and strains which appear as a result of 'stress', and can be visualised in the context of mental health. Stress is a non-specific term which can apply to day to day hassles and strains, long term exposure to problems and reactions to specific traumatic incidents. This chapter will consider the theoretical basis of stress, some of the models proposed in the literature and the effects of stress. Chapters 2 and 3 will address both organisational and traumatic stress respectively. Chapter 4 will consider those factors which are deemed to be mediators on the perception and effects of stress, chapter 5 will discuss coping techniques and finally chapter 6 will outline intervention strategies.

Chapter 1 provides an introduction to stress: the nature of stress, existing theoretical models of stress, its effects and ways to measure stress. Firstly, stress is considered in terms of the three varying perspectives which have predominated throughout this century (Cox 1993). The physiological and engineering perspectives are perhaps simplistic approaches to stress, which do not account for the interaction between the individual and the situation, which the psychological approach does. Secondly, the effects of stress are discussed in terms of the physiological, psychological, organisational and social impacts. Finally, ways to measure stress are regarded, considering both objective and subjective measures.

1.1 Stress Models

Stress is a relationship between an individual and the environment that is appraised by that person as taxing or exceeding his or her resources and endangering well-being. A fundamental component of stress is perception, that the individual must perceive the

situation to be stressful to them. Thus, some individuals may find a particular situation stressful, while others may not be at all concerned. Cox (1993) believes that there are three general approaches to the study of stress: the engineering model, the physiological model and the psychological model.

1.1.1 Engineering Model.

The engineering model assumes stress to be a characteristic of the environment (Spielberger 1976), for example heavy workloads or extreme cold. Stress produces a strain on a largely passive individual which can be reversible, or potentially damaging and irrevocable. The association of this theory with engineering, is due to its analogy with engineering principals. For example, Hooke's Law (McPherson 1974) describes the elastic-like properties adopted by material when a load is applied to it. This capacity is temporary, producing a strain which is proportionate to the load placed on the material. When applied to an individual exposed to a stressful stimuli, it can be seen how an individual initially adapts (elasticity). Yet with constant stress, the elasticity can no longer occur, placing strain upon the individual and perhaps ultimately causing damage. This philosophy brought about the concept of a stress threshold, where there is a limit to the extent of stress that an individual is capable of dealing with. Differences in stress resistance and vulnerability could be accounted for by individual differences in this threshold. In the military context, the "bank account of courage" (Lord Moran 1985) illustrates this philosophy, where there is a limited amount of courage available for use, particularly in terms of military encounters.

Criticisms of the Engineering Model

Criticisms of the engineering perspective are generally focused on its inability to take into account the individual differences in response to stressful stimuli and the assertion that the individual is largely passive in this process. Mediating influences such as previous experience or demographic details are not considered (Cooper and Payne 1992; Lazarus and Folkman 1984), with the assumption that a stressor will affect individuals in the same manner. Furthermore, this model fails to take into account the processing of the stressor, in

terms of the perceptions of the individual and the cognitive processes that occur (Cox and Mackay 1981). Although there are fundamental criticisms to this approach, it has been argued that there is relevance in the context of extreme stressors or life threatening situations, where specific behaviour is adopted by individuals in response to the situation (Cohen and Lazarus 1979; Alexander and Wells 1991).

1.1.2 Physiological Model.

The physiological model considers stress to be primarily a physiological syndrome, as a response to harmful or aversive substances in the environment (Selye 1950, 1976). As such, these models are termed 'response based', as opposed to the stimulus based models discussed in the engineering model section. Tache and Selye (1978) described stress as the "non-specific response of the body to any demand". By studying the endocrinology of rats, Selye (1956) believed that there were three phases of the stress response. The initial alarm stage is characterised by changes in blood pressure, respiration rates and hormonal excretions. The resistance phase is when the body adapts to the stressor, and if successful, alarm reactions will subside; if unsuccessful, then the body becomes unable to cope with the demands made upon it. Ultimately, exhaustion occurs, where the individual becomes increasingly vulnerable to the stressors, potentially resulting in death.

The term General Adaptation Syndrome (GAS) was popularised by Selye, to represent this process. Stress was referred to as 'general' due to its non-specific reaction common to many categories of stimulus. It was considered a process of adaptation as it was preparing the individual for a 'fight or flight' reaction (with the production of adrenaline). Selye also noted a distinction between short and long term exposure, where long term exposure increases wear and tear on the body, ultimately increasing the risk of so-called stress related diseases (for example heart disease).

Criticisms of the Physiological Model

Many of the criticisms are concerned with the assumption that the physiological response is the overriding factor, with no apparent regard for the influence of individual

psychological factors (Lazarus and Folkman 1984, Cooper and Payne 1992). Individuals' perceptions concerning the stressor and their appraisal of the situation were overlooked, a factor Mason (1971) argued was a confounding variable in the rat experiments conducted by Selye. An additional criticism concerns the notion that the body's reaction is generalisable, in that any individual will experience the described responses. Studies with both monkeys and humans conducted by Mason (1971) did not find evidence to support the response stages described by Selye. He found that stress responses were specific to the individual.

The development of a physiological model of stress has been important in ascertaining the measurement of stress by physiological means (urine, blood pressure, ulcers etc.) (Kasl and Cooper 1987). Furthermore, the concept of homeostasis and the body's necessity to adapt to survive is central to a number of the well-being models that are influential today (Warr 1987; Cox 1978).

1.1.3 Psychological Model.

As discussed, both the engineering and physiological approaches have been criticised for not taking into account the role of psychological processes in the manifestation of the stress response (Cox 1990). Stress was seen as part of a cause and effect model, whereas the psychological model places the individual as central to the stress process. Lazarus (1966) acknowledged the importance of personality factors in producing stress reactions, emphasising the need to define stress in terms of transactions between individuals and the situation, rather than either in isolation. Within this psychological approach there are two ways of looking at stress. The 'interactional' focuses upon the individual's interaction with the environment, while 'transactional' focuses upon the psychological mechanisms influencing that reaction (for example cognitive appraisal and coping). By considering both sides of the stress process, the individual and the stressor, one can attempt to balance external demands against personal resources, cognitions, previous experiences and available support. If the balance is not achieved, then the individual's well-being is threatened, resulting in symptoms such as depression and anxiety (Van Harrison 1978).

There are a number of models based upon the transactional approach, two of which will be discussed in this section. Lazarus's (1966) transactional model focuses largely upon the cognitive appraisal process, while Howarth's (1978) adopts a wider approach to the process of stress.

Lazarus (1981) emphasises stress as a dynamic relationship with the individual, as opposed to a trait oriented and structured approach. Indeed, Lazarus (1981) termed stress as a 'person-environment relationship' in an adaptational encounter; a concept which has been taken as important in defining occupational stress, in terms of the person-environment fit (French, Rogers & Cobb 1974). Much of Lazarus's theory has centred upon the cognitions involved in appraising a situation as stressful. Indeed, considering Seligman's (1975) concept of learned helplessness in response to a continued unresolvable stressful encounter, this emphasis on cognitions underlines the relationship between stress and the outcome variable of depression. Beck (1967) suggested that negative evaluations of the self, the environment and the future, acquired by past experience and activated by stresses, generate a corresponding mood of despondency.

1.1.3.2 Cognitive Appraisal.

It is generally accepted that there are two processes involved, cognitive appraisal and coping, which are critical mediators of stressful person-environment relationships and their immediate and long term outcomes (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen 1986). These authors propose that stressors are demands that tax or exceed the resources of the system; demands to which there are no readily available or adaptive responses. Appraisal plays an important part in coping, by the selection of responses, determined by evaluations of possible outcomes and available options. When considering appraisal, Lazarus (1966) believed that this process could be divided into two stages: primary and secondary appraisal.

During primary appraisal, the individual evaluates whether he or she has anything at stake in the encounter, for example, potential harm to themselves (either physical or psychological). This involves a continual monitoring of a person's transactions with his or

her environment, considering 'do I have a problem?' It is believed that four evaluations can be made if a stressful situation is determined; harm/loss, threat, challenge or benefit. Here, threat refers to the anticipation of harm or loss; challenge refers to opportunities for personal growth or gain, while benefit refers to positive outcomes. A range of personality characteristics such as neuroticism, anxiety, values, beliefs, commitments and goals will mediate this perception. Recognition of a problem is generally connected to unpleasant feelings and uncomfortableness.

Secondary appraisal is the individual considering that if there is a problem, what can be done about it. This part is contingent upon recognition that a problem exists and involves a more detailed analysis concerning generation of possible coping strategies (what am I going to do about it?). Various coping strategies are evaluated, such as changing the situation, accepting it, seeking more information or talking to someone. Stress therefore occurs when individuals perceive that there are demands being made on them, or threats to their well-being, which they believe that they cannot adequately cope with, resulting in anxiety or depression (Cox & Ferguson 1991).

A more detailed three stage model of the processes that occur during these initial stages of perception of stress was proposed by Shalit, Carlstedt, Stahlberg, Taljedal & Shalit (1986). The Sequential Adjustment Model (SAM) describes the stages:

- 1) Appraisal - in which the situational stimuli are evaluated and their implications for the individual understood
- 2) Mobilisation - the personal resources for dealing with the situation are assessed and readied
- 3) Realisation - utilisation of perceived resources is clarified and the plan for coping behaviour determined.

Each of these phases is processed in the three modalities: cognitive, affective and instrumental, in terms of the copers' response style and way of dealing with the situation.

1.1.3.3 Howarth's Model on stress

Howarth's model (1978) incorporates a wider perspective on the concept of stress, identifying four areas which are considered fundamental to the process of stress. Howarth believes that the resulting imbalance between perceived demands and capabilities, is caused by biological, developmental, social and/or phenomenological issues. A problem arising from the biological viewpoint would be as a result of evolutionary changes, an imbalance between a difference in adopted lifestyle and that of the lifestyle of early humans. The developmental viewpoint identifies an imbalance in an individual's current life demands compared to their upbringing and educational experiences. The social viewpoint considers an imbalance to have occurred when an individual has been required to adopt inconsistent roles, or exposed to conflicting social pressures. Lastly, an imbalance would occur in the phenomenological viewpoint if an individual had consistently failed to match his/her expectations or ideals. It has been suggested that this model is successful in identifying those factors which are able to exert an influence on the stress process, and is capable of illustrating the multi-faceted nature of stress (Cox 1978, Lazarus 1992).

Criticisms of psychological approaches

As discussed previously, the transactional models of stress are effective in emphasising the role of the individual in the stress process, with particular reference to individual traits and experiences and cognitive appraisal in perceiving a stimulus as stressful. One criticism, however, concerns the apparent inability to account for the serious physiological effects of stress. Cox (1978) states that the engineering approaches to stress are more able to account for extreme physical stressors which cause physical damage, without any psychological involvement. However, many researchers have used the transactional approach to study physiological reactions such as high blood pressure and heart disease (Krantz and Manuck 1984, Cooper and Marshall 1976 and Cooper 1986), with significant success. The transactional approach remains the most widely used approach, particularly in occupational stress research. As such, it forms the basis for the research undertaken in this study.

1.1.4 Strain and burnout.

In addition to the general concept of 'stress', both strain and burnout are concepts which need to be considered. Strain refers to the physical, psychological and behavioural responses of a person in the face of stress (French, Caplan & Harrison 1982). Burnout is physical, mental and emotional exhaustion, accompanied by a sense of helplessness, hopelessness, lack of enthusiasm for work and a lowered sense of self esteem (Freudenberger 1975). Kushnir & Melamed (1992) state that burnout is the chronic depletion of coping resources following prolonged exposure to emotionally charged demands. When such demands are intensified, as for example with a major life crisis, it might be expected that the progression of burnout may be accelerated. Hobfoll (1989) maintains it is one of the principal consequences of work related stress. It can be also argued that any taxing emotional strain caused by life events or environmental pressures can promote burnout (Etzion 1984).

1.1.5 Independent constructs

The notion that psychological distress and well-being lie on the same continuum does not account for the fact that a person's psychological response to his or her environment has both positive (well-being, morale) and negative (depression, anxiety) dimensions (Warr 1983). Although these dimensions can be highly correlated (Headey & Wearing 1992), both exploratory and confirmatory factor analyses have consistently shown that these are independent dimensions, rather than opposite ends of a single bipolar continuum, in both work (Agho, Price & Mueller 1992) and non-work (Diener & Emmons 1985) settings. Hence, it is important not to consider negative aspects of the environment in isolation, but study both positive and negative aspects of the individual and their interaction with the environment.

1.2 Effects of Stress

Stress is a popular topic for both researchers and practitioners alike. Not only is stress of interest because of the desire to study the impact of abnormal or adverse situations on the

functioning of individuals, but also because of the effect that stress can have upon the physiological and mental health of individuals, and the subsequent effects on organisations. Stress has been established as a factor which affects performance on a variety of tasks (Baddeley 1972, Gross & Mastenbrook 1980) and which can also influence long term health (Rabkin & Streuning 1976).

1.2.1 Physiological effects

Zegans (1982) has argued that the potentially pathogenic effects of the stress response express themselves by challenging the various body systems which integrate and defend physiological function, and which underpin its link with behaviour. Stress can cause endocrine hypoactivity and hyperactivity (Lipton 1976) and alter the balance of autonomic control, altering function in the cardiovascular, respiratory, secretory and visceral systems (Lisander 1979). It appears to impair or distort the immune response (Stein, Keller & Schleifer 1981), alter sleep patterns, with subsequent effects in other activities (Weitzman, Boyar, Kapen & Hellman 1975).

1.2.2 Psychological effects.

The psychological effects of stress may be represented in a number of ways, involving changes in cognitive-perceptual functioning, emotion and behaviour. Examples of psychological effects include anxiety (House & Rizzo 1972), tension (Beehr, Walsh & Taber 1976) and depression (Kaufman & Beehr 1989). Psychological effects may also represent attempts to cope. There is some evidence that health promoting behaviours, such as exercise and relaxation, sleep and good dietary habits, are impaired by the experience of stress, while other health risk behaviours, such as smoking and drinking are enhanced. Social behaviour and interpersonal relationships may be impaired, possibly reflecting more fundamental psychological changes in, for example, irritability, attention span and memory (Baddeley 1972). Stress related impairments of social relations may create both secondary problems and reduce the availability of social support.

1.2.3 Organisational effects

The most frequently cited organisational effects of stress can be categorised into a number of groups. These include:

- (1) Reduction in availability for work, involving high turnover, absenteeism and poor time keeping (all essentially escape strategies)
- (2) Impaired work performance and productivity
- (3) Increases in client complaints
- (4) Increases in employee compensation claims (Neary et al 1992).

A recent report by the Confederation of British Industry (CBI) in April 1997, stated that in Britain 187 million working days were lost a year; the major cause identified was stress and low morale. In 1994 it was reported that stress and depression was the second highest cause for time off work; 57% of cases believed their condition to be directly attributable to work (Davies & Teasdale 1994). Data collected by the Army Medical Directorate (AMD) resulted in an estimate that British Forces Germany lost 250 working days amongst Service personnel between July to November 1994, due to “psychiatric and stress reasons”. These are all convincing arguments as to why organisations need to consider the impact of stress. Furthermore, the issue of legal redress is of concern to the military and could result in significant financial implications for the MoD, if it was considered that the military were negligent or did not adequately train its personnel to cope with potentially stressful situations.

1.2.4 Social effects

Bolger, DeLongis, Kessler & Wetherington (1989b) differentiate between two conditions which show the contagious nature of stress: spill-over and crossover. Spill-over occurs when stress experienced in one domain of life causes an individual to experience stress in another domain of life as well. For example, experiencing difficulties in dealing with people at work may lead an individual to feel that there are difficulties in interacting with his family. Crossover of stress is generally within the family, when strain experienced by one spouse (generally at work) affects the other spouse’s level of strain. Rook, Dooley and

Catalano (1991) in a study on police officers, found that husbands' job stressors were positively associated with emotional symptom levels of distress in their wives. Riley and Eckenrode (1986) state that the

“experience of undesirable events may create demands for support, that associates are apt to feel anxious and guilty when such demands are not met”.

Likewise, a crisis experienced by a person's close associate may reduce the available support to that person. Jakson & Maslach (1982) found a positive relationship between police officers' job stress and their wives marital dissatisfaction. An alternative theory is that the mood of the individual creates demands for the other spouse. For example, Cronkite and Moos (1984) identified the spouse's distress as a source of ongoing stress for the respondents. In a military context, Westman & Etzion (1995) studied questionnaires from Israeli Defence Force (IDF) officers and their wives and found a significant crossover of burnout from one spouse to another and vice versa, when both partners were working professionals.

1.2.5 Military stressors and responses

The NATO Defence Research Group (DRG) Panel 8 was responsible for identifying the psychological components of combat stress, in order to attempt to produce a NATO test which could identify or measure psychological performance. The members of the panel produced a table of common military stressors and typical responses, which is detailed on the next page.

Table 1-1 NATO common military stressors and responses

Stressors	Responses
Fear	Acute anxiety
Shock	Depression
Group panic	Irritability
Task overload	Burnout
Time pressure	Low morale
Fatigue	Poor cohesion
Responsibility	Withdrawal
Physical pain	Low commitment
Injury worries	Drug abuse
Deprivation	Violence to self/ others
Isolation	Accidents
Overcrowding	Lack of discipline

The authors did emphasise that there is a complex relationship between the sources and responses to stressors, and so this relationship is under constant modification. However, this table provides an overview of the factors considered to be important in the context of military stress, identifying those indicators of stress which commanders could be alert to.

1.2.6 Positive effects of stress.

Although the literature is convincing with regard to the relationship between stress and ill health, it is not unequivocal. As Cox (1993) stated in a literature review for the Health and Safety Executive, “stress may affect health”. It has become a common assumption that stress is associated with the impairment of mental health, largely because it is intuitive with a high degree of face validity. It should be noted that many of a person’s responses to stress are well within the body’s homeostatic limits. The concept of eustress, is an example of positive stress. This is extrapolated from the ‘inverted U’ theory, where low or high levels of arousal will result in poor or degraded performance, while optimum performance is obtained from a moderate level of arousal (Yerkes & Dodson 1908). Low arousal levels are characterised by boredom, frustration and disinterest. Despite the over-generalisation of this theory and the fact that ‘arousal’ is often interchanged with ‘stress’ (Stokes & Kite 1994), it does suggest that too little of something can be stressful too; for example, not enough work.

1.3 Measurement of Stress

1.3.1 Objective measures.

Stress can be measured by either objective or subjective means. Objective means include physiological measures (such as heart rate, blood pressure), biochemical measures (such as adrenaline or catecholamine levels in blood or urine) and organisational outcomes (such as absenteeism, accidents and sick leave). Although these are called objective measures, they are objective only to the extent that the effects are assumed to be a direct result of stress. For example, heart rate has been reported to rise in sympathy with other physiological indices of stress (Ursin, Baade & Levine 1978). However, it is also argued that heart rate may well be measuring arousal, which is independent to stress. Furthermore, many of the measures of potential stress responses, such as hypertension, cholesterol and peptic ulcer development, are affected by factors other than stress (for example, smoking, time of day of measurement, recent dietary intake, family or genetic factors) (Beehr 1995). Rapid fluctuation of such physiological measures also occurs, thus reducing the reliability of the results. Tache & Selye (1978) approached the study of stress from a physiological stance, recommending the use of a battery of physiological tests. They believed that several tests were necessary as “*no one parameter can reliably reflect stress either qualitatively or quantitatively*”. Thus, physiological measures can potentially ascertain the results of ‘stress’, but are unable to identify aspects of the environment which cause an individual to feel stressed, or the emotional component of stress.

Organisational stress can be measured indirectly through absenteeism, job performance, intention to leave the organisation and PVR (premature voluntary release) in the military, sick leave, levels of alcohol consumption and discipline levels. These, of course, assume that stress, or indeed some kind of general malfunctioning is occurring, either in the organisation or on an individual level. These measures are of particular importance in organisational research, as links made between stress and performance will be used to illustrate the impact of stress within the organisation.

1.3.2 Subjective measures.

Stress is a subjective phenomenon. Hence, it is important that the individual's experience is taken into account, in accordance with the psychological/ transactional model of stress. The two main methods of measuring stress subjectively are by clinical interview or by self report questionnaires. Questionnaires can be standardised, which allow for comparison between studies and references to norms; or tailored, which allows for greater depth with specific information to the organisation. The most effective questionnaire usage is likely to include elements of both standardised and tailored questionnaires. There are criticisms concerned with the use of questionnaires, predominantly those concerning faking of responses, and when both the independent and dependent measures are ascertained by questionnaire responses. As O'Grady (1982) states, empirical studies are necessarily limited in the amount of variance they can explain because they use only a small number of operationalisations of the relevant constructs. There is a risk that observed relationships between job and psychological variables are affected by self report bias or common method variance. However, subjective measurement remains popular in the study of stress due to the importance placed on obtaining individuals' perceptions and experiences.

SUMMARY

This initial chapter has attempted to assess the concept of stress, considering the various models and perspectives of 'stress', in terms of the engineering, physiological and psychological approaches. These were discussed in terms of their contribution to the literature, in addition to their weaknesses. The wide reaching effects of stress were described, as were the subjective and objective ways to measure stress.

CHAPTER 2

Organisational Stress

Introduction

There are numerous models of organisational stress or well-being, two of which, Warr's (1987) Vitamin Model and Beehr's (1995) General Model of Occupational Stress, will be discussed below. Following this, commonly described organisational stressors such as workload, role ambiguity and poor communication, will be discussed and the research findings considered. Finally, the crossover of stress and strain between work and home is discussed, illustrating the contagious nature of the effects of stress.

2.1 Definitions

Prior to discussing organisational stress, it is important to define a number of terms which are used in this chapter. Occupational stress can be described as the stress that is a particular feature of a particular occupational environment. It would be expected that people in jobs such as soldiering, policing and firefighting could be exposed to a number of stressors. Organisational stress can be described as stressors that occur within the organisational environment itself. For example, stressors could relate to time pressures, available resources, workload (Cooper & Marshall 1981), opportunity for skill use and variety (Warr 1987), level of responsibility (Crump, Cooper & Maxwell 1981) and job and physical security (Cooper 1983).

Occupational and organisational stress tend to be described in terms of the stimulus characteristics of the environment, which exert pressures on the individual in the form of 'stressors'. Glowinkowski & Cooper (1985) consider it as forces outside the individual, such as time pressures or workload, which serve to overburden the individual. French, Rogers & Cobb (1974) describe work stress as a:

'misfit between a person's skills and abilities and demands of the job'

and

'a misfit in terms of a person's needs supplied by the job environment'

These statements support the Person-Environment Fit model. This model states that stress occurs when the demands of the environment exceed (or threaten to exceed) a person's capabilities and/or attitudes and resources to meet them, or the needs of that person are not being supplied by the job environment (French & Caplan 1982).

2.2 Models

2.2.1 Warr's Vitamin Model (1987)

Warr's Vitamin model incorporates nine features of the work environment which he believes influence both job-related and context-free mental health. The components are opportunity for control, opportunity for skill use, goals and task demands, variety, environmental clarity, availability of money, physical security, opportunity for interpersonal contact and a valued social position.

Warr aligns this model to vitamins, where different weights can be attributed to the various factors, and these will vary according to the individual concerned, in addition to the presence or absence of the other factors. Warr believed that these factors were not related to mental health on a linear scale, suggesting the occurrence of a plateau after certain levels of these 'vitamins'. Furthermore, similar to vitamins, some features may have a detrimental effect upon individuals if there is too high a degree of exposure.

Warr stated that humans can adapt to a broad range of environmental conditions and that they only experience problems at extreme levels. Briefly, Warr suggested that all factors are harmful at extremely low levels, yet for three of these factors (money, physical security and a valued social position), extremely high levels are unlikely to have a negative effect. High levels of the remaining six factors however, can produce environmental overload and an inability to cope with the environmental pressures.

Opportunity for control refers to the control an individual has over his working environment. A low level of control over the working environment is generally taken to be psychologically harmful, while high levels of control tend to be associated with higher

levels of well-being. Opportunity for skill use concerns the capacity for an individual to utilise their skills in the work situation. Low levels tend to result in psychological ill health, whilst high levels tend to result in psychological well-being.

Goals and task demands can be divided into three categories: intrinsic job demands, task identity and traction, and time demands. Intrinsic job demands refer to the level of jobs an individual is required to complete/ perform. Too few demands have been found to produce both psychological (low motivation) and physiological (adrenal hormone secretion) changes, while too high demands has been found to result in low levels of job satisfaction, job related anxiety and job related exhaustion (Frankenhaeuser and Gardell 1976 Task identity refers to the structure and coherent nature of the job, while traction refers to the rhythm or swing of the job. Baldamus (1961) believed that the existence of traction generally produced a positive effect upon well-being.

Task variety refers to a continuum, with task variety at one end and repetitiveness at the other end. Warr believes that tasks which are highly repetitive are deleterious to mental health, affecting levels of irritation and calmness (Johanson, Aronsson & Lindstrom 1978). Environmental clarity is based upon the uncertainty/certainty of the environment and the predictability of future events. Detrimental environments are those that are low in clarity and extremely uncertain. Environmental clarity is determined by three factors: availability of feedback, information about the future and information about required behaviour. This vitamin is similar to that of role ambiguity (Kahn, Wolfe, Quinn, Snoek & Rosenthal 1964).

Availability of money is the sixth vitamin, where an absence produces considerable psychological problems, reducing the opportunity for personal control and seriously influencing extra-work circumstances. Yinon, Bizman and Goldman (1976) found a positive relationship between reward magnitude and job satisfaction. In addition, Farrell and Rusbult (1981) believed that this 'effort-reward bargain' was the primary factor determining job satisfaction.

Physical security refers to the need individuals have to feel secure from any physical threat and to be adequately protected by the organisation. This can include physical working conditions, such as heating, food, shelter, also including an area for private territory, in addition to a security of tenure. Physical security is a classic hygiene factor (Herzberg 1966), where its presence is comparatively unimportant, but its absence can produce serious dissatisfaction and anxiety.

Opportunity for social contact refers to the opportunities for friendship in the work environment and the potential support that this entails. It is directly linked to individual well-being (Oldham and Brass 1979), in addition to job satisfaction, stress reactions, role (Ganster, Fusilier & Mayes 1986), communications and contacts. Finally, a valued social position is the extent to which a particular job is valued by society, or indeed within the organisation. Individuals gain a sense of identity and self respect from their job, carrying this with them to all aspects of their life. Thus, those who gain a low social value from their job generally experience lower levels of job satisfaction.

Evaluation of Warr's Vitamin Model

Warr's model of occupational stress is frequently cited in the literature, and is popular when describing the determinants of both occupational stress and job satisfaction. Two of the criticisms directed at the model refer to the concept of non-linearity and causality. A curvilinear relationship between well-being and the nine factors has been reported by some studies (Warr 1990b, Edwards & Cooper 1990), although Warr (1994) does acknowledge that the methodological requirements to establish curvilinearity are high. Warr believes that sample sizes of approximately 1000 are needed, in addition to a wide range of occupational measures, which are sensitive enough to detect extremes of each job characteristic. As such, the majority of studies have focused on a linear relationship.

The direction of causality is also cited as a weakness in the model, where relationships are assumed in a uni-directional manner between job characteristics and mental health. However, there is evidence from a number of studies illustrating the affect that well-being has upon some of the occupational factors (Kohn and Schooler 1982, James and Tetrick 1986). Furthermore, the model does not illustrate the pathways between job related and

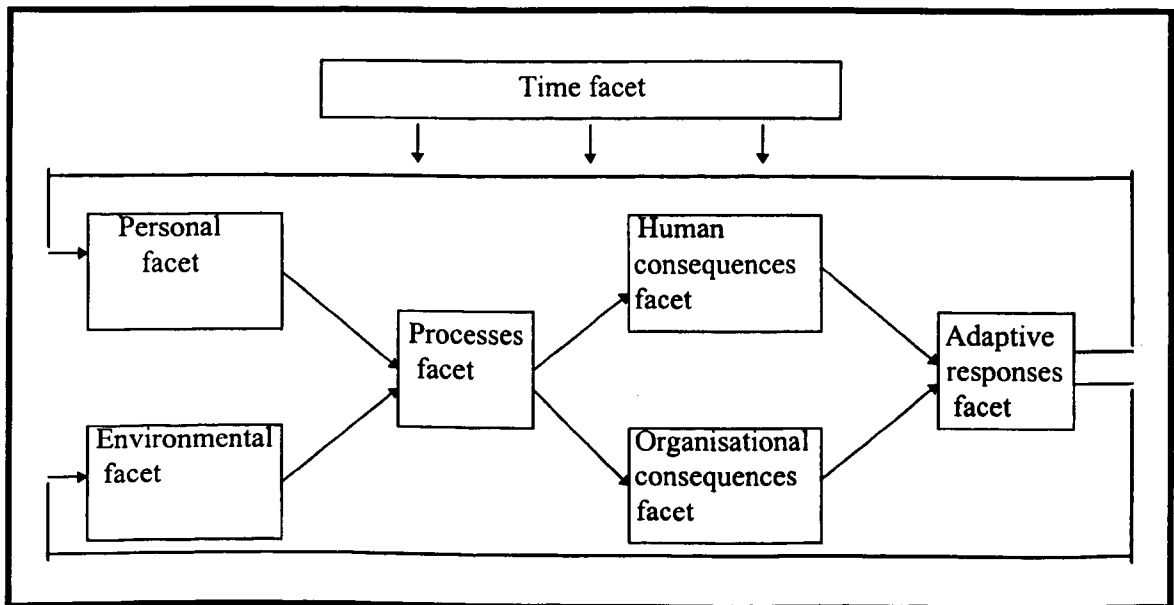
non-job related well-being. However, Warr (1994), does state that job related mental health is a mediating factor between job characteristics and non-job mental health.

Thus, Warr's model for occupational stress, despite some weaknesses, provides a good basis for understanding the multi-faceted nature of stress in the workplace. It is also able to illustrate the positive and negative aspects of occupational characteristics, with researchers able to identify any changes occurring to the principal factors.

2.2.2 Beehr's Occupational Stress model (1995)

Beehr and Newman (1978) designed a model which they believed encompassed all the variables studied in terms of occupational stress and "virtually all theories about the topic".

Fig. 2-1 Model of Occupational Stress (Beehr and Newman (1978))



The central focus to this model is based upon the environmental facet which, through the mediating influences of the process facet, produces strains in the human consequences facet. The environmental facet incorporates aspects of occupational stress; for example, workload, lack of privacy or constant threat of redundancy. These stressors can be either long term problems (like work schedule) or short, 'time limited' events. This refers to life events such as redundancy (Holmes & Rahe 1967), or impending deadlines such as computer shutdowns at university (Kasl & Cobb 1970) or the experience of starting a new job (Eden 1982).

The personal facet incorporates stable aspects of the employees' personality, which are likely to impact upon the perceptions or reactions to stressors. Items in the personal facet are also able to moderate the core relationship between stressors and strains. Examples of relatively stable aspects in the personal facet are demographic characteristics, individuals' abilities, physical characteristics, family history and stable personality characteristics such as neuroticism or Type A behaviour (Friedman & Rosenman 1974).

Beehr (1995) states that there is no single psychological response to all occupational stress situations and that the process facet incorporates a wide variety of issues affecting the stress process. Physiologically oriented researchers would tend to consider that the process facet is the most important aspect of the stress model. Selye (1975) advocated that the first mediators of stress are psychological, which occur prior to the more observable signs of stress (such as heart disease). Psychological processes include: the appraisal process (Folkman & Lazarus 1984), where one generally has to perceive that a situation is stressful or threatening; decision making and response selection (McGrath 1976), or perhaps uncertainty regarding an individual's expectancies (Beehr & Bhagat 1985a).

The human consequences facet refers to the adverse states of health experienced as a result of the stress process. These have been divided into psychological, physical and behavioural strains. Psychological strains refer to depression (Kaufman & Beehr 1989) and anxiety (House & Rizzo 1972). Physical strains comprise actual physical problems arising from the stressful situation, for example risk factors for coronary heart disease

(Cooper & Marshall 1976). Examples of behavioural strains are behaviours adopted such as drug taking, cigarette smoking or excessive alcohol consumption.

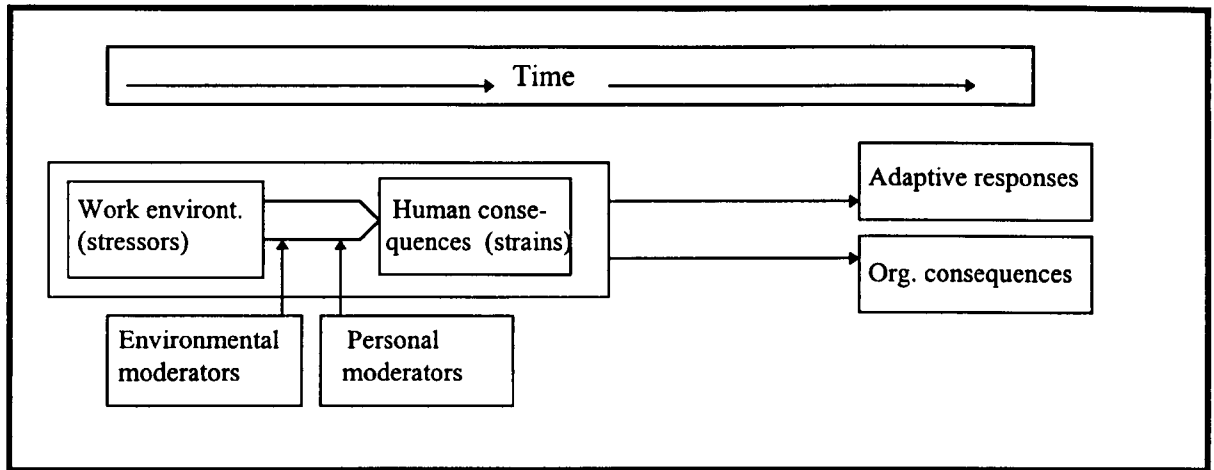
The organisational consequences facet describes employee behaviours which accompany the core occupational stress relationship. Incidents such as absenteeism, turnover and accidents are examples of this facet.

Finally, the adaptive responses facet refers to ways of alleviating the strain. This may be categorised into two dimensions: curative versus preventive and individual-targeted versus organisational-targeted (Newman & Beehr 1979). Curative treatments refer to the attempt to cure the stressful situation after it has risen, while preventive refers to attempting to treat the stressful situation before it has arisen. With regard to intervention, organisationally targeted treatments often refer to the environmental facet; for example, where changes are focused at reducing workload or awarding workers increased pay.

Time is included as it is recognised that many events in the model will occur either in sequence or over long or short periods of time. For example, differences between chronic and acute stressors are generally defined on the basis of time. Beehr and Bhagat (1985b) state that the duration of stressors is a major factor in determining the severity of the stressor outcomes or strains.

Although Beehr and Newman (1978) believe that this model identifies all aspects of the occupational stress process, the authors state that the model was a result of research and theory prior to 1978. They recognise that the model has not been tested or proven empirically, hence proposed a revised model, which they believe the research programme has addressed. This revised model, Figure 2-2, concentrates upon the core relationship of occupational stress.

Fig 2-2: Core relationship of occupational stress (Beehr 1995)



As can be seen, this model differs in that the process facet is not included, other than the allusion to it in the relationship between the work environment and human consequences facets. There is greater emphasis upon both the environmental and personal moderators, which will impact upon the perceptions and process of stress in the individual. The human consequences facet then results in potential organisational consequences and adaptive responses of the individual. Thus, strains will appear in the individual, prior to the responses occurring, which is more understandable than the General Model of Occupational Stress, where both human and organisational consequences occur simultaneously.

2.3 Organisational Stressors

2.3.1 Distinctions between occupational stressors

There has been a considerable amount of study into the various factors which impinge upon stress at work. Those considered to be most relevant will be discussed in this section, with references to the military lifestyle, particularly the Army, where appropriate.

Cooper and Marshall's (1976) model proposed that the cause of work stress were factors intrinsic to the job (e.g. workload, conditions), the individual's role in the organisation, relationships at work, career development, organisational structure and climate and the home/work interface. Various groups of stressors have been described as psychosocial

hazards. Levi (1984) classified these under four headings: quantitative overload, qualitative underload, lack of control over work and lack of social support. Broad comparisons between types of work can also be made, for example, managerial and manual. Warr (1992) has suggested that manual work tends to be associated with extremes of workload, low levels of decision making and participation and low variety. Managerial work tends to be associated with work overload, role related problems and uncertainty.

2.3.2 Workload

French and Caplan (1973) differentiated work overload into quantitative and qualitative. Quantitative workload refers to the amount of work to be done, while qualitative refers to the difficulty of the work; these are independent criteria. Margolis, Kroes and Quinn (1974) carried out a study on quantitative workload and found that overload was significantly related to a number of symptoms or indicators of stress: escapist drinking, absenteeism, low motivation to work and lowered self esteem. The number of hours worked in a week most likely reflects the extent of job overload or workload (Jex & Beehr 1991), and has also been used as an operational measure of job stress in a military population (Blies & Halverson (1996). Griffith (1997) found that the number of hours worked in a week was significantly and negatively correlated with individual well-being. Personnel often cope with overload by working longer hours, which is acceptable for a short term solution, but not for the long term.

Performance can be seriously compromised by accumulation of sleep debt (Stampi 1989). The upper limit for working intensively and continuously is approximately 2-3 days (Haslam 1982) and performance effects can be detected in vigilance tasks and those involving cognitive and verbal performance. Control of one's workload is of considerable importance when considering mental health effects, with both these factors thought to have an additive effect, rather than an interaction. The lowest probabilities for illness and death were found amongst work groups with moderate workloads and high control over work conditions (Karasek, Baker, Marxer, Ahlboem & Theorell 1981). The decrease in size and funding of the British Army, as a result of Options for Change (1992) and the Frontline First study (1994), have acted to increase the degree of workload placed upon individuals

and units. This has been exacerbated by the current levels of commitment (support to UN and NATO deployments, Northern Ireland and coalition based conflicts), where some units may have only 11 months between operational deployments.

2.3.3 Opportunity for Skill Use

This refers to the degree to which the environment inhibits or encourages the utilisation and development of skill use and the skill requirement to do the job. Warr (1987) believed that if people are using their skills and learning new ones, this will satisfy the worker, as s/he is achieving targets and performing challenging work. In contrast, if individuals are unable to use or improve their skills, they will become dissatisfied, feeling that they and their position are not valued in the organisation. An early study by Kornhauser (1965) examined the mental health of workers in a car manufacturing plant in the US, and found that those experiencing little opportunity for skill use were substantially impaired in the areas of life satisfaction, self esteem, personal morale and job satisfaction. Exposure to repetitive and monotonous work is often associated with the experience of boredom, and in turn, with anxiety and depression, resentment and generally poor psychological health (Smith 1981, Caplan, Cobb, French, van Harrison & Pinneau 1975).

2.3.4 Decision latitude

Decision latitude was first proposed by Karasek (1979) as a combination of decision authority, opportunity to learn new things, experience variety and skill discretion (utilisation). It has been argued that many of these concepts do not easily fit into the demands-latitude formulation (Kasl 1989), and many studies have failed to show an interaction between demands and decision latitude in predicting health related (Landsbergis 1988) or job satisfaction outcomes (Warr 1990a). Thus, there has been a re-labelling of the hypothesis as a 'demands-control' model (Karasek & Theorell 1990). This links it in more with both animal and human studies, where control has been identified as a factor which mitigates the effects of a wide range of extrinsic stressors (Katz & Kahn 1978; Steptoe & Appels 1989).

2.3.5 Control.

The basic argument is that increased control reduces the effects of stressors by allowing individuals to face demands when they are best able to do so and in ways that they find most acceptable. In other words, control provides the opportunity for individuals to adjust to demands according to their needs and circumstances (Karasek & Theorell 1990). Research suggests that where there are greater opportunities for participating in decision making, greater satisfaction and higher feelings of self esteem are reported (Spector 1986). Although it is argued that control and responsibility are important for workers (Warr 1992), it has also been argued that this is a double edged sword. Neufeld and Paterson (1989) stated that the demands implied by the choices involved in controlling situations can themselves be a source of stress.

In a military context, employee control over their working environment, and to a certain degree home environment, is strictly limited. Although those personnel with higher ranks have a greater control over their work situation, a high degree of control is not possible. Army personnel can be posted to numerous places throughout the country, and indeed, the world, often with too little notice. They may be required at times to leave their families to go on exercises or to deploy on operations. In contrast, officers find they have a high degree of control in terms of management responsibility of those under their command. This can be a daunting task, particularly when the officers are young and inexperienced. Furthermore, the nature of military leadership assumes that those in command have the responsibility for the lives of their personnel both in a welfare and a literal sense.

2.3.6 Supervisory support and leadership

Blake and Mouton (1964) and Fielder (1967) advocated that leadership is an important influence on employee attitudes. In effect, the supervisor is the organisation when considering those variables potentially impacting upon job satisfaction and employee mental health; for example, supervision, hours of working, promotion and the work itself are either determined by or are influenced by the supervisor. More recent studies have

found that management behaviour and supervisory styles have a substantial impact on the emotional well-being of the worker (Landy 1992, Corey & Wolf 1992).

In a military context, Solomon and Mikulincer (1987) found that support from officers was instrumental in preventing acute combat stress reactions among combat soldiers throughout the 1982 Lebanon war. Similarly in a study by Solomon et al (1991), despite Israeli soldiers forming no part of the Gulf War, supervisory support was found to play a significant role in reducing stress experienced by individuals in a high risk area. This study also found that those soldiers who requested treatment for mental health problems differed from the non-patient group, by having more severe symptomatology, feeling less able to cope on their own and reporting fewer sources of support. The support of their commanding officers was also found to be particularly lacking among the patients. Solomon et al claim that the commander serves as a parent substitute on whom the soldier relies upon for protection, as an authoritative role model. Furthermore, he may act as an authoritative source of information which may aid in reducing undue worry and distress.

2.3.7 Communication.

Communication is a fundamental component of good leadership. A lack of adequate information about the future has been found to be significantly related to job related depression, anxiety and job dissatisfaction (Caplan, Cobbs, French, Van Harrison & Pinneau 1975). A related concept is the setting of and communication of goals, which relate to success and confirm a sense of achievement. These goals need to be both visible and obtainable, and feedback must be provided. Long delays in feedback increase tension and feelings of insecurity. A study by Brousseau (1978) found that long delays in feedback were related to lowered mental health. Uncertainty, in the form of lack of feedback on performance, is particularly a source of stress if it continues over a long period of time (Warr 1992).

2.3.8 Interpersonal relationships at work

Opportunities for interpersonal contact within the job and the quality of these relationships has been directly related to job satisfaction and stress reactions (Ganster, Fuselier & Mayes 1986). The presence of like minded employees is important in satisfying the worker's need for affiliation and decreasing feelings of loneliness and isolation, in addition to providing support. These factors have continually been associated with mental health, both connected to the job and context free (Billings & Moos 1982). Three sets of relationships have been identified as important (Sauter, Murphy & Hurrell 1992): those with superiors, subordinates and colleagues. Low interpersonal support at work has been found to be associated with high anxiety, emotional exhaustion, job tension, low job satisfaction and increased risk of cardiovascular disease (e.g. Warr 1992, Beer and Newman 1978).

Wills (1985) believes that motivational support is similarly important. This occurs when the employees encourage and motivate others to persist in particularly difficult times. Such group membership can allow individuals to attain goals that could not be obtained independently (Katz & Kahn 1978). This is of particular importance in a military context, where morale and group motivation are fundamental to the organisational culture. Manning and Fullerton (1988) studied high and low cohesive units in the US Army. The highly cohesive A-Teams scored higher on well-being, satisfaction with army life and perceived social support from their unit. An interesting factor to note is that in A-Teams a more participatory leadership dominates, which tends to foster mutual trust and support.

Lack of privacy. The negative aspect of interpersonal contact concerns the lack of privacy and an inability to conduct work without being surrounded by people. Sandstrom, Burt & Kamp (1980) found that as the amount of privacy increased, so did job satisfaction and job performance. Within the military, operational tours and training exercises place considerable pressure upon soldiers, who are required to live and work with each other 24 hours a day.

2.3.9 Role in organisation

This category of stressors includes role ambiguity, role conflict and role responsibility.

Role ambiguity.

Role ambiguity occurs when a worker has insufficient information about his work role, a general confusion about appropriate objectives, lack of clarity regarding expectations and a general uncertainty about the scope and responsibilities of the job. Kahn, Wolfe, Quinn, Snoek and Rosenthal (1964) found that men who suffered from role ambiguity experienced lower job satisfaction, high job related tension and lower self confidence. Similarly, French and Caplan (1970) studied 205 personnel at a NASA base and found that role ambiguity was significantly related to lower job satisfaction and feelings of job related threat to one's mental and physical health. In an organisational context, expectations have been divided in two categories: achievement and organisational. Achievement expectations refer to what an employee might expect to accomplish. Organisational expectations refer to the nature of the job and the organisational structure in which the individual operates. They may refer to expectations of rewards for good performance. When these are not forthcoming, this may lead to feelings of low personal accomplishment and burnout. As Jackson (1986) wrote,

"..people in situations where efforts repeatedly fail to produce significant results develop symptoms of stress and depression: where they no longer believe that their actions can and do make a difference, they quit trying."

Role conflict.

Role conflict occurs when individuals are required to play a role which conflicts with their values. Kahn et al (1964) have suggested that those in 'boundary roles'(links between organisational levels and departments) are particularly prone to experience stress. Kahn also noted that the boundary roles in an organisation are characterised by the requirement for communication, whether it is within the company, or between the company and the outside world. Such roles have high potential for conflict; as such, Margolis and Kroes (1974) found that foremen were seven times more likely to develop ulcers than shop floor

workers. Such instances in the Army may occur with senior non-commissioned officers (SNCOs) who are required to liaise between the officers and the soldiers. Role conflict may also occur when individuals are required to deploy on an operation which they do not agree with. A historical example would be the Army officer and poet Siegfried Sassoon in WWI, who wrote a letter to a national newspaper stating he did not believe in the continued fighting in France, yet still returned to fight.

Role responsibility.

Responsibility for people and responsibility for things can also be potential stressors. From the study of mental health referrals by occupation, it was those occupations which involved continual contact with and responsibility for people that were at high risk of mental health difficulties (Colligan, Smith & Hurrell 1977). Pincherle (1972) in a study of UK executives, found that physical stress was linked to age and level of responsibility; the older and more responsible the executive, the greater the probability of coronary heart disease risk factors or symptoms. The relationship between stress related illness and age could be explained by factors other than responsibility pressures; however, these may be more likely to be additive. For example, French and Caplan (1970) found that responsibility for people was significantly related to heavy smoking, diastolic blood pressure and serum cholesterol levels; the more people were responsible for 'things' as opposed to people, the lower were each of these coronary heart disease risk factors. The issues discussed in section 2.3.5 concerning the control and responsibility for people, which commanders in the Army experience, are similarly applicable to this section on role responsibility.

2.3.10 Career development

Career development can be divided into two major areas:

- (1) Those fundamental aspects of having work, including job security, fear of redundancy, early retirement,
- (2) Those aspects concerning work fulfilment, such as promotion, career ceilings.

Marshall (1977) labelled these as lack of job security and status incongruity. Career progression, with promotion, brings higher status and economic reward. The lack of expected career development is particularly related to stress in organisations which emphasise the relationship between career development and worth. Within a hierarchical organisation such as the military, it would be expected that a high value would be placed upon the attainment of higher rank. These career development factors have been related to adverse psychological effects in addition to poor physical health (Kasl and Cobb 1982). In a study of Naval personnel in 1965 Arthur and Gunderson found that promotional lag was significantly related to psychiatric illness. Robertson and Cooper (1983) believe that these fears give rise to stress if workers are unable to adapt their expectations to meet the reality of the situation.

2.3.11 Organisational function and culture

Organisational stress is, not surprisingly, connected to the organisation in which an individual works. As Cooper & Marshall (1976) stated, problem areas concern participation in decision making, sense of belonging, restrictions on behaviour and poor communications. Kasl (1992) identified certain aspects of an organisation which he believed to be hazardous to mental health: namely organisational size and structure, where a flat structure is believed to be hazardous, cumbersome with arbitrary procedures and role related issues. For example, a bureaucratic organisation which is hierarchical in nature, ensures that people adhere to a particular role. Due to its vertical distribution of power, employees have little influence on decision making, and there are delays in communication, which produce, at the minimum, apathy (Gruneberg 1979). French & Caplan (1970) found that individuals who reported greater opportunities for decision making reported higher feelings of self esteem, higher job satisfaction and a lower degree of perceived threat.

2.4 Home/work Interface

Work does not occur in a vacuum, but one's mental health is intrinsically linked to home and 'non-work' situations. In a meta-analysis, Rice, Near and Hunt (1980) found a positive

relationship between job and life satisfaction in over 90% of the studies they reviewed. In 1986, Hingley and Cooper stated that problems concerning the work/ home interface were mainly connected to the resolution of conflicts of demands on time and commitment, or concerning issues of support. The relationship between work and life stress or satisfaction has been subject to three main theories. The spill-over model assumes that job and life well-being are positively related, where an increase in one will lead to an increase in the other (Steiner & Truxillo 1987). The compensatory model states a negative relationship, where negative experiences in one field are compensated for by enriching the other area. For example, high career involvement can constrain high involvement in other life roles (Hall 1976). Finally, the segmentalist approach suggests that both areas are unrelated. Rice et al (1980) found that the importance an individual places on work will influence the job/life satisfaction relationship. That is, for those individuals who place a high value on work, the spill-over effect is most strong.

There is increasing recognition that there is substantial interdependence amongst personal and family well-being, recruitment, retention, job satisfaction and productivity in the military (Hunter 1982; Croan, Katz, Fischer & Smith-Osbourne 1989). Studies have shown that a soldiers' work and family roles may conflict, producing counter productive consequences for both institutions (Lopata & Pleck 1983; Gutek, Nakamura & Nieva 1981). Military personnel are subject to a high degree of interdependence between work and home life. As Segal (1986) notes, the demands the military place upon employees and their families are both unusual and extensive; including the risk of injury or death, lengthy and short notice separations, geographic mobility, foreign residency and normative restraints. The spouse has a particularly close connection to the soldier's job, as they often live in and are dependent on the military environment. Her views and feelings about the job and the perceived support the military offer, can considerably affect the satisfaction, retention intentions and psychological readiness of the military personnel (Bowen 1986). Furthermore, it has been found that increased organisational support for families increased the commitment of both the family and the soldier to the organisation in morale, retention and job performance (Orthner & Pitner 1986).

SUMMARY

Organisational stress has been the focus for this chapter, initially providing a definition of the concept. Notable models of occupational stress, Warr's Nine Factor Vitamin Model and Beehr's Occupational Stress Model, were then discussed and evaluated. The third section concentrated upon the various types of occupational stressors and highlighted the related research. Finally, the interface between work and home was discussed, illustrating the impact of work stress on home and vice versa.

CHAPTER 3

Traumatic Stress

Introduction

This chapter discusses the issue of traumatic stress, particularly in relation to the military. Part 1 relates a brief history of the existence of battle trauma, while Part 2 presents the definitions of Post Traumatic Stress Disorder (PTSD), Acute Stress Disorder and the military diagnoses of Combat Stress Reaction (CSR) and Combat Stress Disorder (CSD). Finally, Part 3 considers the rates and causes of stress reactions in the comparatively recent conflicts of WWI and WWII, Vietnam, Falkland Islands Conflict, Gulf War, Northern Ireland and UN peacekeeping operations. There have been few extensive British studies on the latter four conflicts, with many of the UN studies originating from Scandinavia.

3.1 History of Battle Trauma

The concept of traumatic stress has been described since the inception of war (Tomb 1994). The creative literature is rich with accounts of the psychological impact of war and traumatic stress reactions. Homer's poem, "The Odyssey", describes Odysseus' return to Ithaca following the Trojan war, relating his psychological and physical struggles, including flashbacks and survivor's guilt. There is evidence to suggest that psychiatric casualties were widespread during both the American Civil War (1861-1865) (Parsons 1988) and the Russo-Japanese War (1904-1905) (Spiller 1988). During the American Civil War there were many complaints and diagnoses of generalised weakness, heart palpitations and chest pain, referred to as 'soldier's heart', 'nostalgia' or 'home sickness'.

Throughout WWI, fatigue, exhaustion, anxiety and severe physical symptoms (such as blindness) were described. This 'shell shock' was thought to reflect profound, subtle brain damage, but also to have a significant psychological component, these being classified as battle fatigue or combat neurosis. Freud and Breuer (1895) initially described the term 'war neurosis' to describe the symptoms they observed in soldiers following combat; Freud believing that the precursor to war neurosis was an unresolved psycho-sexual developmental conflict (Figley 1978). This belief that stress reactions were neurotic or

hysterical in origin, with a significant component of pre-morbid personality, led to the concept that affected individuals were weak and lacked moral courage or fibre. On occasions, such personnel were executed for cowardice as an example to other troops in the Front Line.

During WWII many of the lessons learnt from WWI appeared to have been forgotten (Weber 1990). However, in 1944 a US Commission was established to examine the issue of war stress. They reported that the term 'combat exhaustion;' should be used as the diagnosis of a number of symptoms: fear, mental and physical fatigue, guilt, withdrawal, hypersensitivity, sleep disturbances, helplessness, anger and irritability (Parsons 1988). For those individuals with acute and persistent stress reactions it was still believed to be as a result of an interaction between predisposing and precipitating events in the psychic life and environment of an individual (Ellery 1945).

The conflicts in Vietnam, the Falkland Islands, the Gulf and in the Middle East/ Israel have all contributed to the understanding of combat stress reactions and the most effective way in which to deal with the problem in fighting troops and those returning home. These findings will be discussed later in this chapter, following a description of the classification of traumatic stress.

3.2 Definitions of Stress

It was in 1980 that the American Psychiatric Association first included Post Traumatic Stress Disorder (PTSD) in the third edition of the "Diagnostic and Statistical Manual" under Mental Disorders. Prior to 1980, DSM-I, published during the Korean War, categorised "Gross Stress Reactions", which covered situations where an individual had been exposed to demanding physical or emotional stressors, including combat (Figley 1978). In DSM-II the classification was replaced by "(Transient) Adjustments of Adult Life", characterised by running, trembling and hiding. Both Acute Stress Disorder and Post Traumatic Stress Disorder (PTSD) are identified within the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Combat Stress Reaction (CSR) and Combat Stress Disorder (CSD) are not defined within DSM-IV and specifically relate to

military combat situations, with either narrow or comprehensive definitions, dependent upon the application or the user. The implications of this changing concept and definition of PTSD are that pre-Vietnam, research on PTSD has incurred numerous methodological and diagnostic problems. Although casualty rates can be compared, it does not necessarily mean that the identical reaction is being compared.

3.2.1 Acute Stress Disorder

This diagnosis refers to the development of characteristics of anxiety and dissociative symptoms within one month after exposure to an extreme traumatic stressor.

3.2.2 Post Traumatic Stress Disorder

In the DSM-IV, PTSD is diagnosed in the event of an exposure to a traumatic event of which both of the following were present:

1. (a) the experiencing, witnessing or confrontation with an event or events that involved actual or threatened death or serious injury, or a threat to physical integrity of self or others.

- (b) the persons' response involved intense fear, helplessness or horror.

This traumatic event:

2. is re-experienced in a number of intrusive ways (e.g. dreams, 'flashbacks');
3. results in persistent avoidance of associated stimuli and numbing of affect (e.g. thought avoidance, feeling of detachment from others);
4. results in persistence of increased arousal (e.g. difficulty falling asleep, irritability);
5. the disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning;
6. these effects must be in evidence for at least one month post trauma.

It is possible to experience 'delayed onset' PTSD, where symptoms occur more than six months following the experience. PTSD can also be the result of sequential traumatisation of a number of exposures. Examples of potentially traumatic incidents within the British Army

could include road traffic accidents, bomb explosions, training accidents, hostage taking, involvement in firing incidents or involvement in humanitarian situations.

3.2.3 Combat Stress Reaction and Combat Stress Disorder

Combat stress reaction (CSR) and Combat Stress Disorder (CSD), are not defined as clinical entities within the DSM-IV, or the International Classification of Disorders (ICD-10). They are however, used by numerous researchers and by those working on military stress. Acute stress reaction and PTSD are wider definitions and hence encompass all the potentially traumatic stressors experienced by the British Army; that is from combat related deployments through to humanitarian deployments and training.

CSR defined is experienced 'in situ' whilst on active duty. CSR is an acute reaction, which is temporary and reversible and does not necessarily require medical attention. It has been defined as the inability to continue to tolerate the stress of combat, of which the primary causal factor is a perception of imminent external threat to one's life, inability to cope with the threat and a consequent uncontrollable feeling of rage and helplessness. The secondary factors are those which deplete the individual's personality resources and hence decreasing the ability to cope effectively with the problem.

Combat Stress Disorder (CSD) is a chronic and more profound psychological disturbance, which does not respond to the Proximity, Immediacy and Expectancy principles. [That is, supporting the individual immediately in theatre with rest and food and not treating the individual as though he has a medical problem]. It is a form of PTSD and hence must be apparent one month after the experience.

3.3 Rates and Causes of Combat Stress Reactions

3.3.1 Rates

Rates of combat stress reactions have been used as a measure of the severity of war, identification of those factors causing distress, the effectiveness of certain treatment

regimes and largely, in an attempt to identify means to intervene on either an organisational, or an individual clinical level. Appel, Beebe and Hilger (1947) believed that the incidence of battle casualties is an index of the intensity of combat, which, in turn, largely determines the incidence of psychological stress and ineffective behaviour of the remaining soldiers. Investigators of combat stress reactions since WWII have concluded that combat stress is the major aetiological factor responsible for psychiatric casualties. One way to investigate this is to correlate the number of direct casualties (e.g. ballistics or explosives) with indirect, or *psychiatric* casualties. This ratio is not constant, but dependant upon factors such as outcome of battle, intensity and duration. The Russo-Japanese War (1904-5) is purported to have first officially recognised combat stress casualties, said to have been 1,700 by the end of the first year (Spiller 1988).

3.3.2 Causes

Consistent with the premise that stress is only experienced if an individual perceives a situation as threatening and believes that they do not have the resources to cope with the event, then it follows that there is no checklist of events or experiences which all individuals will find to be stressful. However, there will be many experiences which are likely to cause distress to the majority of individuals, and once categorised, it may be possible for the Army to intervene in some manner (whether by psychological debriefing or treating the affected personnel in a dressing station). As Noy (1982) states, combat reaction is the result of a conflict between survival versus duty (Grinker & Spiegel 1945), where the soldier is unable to cope with the anxiety of potential annihilation. This conflict may become unbearable if the primary stressor, the threat of annihilation, is extreme, or when the soldier's strength has been eroded by secondary stressors. Noy (1982) believes that secondary stressors include physical and psychosocial dimensions. Physical stressors include temperature extremes, lack of sleep, food or water and extreme exertion. Psychosocial stressors included lack of unit cohesion, leadership or morale. Certain events and stressors have been found to increase vulnerability to psychological trauma: proximity to the traumatic event (Wilkinson 1983), witnessing or participating in war atrocities (Breslau & Davis 1987, Kuch & Cox 1992), exposure to grotesque death (Green, Grace,

Lindy, Gleser & Leonard 1990) and features of suddenness, unexpectedness and unpreparedness (Foa, Steketee & Rothbaum 1989).

Recent history has shown that British forces have to be prepared to deploy in a wide variety of geographical and humanitarian circumstances under varying mandates. This spectrum of operations spans from humanitarian support, through traditional peacekeeping and peace enforcement operations to warfighting. Although the varied nature of these operations ensure that there are likely to be some significantly different stressors, based upon the type and theatre of operation and the political mandate, there will also be a number of stressors common to each operation. This section will discuss the stress reactions reported in wars which have occurred this century, largely focusing upon those involving British military personnel.

3.3.3 WWI and WWII.

During WWI, by 1917 one seventh of all discharges for disability from the British Army were for mental disorders and 20% of the 200,000 soldiers on Britain's pension list suffered from a psychiatric disorder (Mareth & Brooker 1985). More alarming statistics in the US reported that in 1942, American Veteran Hospitals held more shell shock patients from WWI than any other category (58% of all patients).

It was during the First World War that the treatment of Combat Stress Reactions was characterised by the 'Proximity, Immediacy and Expectancy' (PIE) treatment paradigm (Salmon 1919). Prior to this, battle psychiatric casualties were evacuated rearwards and treated in military or psychiatric hospitals. Salmon established a method of treating psychiatric casualties near to the front. PIE stands for:

Proximity - where casualties are treated close to the front and their units

Immediacy - treatment takes place immediately the symptoms of stress render the soldier unfit for duty

Expectancy - throughout the treatment process the soldier is made aware that he is expected to return to his unit as an active combatant.

These principles are extant in the British Army today, where soldiers are kept as close as possible to the 'front'.

During WWII the annual admission rates for combat stress ranged from 20 to 40% of total casualties (Mareth & Brooker 1985). Beebe and Appel (1947) examined the records of 1000 British infantry personnel fighting in the Mediterranean theatre between 1943 to 1945. The records covered up to 80 days of combat, and showed that by day 80, 47% of the men had become militarily ineffective due to mental breakdown. Zeiss and Dickman (1989) found that 50% of a sample of WW2 Prisoners of War (POWs) exhibited serious difficulties with PTSD symptoms; this was apparent 40 years after the war. Treatment of psychiatric casualties in WWII was initially conducted at the rear; however, it was soon learned that those who had been evacuated developed chronic reactions lasting for long periods afterwards (Brill & Beebe 1952). It was then that division based psychiatry was introduced and the PIE method of treatment was re-established.

Appel & Beebe (1946) stated that the fear of being killed or maimed caused those soldiers left in combat to mentally breakdown and become ineffective soldiers. An even greater stress than the fear of death itself was stated to be the uncertainty of when death might occur. When a soldier is unable to retaliate (for example under sustained artillery fire), or during lengthy inactive periods (for example, waiting for a moment to attack), a soldier's fears and anxieties will tend to increase (Garner 1945), resulting in higher rates of psychological stress. Conversely, aggression may reduce fear and anxiety (Glass 1953), due to the individual perceiving an ability to control the situation to a greater extent. Archibald and Tuddenham (1965) found a high association between the experiences of war atrocities and persistent psychological disturbances among WWII veterans. Non-battle factors related to psychological stress during WWII were identified as isolation, boredom, inadequate diet, chronic physical discomfort, fatigue and physical illness (Menninger 1948).

3.3.3 Vietnam

Vietnam is of particular significance in the study of military trauma due to the high degree

of psychological and psychiatric research conducted during and after the conflict. Furthermore, US (and Australian and New Zealand) troops were fighting a guerilla war where they were not familiar with the territory, while the US public did not support US involvement in the conflict. Boman (1982) stated that from the beginning of the war the Americans pursued an active programme of early intervention and treatment of combat stress. The early official statistics appeared to support this, with rates of 12 per 1000 being cited. Boman (1982) studied the statistics available and found that although there was a combat exhaustion rate of approximately six percent, there was a 40% rate for character and behavioural disorders. As he noted, behavioural disorders incorporate bed wetting, anxiety, dreams, dissociative reactions and amnesia after explosions: remarkably similar to traumatic stress reactions. In 1989, Zeiss and Dickman claimed that the rate of PTSD for Vietnam Veterans was between 15-30%; Raphael and Middleton (1988) claimed this upper limit was 35%. Kulka et al (1988) estimated that 15% of 480,000 US male veterans were experiencing full PTSD symptomatology, with a further 11% experiencing partial PTSD. In 1982, Boman also noted that 30% of all male US Federal prisoners were Vietnam Veterans and suicide rates were 23% higher for Vietnam veterans than the general population.

Boman (1982) stated that fear of the unknown was a major contributor to war stress. He found that Australian support troops were more than twice as likely than combat troops to experience a combat stress reaction. He surmised that support troops knew little of what was outside the perimeter fence, so it was easier for them to develop unsettling anxieties and fear of possible dangers. This was unlike combat troops, who become experienced of danger. Grady, Woolfolk and Budney (1989) found that the witnessing of abusive violence against civilians or soldiers was one of the most powerful predictors of a diagnosis of PTSD.

3.3.4 Falklands War

There have been comparatively few studies looking at the effects of stress in the Falkland Islands Campaign (1982). This was a comparatively short campaign, lasting only 25 days, although there was a significant number of casualties. A total of 237 British personnel

were killed, with 777 wounded, of which 446 required significant hospital treatment. The Falklands Conflict represented a 'campaign', where troops deployed many miles away from home, engaged in physical combat and were exposed to difficult physical conditions (for example, there were many cases of trench foot). A major incident occurred when the Naval vessel, Sir Gallahad, was blown up, resulting in a high number of casualties, seriously impacting upon those in theatre.

In a study by Price (1984) he found rates of PTSD to be as low as 8% and suggested that this was due to a number of factors. In addition to the short period of the war, there was a high usage of elite military units (SAS, Parachute Regiment, SBS, Marines and Gurkhas), which Price felt would result in an increased level of unit cohesion and higher level of training. There was limited experience of indirect or direct fire or air bombardment and a largely unopposed landing with little general resistance. In 1991 O'Brien and Hughes studied those paratroopers remaining in service five years after the conflict, and found that 22% met the DSMIII criteria for PTSD and 57% showed caseness on the GHQ. In stark contrast to the earlier work, Omer, Lynch and Seed (1993) looked at long-term traumatic stress reactions in Falkland Island veterans and found the rate of PTSD to be as high as 86% caseness on GHQ and 60% endorsing criteria to reach DSMIII PTSD. However, this study must be treated with extreme caution as it was based on only 53 volunteers responding to adverts and by using a network sampling methodology. For both these latter studies the sampling models used do not allow generalisations.

3.3.6 The Gulf War

The Gulf War was a different kind of war, in that there was little hand to hand combat but a heavy reliance upon air bombardment prior to a ground attack. Compared to earlier wars, the Gulf War was unique in that it was a technological, coalition based conflict with a high media involvement. Many ground troops spent approximately four months in theatre, training in desert conditions, prior to the war. The heavy air bombardment lasted for over one month, leaving the Iraqi Army exhausted and largely depleted prior to the ground war; the Allied forces encountered comparatively little resistance. For the British ground troops the battle lasted only 100 hours. The number of British battle casualties was comparatively

low, accounting for approximately 20 personnel, many of which were caused by road traffic accidents and a friendly fire incident. There have been few studies on the British effects of trauma from the Gulf War, although the US has published a greater number. Wolfe (1993) stated that a few days after returning to the US, the prevalence of current PTSD was 3.2% and 9.6% in male and female Gulf War veterans, with corresponding figures of 9.4% and 19.8% 18 months later.

One British study looked at the impact of working on war graves on Army personnel (Deahl, Gillham, Searle & Srinivasen 1995), as did an American study by Sutker, Uddo, Brailey, Allain & Errera (1994). The latter study found that half of the 24 personnel studied met the criteria for PTSD and diagnosis for this was strongly associated with evidence of depression and substance abuse. Although there were comparatively few Allied casualties, there were a higher number of Iraqi casualties and a significant number of ground troops may have been exposed to their bodies. Perceptions of stress are often exacerbated by feelings of helplessness. The Israeli Defence Force (IDF) during the Gulf War adopted a passive role, required to restrain from any hostile activities. Certainly for the Israelis there was a collective sense of waiting every night for the bombs to fall, waiting like 'sitting ducks'. The threat of nuclear-biological-chemical (NBC) attack did act as a considerable stressor for many personnel, due to the unknown and unpredictable nature of the threat. In a study of 659 soldiers cited in a high risk area for missile attacks in Israel by Solomon, Margalit, Waysman & Bleich (1991), they found that elevated levels of stress symptomatology were related to a high level of perceived threat, a low level of perceived self efficacy, a low level of trust in Army authorities and a low level of support from the social network (particularly their commanding officers).

3.3.7 Northern Ireland

Similar to the Gulf War, there has been comparatively little research into the effect on soldiers of the British military involvement in Northern Ireland (NI). Lawrenson (1994) studied a British infantry battalion on a six month tour of NI, both before and after their tour of unattached duty. Results showed a significantly higher GHQ value and 'caseness', post deployment. High scores were associated with being young, having been in the Army

for a short time, no previous NI experience, and where depression alone was concerned, being single. Stressors associated with a rise in GHQ scores were working long hours, lack of sleep and job frustration. Prior to the cease-fire in NI, a roulement six month tour could be considered as dangerous, with a high threat level and a high degree of unpredictability. Bombs, sniper fire and ambushes were a real threat. The comparative integration of military personnel within the civilian environment and the inability to dichotomise between 'friend or foe' can all create an uncertain and alienating environment, particularly when embedded within a familiar country. Within the bases the living conditions are cramped, soldiers work long hours to strict routines which can also act as stressors. During the cease-fire soldiers did not go out on patrol to the same extent, spending greater amounts of time in the bases, experiencing a significant degree of boredom and frustration.

3.3.8 UN Peacekeeping Operations

The end of the Cold War has led to an increase in UN missions, with a greater British commitment to such operations. UN Operations bring with them a number of stressors, including role ambiguity, often the lack of a clear military aim and strong political mandate, high levels of bureaucracy and a sense of impotence to prevent military aggression or atrocities. Many of the studies looking at the effect of UN operations on military personnel are Scandinavian; Scandinavian countries and The Netherlands have been principle suppliers of UN personnel for many years. It should be noted however, that these studies may differ to a certain degree from the UK and US experiences as these countries maintain conscript armies. Professional Armies can select personnel, providing a greater degree of training, and generally possess a more cohesive military structure and unit mentality. Mehlum (1995) carried out a longitudinal follow up six years after UN Norwegian soldiers had completed a tour in southern Lebanon. Using the PTSS -10 as a measure of PTSD he found that 5% of the force were defined as having PTSD. Similarly, a Norwegian study on all personnel who had participated in the UN operation in Lebanon (UNIFIL study 1991) found that 5% of personnel displayed increased GHQ and PTSS scores. A study by de Swart, Willigensburg & van Alkemade (1995) studied 139 Dutch UN soldiers nine months or later after a deployment and found that 20% had psychological

problems on account of the mission, 5% were in therapy and 3% were suffering from chronic PTSD.

In a study of 3,500 Dutch peacekeepers who had participated in operations since 1975, Dirkzwager, Bramsen & van der Ploeg (1997) found that there were a number of variables indicative of PTSD symptomatology. Those stressful situations during the deployment significantly related to PTSD were rejection by local population, being held at gunpoint and a colleague being taken hostage. Dirkzwager et al (1997) found that the prevalence of PTSD was 4% of Dutch troops studied. In a Danish study on the psychological after effects of peacekeeping in Croatia (Bache & Hommelgaard 1994), found that soldiers had been exposed to numerous 'stressful' experiences. These included feeling themselves to be in mortal danger (41%), been threatened with arms (65%), witnessed attacks on civilians (33%) and 77% believed the mission to be hopeless. The authors found that psychological symptoms of avoidance were connected to experiences of powerlessness, symptoms of intrusion were connected with threats and increased alertness was connected to the occurrence of threats and feelings of powerlessness.

It can be seen that in a variety of war situations, the experiences and nature of combat stress reactions are manifest in largely similar ways,. The nature of the stressors will be slightly different in each context, although there will be common factors among them.

SUMMARY

This chapter initially considered the history of battle trauma, followed by definitions of traumatic stress. The remainder of the chapter concentrated upon the reported rates and causes of combat stress reactions, briefly considering WWI and WWII, Vietnam, Falklands War, the Gulf War, Northern Ireland and finally, UN peacekeeping operations.

CHAPTER 4

Individual Characteristics

Introduction

As mentioned in chapter one, the psychological approach to stress emphasises the need to account for the transactions between the individual and the environment, with consideration given to the psychological mechanisms influencing that reaction. What one individual perceives as a threat, another may find a challenge or not be unduly concerned. It is the reason for these differences in the perception of the environmental stimuli that are discussed in this section. Part 1 describes the relationships between the variables, while Part 2 provides a brief overview of the history of the relevant research, particularly with respect to the military. Part 3 then discusses these variables in classifications of biographical, personality and psychological characteristics, and environmental aspects and experiences.

4.1 Relationships Between Variables

The relationships between variables can be categorised into four: direct, confounding, moderating and mediating. A direct measure assumes that the variable has a direct impact upon the stress outcome, occurring independently of any other variables. A direct effect is tested by a correlation analysis, although high correlations do not identify causality, nor can they identify if a third factor is influencing both variables. A confounding effect occurs when a third variable exaggerates or confounds the effect of a variable upon the outcome measure. This acts to increase the size of the correlation. Many studies have found that if the 'nuisance' variable is controlled for, lower correlations result (Moyle 1995, Costa & McCrae 1987).

Moderating effects of stress refer to differences in the relation between two variables, for example, stress and strain, when considering a third variable, such as cohesion. In this instance, the confounding variable does not have a direct relationship with the outcome variable, but the effect depends upon the level of the nuisance variable. The effect of

moderating variables has been found by a number of researchers (Parasuraman & Cleek 1984; Moyle 1995). Interaction terms are generally used to test for moderating effects.

Mediating effects of stress refer to an intervening variable or a variable that contributes an indirect effect to the outcome. Thus, the mediating variable is betwixt the two other variables, encouraging the relationship between them. For example, it could be expected that an individual's personality characteristics will influence well-being measures, particularly in the occupational environment (Staw, Bell & Clausen 1986, Moyle 1995). Typical approaches to testing mediating effects of variables are regression analyses. This chapter will examine the mediating effects on stress in terms of biographical, personality and psychological characteristics and environmental variables.

4.2 History of Relevant Research

4.2.1 Differing approaches

The history of research into the mediators of stress can be classified into four approaches. Approach one presumes that personality characteristics dispose an individual to cope in certain ways that either impair or facilitate the components of adaptation. For example, Wheaton (1983) looked at fatalism and inflexibility, while Kobasa (1979) looked at hardiness. It has also been argued that there is little evidence that personality does actually influence the coping process (Cohen & Lazarus 1973; Fleishman 1984). The second approach focuses upon the way in which a person actually copes with a stressful event. For example, Billings and Moos (1984) found the use of certain coping strategies to be related to depression.

Thirdly, one can focus upon characteristics of the stressful situations that people experience. For example, considering situations where people continually have no control over the outcome may induce learned helplessness, and hence they become passive in their coping. Thus, it is a person repeatedly experiencing certain events which touch upon an area of vulnerability (for example, self esteem or pride) which have long term implications for well-being, rather than single isolated events. Finally, one can look at the relative

contributions of personality characteristics and coping responses to psychological well-being (Pearlin & Schooler 1978). They found personality characteristics to be of more help when individuals had little opportunity for control, such as work, whereas coping responses were more helpful in areas where a person's responses could make a difference (e.g. marriage).

4.2.2 Military Risk Factors

On the basis of the US Army's experience in WWII it was concluded that no-one is immune to the pathogenic effects of war (Beebe & Apple 1952; Grinker & Spiegel 1945), but a relatively small number of soldiers experience breakdown. Numerous studies have been carried out with the aim of identifying factors which render soldiers more susceptible to breakdown in combat, however, most of these studies have been unsuccessful in identifying a particular pre-morbid predisposition (Glass 1957; Cooperman 1973). Egan (1951) studied the records of over 2000 men who had been rejected by Selective Service Boards as unsuitable for military duty one or more times, but were subsequently accepted; 79.4% of these men served successfully. Brill and Beebe (1952) believe that superficial psychiatric screening can only make a limited contribution to the control of psychiatric casualties during a war. Induction screening should be done only to remove the very obvious misfits or psychiatrically ill, and that a 'trial by duty' is the only real test for doubtful or borderline cases.

The IDF (Israeli Defence Force) compute a 'military prediction score' when a soldier is first drafted. This is a composite score of personality variables such as punctuality, sociability, independence and motivation to serve in a combat unit. Their study identified those most at risk to be 26 years of age or older, of low military rank or education, with a low measured suitability to combat. This is in contrast to the younger, more high ranking and educated soldier which IDF tests have found more suitable for combat. Solomon, Noy & Bar-On (1986) found that 80% of the psychiatric casualties of the 1982 war in Lebanon, were Reservists. In contrast, career soldiers have the lowest percentage of psychiatric as opposed to physical problems. Maybe careerists have more to lose and be more concerned with stigma. Reservists may be more susceptible as they are requested to make

more of a drastic transition in time of war, compared to soldiers on compulsory or permanent service; reserve units also have less unit cohesion and identity (identified as a mediator against stress (Mullins & Glass 1973)).

4.3 Individual differences

4.3.1 Biographical variables

4.3.1.1 Gender

Higher symptom levels of stress have generally been found in women (Linden et al 1986; Rosenfield 1989, Thoits 1987). This has been linked to the fact that women tend to report a higher level of distress symptoms (Miller & Kirsh 87: Baum & Grunberg 91), rather than having a higher level of mental health problems. Some research suggests that women are more likely to experience certain stressors to a greater degree than men. Adverse discrimination, stereotyping and low self esteem problems have all been found to occur to a greater extent in females (Kroes 1982, Nelson and Quick 1985; Campbell and Brown 1992). Wortman, Biernat and Lang (1991) considered the role overload of female professionals with pre-school children, looking specifically at role conflict and role strain. The average frequency of such conflicts for the females was twice to three times more frequent than their husbands. Jenkins (1991) argues that it is not the effect of stress upon men and women which is different, but the amount of stress.

4.3.1.2 Age

Many studies have considered the relationship between age and mental well-being, although findings are not conclusive. One study (Warr 1990) found that as age increased, so did mental well-being. This promotes the “ageing stability hypothesis” (Glenn 1980), where individuals become more emotionally stable as they become securer in their life, and experiences allow them to place events into context. This supports a Swedish study looking at combat stress, which found that younger soldiers, under the age of 20, were most at risk (Kettner 1972). Boman (1982) studied the statistics available on Vietnam and

found that 80% of combat stress casualties were between 19 to 23. Conversely, a Norwegian study on soldiers who had completed a UN tour of duty, found that slightly older soldiers were more likely to be repatriated from UN service (Joint Medical Service, 1992). Both these studies were based upon conscript armies, where individuals volunteered to deploy on UN service. This is different to the British Army, which has an all-volunteer force, providing a more extensive period of training for all its troops. Thus, direct comparison between these studies and the British Army is of doubtful significance.

4.3.1.3 Marital status

The social support literature suggests that married people are relatively protected from life situations when compared with single people (Gove 1972), illustrating the moderating influence of marriage on mental health outcomes. Marital status has consistently been implicated in the development, course and recovery from psychiatric disorder (NIMH 1975), and military studies have maintained that marriage is a resource for social coping (Hunter & Nice 1978; Figley & Sprenkle 1978). Card (1987) found PTSD to be associated with divorced, separated and single marital status. Although, it is the quality of marital and family interaction which will determine the prediction for the psychological adjustment and post deployment re-integration (Kadushin & Boulanger 1981; Hendin & Haas-Pollinger 1981).

However, in another study looking at IDF soldiers in the Lebanon, Solomon et al (1987) found the reverse to be true. Married CSR casualties had a higher number of PTSD symptoms than unmarried CSR casualties. Kushnir and Melamed (1992) also support this in their study on burnout of Israeli civilians during the Gulf War. They suggested it could be the result of greater emotional and physical responsibility and concern for family members, as suggested by the 'burden of care' concept (Rooke, Dooley & Catalano 1991). This 'burden of care' can also be illustrated by the effects of stress discussed in chapter one, where crossover and spill-over of stress occurs within the family. In the military context, particularly on operational deployments, it is generally perceived that married personnel will experience greater separation difficulties. However, it may be that single personnel with partners experience greater anxiety as they feel their relationship may not

be as secure, being more concerned whether their partner will 'wait for them' for six months. The situation is exacerbated by the general lack of recognition by the Army system of the importance of partners, and the comparative lack of provision for single soldiers over welfare issues.

4.3.1.4 Rank or position in the organisation

Position in the organisation may well have an impact upon the development of stress problems or disorders; influencing factors may be experience, status or financial rewards. In the military, which is highly rank conscious, one may expect a higher degree of mental health difficulties to be found amongst lower ranked soldiers. In a study by Solomon et al (1991) on 659 Israeli soldiers during the Gulf War, they found that no officers sought treatment for traumatic stress reactions (16% of officers were in overall group). There was also found to be very low rates of acute stress reaction of IDF officers during the 1982 Lebanon war (Solomon, Noy & Bar-On 1986). Officers are required to pass stricter screening procedures and undergo more extensive training, and generally, the more senior in rank the greater control the individual has over their working environment. However, by seeking help, officers, particularly career officers, may feel they have more to lose in terms of social stigma, effect upon their career and reduced self esteem. They may therefore be more unwilling to admit or seek help concerning a stress problem.

4.3.2 Personality and psychological characteristics

The dynamic equilibrium theory predicts that enduring personality characteristics, such as neuroticism and extraversion, will determine to a large extent, individuals' pattern of daily work experiences (Warr, Barter & Brownbridge 1983), their use of coping strategies (Bolger 1990) and levels of psychological well-being (Costa & McCrae 1984). Although this theory is largely personality based, it also states that there is a continual interaction between coping strategies and daily work experiences (Lazarus & Folkman 1984). Studies looking at the development of PTSD have identified certain personality traits which increase susceptibility to the disorder (McFarlane 1988; Gibbs 1989) and these are discussed in turn, below. Hart, Wearing and Headey (1995) found the personality

characteristics, neuroticism and extraversion, to be the strongest determinants of psychological distress and well-being in a study on police officers.

4.3.2.1 Negative Affectivity

Negative affectivity is a disposition towards low self esteem and negative emotionality (Watson & Clarke 1984), where individuals focus upon the negative aspects of persons and the world, with a tendency to experience high levels of distress. Negative affectivity largely incorporates the concepts of both neuroticism and self esteem, both of which have been found to be indicative of poor mental health (McFarlane 1988, Parkes 1990). Neuroticism is a trait reflecting emotional vulnerability, pessimism and a general tendency to react negatively to life and work stressors. Those individuals scoring high on neuroticism are more likely to worry, are typically nervous, emotional, insecure, feel inadequate and hypochondriacal. Evidence suggests that the “negative affectivity” characteristic of neurotic individuals may act to inflate correlations between self reports of perceived work stressors and symptoms of distress (Brief, Burke, George, Robinson & Webster 1988, Burke, Brief & George 1993). Recent work has tended to emphasise the need to control for the confounding effects of neuroticism prior to examining stressor-outcome relations (e.g. McCrae 1990), rather than examining the role of neuroticism as a moderator of stressor-outcome relations. Empirical findings, however, indicate that both confounding and moderator effects of neuroticism are relevant (Parkes 1990).

4.3.2.2 Extraversion

Extroverts appear to be significantly more tolerant to negative life change and stressful situations (Duckitt & Broll 1982). Extraverts tend to be active, talkative, person-oriented, optimistic, fun loving and affectionate. HumRO team (1950) reported on a large survey carried out behind the battle lines in Korea found that the effective fighters were more extravert than non-effective fighters.

4.3.2.3 Trait Anxiety

Trait anxiety is a stable measure of anxiety, nervousness and restlessness, which tends to reflect personality make-up, rather than a changing state measure (Spielberger, Gorsuch, Luschene, Vagg & Jacobs 1983). A trait anxious person is more likely to perceive a situation as threatening, in addition to reacting to it with high levels of state anxiety (Rappaort & Katkin 1972). However, there have been criticisms against these findings. Endler & Shedletsky (1973) found no consistent differences in the reactions of high and low trait anxious subjects, and claim that this is due to the measure used. They used a multi-dimensional measure (S-R Inventory of Anxiousness, Endler, Hunt & Rosenstein 1962), as opposed to either the Spielberger, Gorsuch & Luschene (1970) measure or the Taylor Manifest Anxiety Scale (1953), which are used in the vast majority of studies on trait anxiety. It is argued by Stokes & Kite (1994) that greater research is needed concerning the precise nature of trait anxiety, its causes and relationship to other personality factors.

4.3.2.4 Type A Behaviour

Type A behaviour was originally described by Friedman and Rosenman in 1974, characterising behaviour prone to impatience, hostility, irritability, job involvement, competitiveness and achievement striving. There is considerable research both supporting and against the relationship between Type A and mental health. Type A bus drivers have been shown to have more accidents, absenteeism, official reprimands and self reports of occupational stress (Evans, Palsane & Carrere 1987). Its role in the prediction of cardiovascular disease has been studied most widely (Matthews & Haynes 1986) and the balance of evidence tends to suggest a positive relationship between the Type A pattern of behaviour and adverse health outcomes (Suls and Sanders 1988). Factor analytic studies have identified several components of Type A behaviour, control, anger and hostility being the main factors. These components do not necessarily correlate highly, raising questions as to the validity of the overall Type A-B classification (Powell 1987).

4.3.2.5 Hardiness

Hardiness was conceptualised as a personal 'resistance resource' which enabled individuals to remain healthy in spite of stressful life and work circumstances (Kobasa 1979, 1982a). Kobasa, Maddi and Kahn (1982) described it as "a constellation of personality characteristics that function as a resistance resource in the encounter with stressful life events". It includes three components: control, commitment and challenge. Kobasa et al claim that hardiness is associated with a tendency to perceive potentially stressful events in less threatening terms. Allred and Smith (1989) and Pagana (1990) believe that hardiness has two appraisal components, that it reduces the appraisal of threat and increases the expectations of successful coping.

Hardiness has been widely cited as a factor mediating the impact of stress on individuals. Shepherd (1989) studied social workers assisting victims of Piper Alpha and Clapham Common train crash and found hardiness to be the single most predictive factor of well-being and traumatic stress reactions. Similarly, Bartone, Ursano, Wright & Ingraham (1989) in a study of Army officers assisting families of victims of the Gander Air Disaster also found hardiness to significantly relate to psychological well-being. Florian, Mikulincer, Taubman (1995) studied Israeli recruits on hardiness, mental health, cognitive appraisal and ways of coping at the beginning and end of a four month training period. They found that commitment and control pre-training predicted post training mental health, through mediation of appraisal and coping variables. Hardiness may predispose persons to appraise the combat training in less threatening terms, to view themselves as more capable of coping with it, and to rely upon more problem focused and support seeking strategies.

Florian, Mikulincer & Taubman (1995) conclude that commitment allows people to remain involved in the situation and control leads them to deploy active efforts to find effective solutions to the problematic situation. A person with a high sense of commitment may feel a strong impetus to remain in the situation and confront the demands and consequences. This attitude is reflected in the individual's refusal to adopt escapist coping techniques, like distancing or other emotion focused strategies. They believe that challenge

is an independent component of hardiness, not related to control and commitment, and therefore should be eliminated from the hardiness concept.

Criticisms.

The validity of hardiness as a concept has been questioned as it combines three diverse constructs in a single scale (Carver 1989). Several independent studies have failed to substantiate the role of hardiness as a moderator of the stress-illness relationships (Roth, Wiebe, Fillingham & Shay 1989, Schmied & Lawler 1986). Hull, van Treuren & Vernelli (1987) have criticised hardiness as a three component constellation, with each contributing equally to mental health. They found that the challenge component had low correlations with the other two. Research has found that hardiness did not moderate the relationship between work related stressors and outcomes, but did have direct effects on psychological well-being (McCrairie, Lambert & Lambert 1987, Manning & Fullerton 1988). It could be argued that hardy people may not be less ill, but less inclined to acknowledge illness because of the positive image of themselves. However, Rhodewalt & Zone (1989) found no association between hardiness and the likelihood of reporting any particular stressful life event.

A further criticism concerning hardiness is that when the effects of negative affectivity have been partialled out, there ceases to be a relationship between hardiness and mental health (Funk & Houston 1987, Rhodewalt & Zone 1989). This implies that lacking in hardiness may be due to psychological distress or neuroticism, rather than independent characteristics which influence mental health. However, recent studies have found that although measures of hardiness and neuroticism are highly correlated, they are considered to be distinct constructs (Weibe, Williams and Smith 1990, Williams, Weibe & Smith 1992).

4.3.2.6 Locus of Control

Locus of control (LOC) is described as the extent to which individuals believe that outcomes are determined by personal effort and ability rather than by external influences,

such as fate or powerful others (Rotter 1966). Paulhus (1983) stated that there were three behavioural domains within the locus of control, those being personal, interpersonal and socio-political. LOC is linked to the concept of hardiness (Kobasa, Maddi & Kahn 1982). Numerous studies have found LOC to be a significant influence mitigating the harmful effects of stress on stressors such as shock or aversive noise (Glass, Singer & Friedman 1969, Lefcourt 1976). Westman & Etzion in a study looking at burnout crossover from military officers to their working wives, and vice versa, found that a sense of control had the highest impact on their own burnout and on their spouse's burnout. Thus the spouse's sense of control was found to be an additional resistance resource working to the benefit of the other partner. Amongst a group of accident victims, those with an internal LOC appeared to cope more effectively with the accident and took more responsibility for their own recovery (Bulman & Wortman 1977). This is reinforced by the work of Amirkhan (1990) and Parkes (1984) who maintain that an internal LOC is associated with greater use of active, problem focussed coping strategies.

4.3.2.7 Mastery

Mastery is a measure of the sense of control which an individual feels over the environment and reflects an element of self confidence. It has been found to be a mediating factor in mental health (Pearlin & Schooler 1978) and feelings of control (Paton 1989). Mastery develops when individuals are exposed to stressful events which they succeed in overcoming by their own actions (Bandura 1977). Helplessness is aroused when the opposite occurs and repeated attempts at coping result in failure (Maier & Seligman 1976). Training programmes on stress can help develop a sense of Mastery. These take away the unknown aspects of the event and illustrate to individuals that they can actively deal with certain stressors. This sense of Mastery over an event can enhance coping and promote feelings of well-being as a result of seeing events as contributing to professional and personal competence (Taylor 1983).

4.3.2.8 Sensation seeking

Sensation seeking, like the challenge component of hardiness, may predispose individuals to perceive change positively and to actually seek it out. Smith, Johnson & Sarason (1978) on college students, found that those with a tendency to seek out novel or challenging experiences, decreased the relationship between stressful events and illness. A related concept is an individual's tolerance of ambiguity. McGrath (1976) reported that stress was highest for those individuals who perceived that they were uncertain as to whether they would win or lose and vice versa. As Lyons (1991) found, those individuals who could tolerate ambiguous situations were less likely to experience stress. This is likely to be relevant to the military on peacekeeping or humanitarian missions, as the very nature of the deployments are often ambiguous with varied requirements and situations.

4.3.2.9 Self Esteem

Self esteem is a measure of confidence and belief in oneself, with low levels of self esteem suggesting feelings of low self worth and helplessness. In a police sample, Perrier & Toner (1984) highlight the individual's need for self esteem and self confidence in buffering the effects of stress. They emphasise the value of peer support in bolstering self esteem and confidence, enabling the police officer to tolerate higher levels of anger, hostility and abuse from others. Folkman, Lazarus, Dunkell-Schetter, Delongis & Gruen (1986) used the Self Esteem scale (Rosenburg 1965) and found it to be highly correlated with Mastery (Pearlin and Schooler 1978), $r = 0.65$. Thus, it is likely that these factors are measuring similar constructs.

4.3.3 Environmental influences

Stress is emphasised as a relationship between an individual and the environment. In addition to the personality characteristics which an individual will bring to a situation, there will also be numerous other influencing factors based upon previous experiences and demands that have been made upon the individual. These include factors such as the occurrence of a significant life event, prior experience of trauma, group cohesion and the

provision of preparatory information. Many of the mediators of psychological stress can include those factors which produce stress, examples include leadership, supervisory support and work relationships. Good leadership and communication can act as a buffer against stressful situations, particularly in the military (Solomon, Margalit, Waysman & Bleich 1991).

4.3.3.1 Significant life events

A significant life event is an event which has had a strong and notable effect upon an individual. Examples would include death of a family member or friend, birth of a child, or perhaps moving house. A significant amount of research has accumulated which suggests there's a link between stressful life events and both psychological and physical morbidity (Dohrenwend & Dohrenwend 1974, Gentry & Kobasa 1984, Rabkin & Struening 1976). It is believed that a previous difficult event may impact upon the current coping capacity of an individual, and subsequently the resources that may normally be utilised by that individual may already be strained to a significant degree. Hence, the effects of any current problems may be worsened. Pearlin, Menaghan, Lieberman & Mullan (1981) proposed that life events created stress through the negative effects on self concepts and self esteem. In a study on police officers, stressful life events in the period preceding a major incident were found to increase the traumatic reactions of police officers (Shepherd & Hodgkinson 1990).

Holmes and Rahe (1967) devised the Social Readjustment Rating Scale as a means of measuring recent life events, and found that scores increased prior to the manifestation of stress related illness. This method has been widely used as a measure to establish the degree of stress an individual is under. However, the assumption underlying this measure is that all individuals perceive the same events to be stressful, whereas the fundamental tenet of stress is that it is an interaction between the individual and the environment and dependent upon how the individual appraises the event. The correlation between stressful life events and illness is generally 0.3, with particularly high standard deviations (Rabkin & Struening 1976), emphasising the simplicity of the scale. Furthermore, Kobasa (1979) demonstrated that many people remained healthy even when subjected to particularly high

levels of life event stress, suggesting that the occurrence of a significant life event would account for only a small degree of variance of stress reactions. In a study by Lazarus and DeLongis (1983), they found that daily hassles were more predictive of negative health outcomes than major life events, suggesting that a general wearing down and level of strain was likely to be a major factor in the onset of stress reactions.

4.3.3.2 Prior Experience of trauma

Studies of psychological and somatic responses to stress offer a number of competing, and often contradictory, views on the effects of repeated exposure to stress. This is an important concept to study in the military, as it impacts upon whether the Army should re-deploy personnel on operational tours if they have prior experience of trauma. Furthermore, there is a degree of stigma attached to personnel who have experienced stress, and many personnel believe that the individual will not be capable of dealing with any further difficulties, hence may be a liability in a future high pressure situation. There are four general perspectives concerning the impact of prior experience of trauma on an individual, which shall be discussed below.

(1) *The vulnerability perspective* considers that repeated exposure to stressful events are a risk factor. With each stressful event available coping resources may decrease, thereby increasing vulnerability to physical and emotional disturbances (Selye 1976, Vinokur & Selzer 1975). This is similar to Lord Moran's concept of a bank account of courage and that every individual has a limit which they can bare.

(2) *The stress inoculation perspective*. This assumes that repeated exposure to stress has a positive effect on mental health and coping since it acts as an immuniser. This view holds that multiple stressful experiences contribute to the development of useful coping styles. Each similar stressful episode increases familiarity, leading to a decrease in the amount of perceived stress and thereby facilitating more successful adaptation (Janis 1971; Epstein 1983). Animal studies have shown that when an animal is repeatedly exposed to a stressor, the animal begins to show reduced behavioural responses to the stressor. Studies have also shown a cross tolerance effect occurs (Chen & Amsel 1977; Weiss & Glazer 1975),

illustrating the immunisation effect to a variety of stressors. Gray, Davis, Owen, Feldon & Boarder (1981) believe that this shows that animals can develop tolerance.

(3) *The stress resolution hypothesis* states that it is the outcome of the earlier stressful experience and not the mere exposure to stressful events, that determines their impact on subsequent coping and health. According to Block & Zora (1981), successful resolution of a stressful episode leads to a feeling of well-being and an increase in coping resources. In contrast, an unsuccessful outcome leads to increased distress and a decrease in coping resources. This is supported by the mastery and learned helplessness research. For example, soldiers with previous CSR may interpret their previous breakdown as a failure to cope with the stresses of war. This so-called failure results in low self efficacy, thus enhancing the soldier's vulnerability.

(4) *Battle intensity as a suppressor or amplifier.* This approach is concerned with the intensity of the current stressor. The suppressor model advocates that stressful situations which are life threatening require undivided attention on the current stressor to facilitate survival. It postulates that the potency of an extreme stressor modifies or even eliminates the effects of the previous stressful events (Rouch, Chandler & Harter 1980). Hence, under conditions of high battle stress, previous combat experiences will make no difference to coping. They will only have an effect in less threatening conditions. The amplifier model contends that both the detrimental and favourable effects of past stressful experiences become more salient as the severity of the battle increases. Under higher levels of stress the effects of past combat experiences are amplified by the massive demands on coping resources. Thus, a decrease in coping resources produced by past combat experiences may render the soldier more vulnerable to combat stress. In contrast, under low levels of battle stress soldiers can work through the distress with fewer coping resources.

Solomon, Mikulincer & Jakob (1987) studied repeated exposure to combat on combat stress reaction during the Lebanon war in 1982. They found that CSR was related to the psychological outcome the soldier experienced in previous wars. The CSR rate was higher amongst those soldiers who had experienced an episode of CSR in a previous war than soldiers with no past combat experience. CSR rates were lower among soldiers who had

experienced a previous war and not had an episode of CSR. High intensity of combat was found to increase both the detrimental and favourable effects of the prior combat experience, supporting the stress resolution model. In subjects who had experienced a prior CSR episode, the risk for current CSR increased proportionally and linearly with the number of previous war experiences. In soldiers without prior CSR, the relationship was curvilinear. Soldiers who actively participated in one or three tours had higher rates of CSR than those who had participated in two tours. The reasons for this latter finding are unclear.

4.3.3.3 Expectations

Although expectations are described within the context of role ambiguity, it is considered that in addition to potentially being a cause of stress, expectations are also a mediator of stress reactions. Expectations are fundamental to the perception of stress. McGrath (1972) viewed stress as stemming from an imbalance between demands and capabilities and emphasised the significant role played by the individuals expectations in determining such imbalance. Lazarus (1966) maintains that an environmental demand will induce stress only if the individual expects that he will be incapable of dealing with it.

Kern (1966) posed the existence of two opposing attitudes concerning expectations:

- 1) Confidence attitude: which is the ability to cope with the environment, thereby having the capacity to remove or neutralise the threat
- 2) Despair attitude: which is the expectation of having to bear the impact of the threat.

Kern believes that the intensity of each of these attitudes is a function of two components, a general and a specific one. The general refers to the individual's past experience with situations involving threats. Repeated experiences of success or failure in neutralising threats will determine the expectancy of the individual, in a relatively consistent manner. The specific component derives from the characteristics of the particular event, which convey information about the intensity of the threat and the feasibility of removing or neutralising it. However, this theory has been criticised for suggesting that both expectancies are bipolar and independent. Keinan (1986) believes that the confidence expectancy derives from a cognitive evaluation, which can be carried out even when the

individual is not emotionally or physically aroused. In a study in a military training context, she found that confidence expectancy could be employed as a predictor of performance in risky situations.

4.3.3.3 Group cohesion

Group cohesion has been defined as “the resistance of the group to disruptive forces” by Gross and Martin (1952), who argued that emphasis should be placed upon the strength of relationships or bonds among members during periods of crisis. Cohesion has many similar functions to social support (Griffith 1997) and is a component of morale. Morale is also concerned with the will to work towards a particular goal and reflects a positive reaction to the surroundings. Ayalon (1978) studied terrorist infiltration into Israeli civilian settlements in 1972-77 and found that group cohesiveness and leadership were factors upon which reactions to threats of life, health and self esteem were dependent. Similarly, group affiliation was described by Chodoff (1970) and Dimsdale (1973) as important in the coping of Jews during Nazi persecution. Similarly, Mullins & Glass (1973) and Noy (1982) found that group cohesiveness and group leadership were important buffering variables.

Cohesion is considered to be a multidimensional construct, including commitment to task (Mullen & Cooper 1994), “task cohesion” (Cota, Evans, Dion, Kilik & Longman 1995) and an action component (communication, teamwork and collective action - Siebold 1993). Cohesion is related to increased performance (Mullen & Cooper 1994) and decreased strain. Solomon, Mikulincer & Hobfoll (1986) and Marlowe (1979) argued that cohesion can be best seen during stressful times (e.g. in battle). In their study on combat stress casualties, Solomon et al (1986) observed among veterans of the Israeli-Lebanon conflict, that affective support by team members was related to CSR casualties only through its effects on individual soldier’s feelings of loneliness. Bache & Hommelgaard (1994) in their study on Danish peacekeepers in Croatia found that good relations between group members resulted in fewer personnel with PTSD symptomatology.

4.3.3.5 Preparatory information

“Past experience in the form of familiarity with the situation, past exposure to the stressor condition, and/or practice or training in the responses to deal with the situation, can operate to effect the level of subjectively experienced stress from a given situation, or to modify the reactions to stress.” (McGrath 1976)

Research has been conducted in a variety of settings which suggest that receiving preparatory information prior to a stressful event can reduce negative and detrimental responses to stress. Studies have shown that providing realistic information concerning the job and organisation decreased environmental and role ambiguity (Gruneberg 1979), in addition to having a positive effect on job satisfaction and less employee turnover (Scott 1979). Further research undertaken in a military setting (Inzana, Driskell, Salas & Johnston 1996) found that the provision of preparatory information resulted in less anxiety, fewer performance errors and greater confidence in their ability to perform the task, in both high stress and normal stress conditions. In the study by Ayalon (1978) on Israeli civilians infiltrated by terrorists, Ayalon concluded that previous preparation to cope with stressful situations minimises the psychological damage of such traumatic experiences.

In the context of the military, managing uncertainty is a key leadership skill, particularly prior to an operational deployment. Fundamentally, pre-deployment training attempts to provide soldiers with the skills and information to perform their required roles. This can then bolster individual confidence and belief that they have the skills and ability to cope effectively with potential situations and the work that is required of them. It is the provision of *realistic* information and preparation which is of benefit to soldiers, as this will influence evaluations of the operation and not create false aspirations or fears. Preparatory information covers

- (1) sensory information, regarding how the individual may feel,
- (2) procedural information, concerning the event that may occur, a description of the setting and what effects the stressors may have,
- (3) instrumental information, what to do to counter the undesirable effects of stress.

SUMMARY

This chapter has considered individual differences and mediators which have been highlighted to influence the perception and onset of stress reactions. The chapter has broken such mediators into four areas: individual differences, personality and psychological characteristics and environmental mediators/ experiences. Relevant research in the these areas has been identified and discussed in the context of their influence on the stress process.

CHAPTER 5

Coping Techniques

Introduction

This chapter will discuss coping, initially describing the concept of coping, particularly in relation to cognitions. A number of theories and classifications of coping techniques will then be discussed, highlighting those of Lazarus et al (1966, 1980, 1984) and Pearlin and Schooler (1978). Brief descriptions will then be provided of popular forms of coping, in addition to some of the factors which influence the variability of coping strategies used.

5.1 Coping

5.1.1 Coping

Coping refers to an individual's efforts to deal with a situation that they perceive to be stressful. Folkman, Lazarus, Dunkel-Schetter, DeLongis and Gruen (1986) defined coping as:

“the person's constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources.”

Coping has been argued to have three main features (Lazarus 1966). Coping is a process, that is, it is what the person actually thinks and does in a stressful encounter. It is context dependent, in that it is influenced by the particular encounter and by the resources available in that encounter. Finally, coping is described *as* a process, in that it is defined independently of whether it was successful or not. Dewe and Guest (1990) maintain that coping strategies have not received a thorough analysis in occupational stress research. They believe that this may be due to the fact that there are inherent difficulties in studying individual coping strategies, since they are “not necessarily manifest in observable behaviour and can include intra-psycho processes.”

5.1.2 Cognitions and traumatic events

A fundamental aspect of coping is a cognitive one, that of assimilating experience and/or changing basic schemas about oneself and the world. Past empirical research on coping with negative life events has tended to focus upon the role of attributions (e.g. Baum, Fleming & Singer 1983; Meyer & Taylor 1986). Schemas underlie these attributions and can also be considered as “assumptive worlds” (Parkes 1971) or “world models” (Bowlby 1969). These all refer to a basic conceptual system, developed through experiences, that provides us with expectations about ourselves and the world. Schemas act as pre-existing theories, providing a basis for future expectations and guiding us to remember certain features in the environment or our experiences, in addition to influencing the interpretation of new information (Fiske & Taylor 1984). Epstein (1973) believed that there is a fundamental need for maintainability and stability in our conceptual systems. It is change in these most fundamental schemas, deeply embedded within our conceptual system, that is at stake in the case of traumatic life events (Janoff-Bullman 1989). Traumatic or deeply stressful experiences lead to an examination of those assumptions that had previously been relied upon. Fundamental to a healthy personality is the “it can’t happen to me” belief, providing us with a feeling of invulnerability. This belief can break down when exposed to a traumatic situation.

Janoff-Bullman (1989) explains that the coping task facing individuals is largely a cognitive dilemma. Either they must integrate their experience into their pre-existing assumptions, or change their entire conceptual system. In order to make the incompatible information understandable, perceptions of self blame and positive re-workings of the event occur. Denial can be a valuable tool in coping with an event, as it slows down the change process, moderating the attack on the individual’s basic assumptions (Janoff-Bulman & Timko 1987). Horowitz (1980) recognises the importance of denial in reducing threatening information into tolerable doses. He also argues that intrusive, recurrent thoughts are being stored in active memory, to be worked on until “completion’ occurs. Denial and recurrent thoughts are therefore mutually dependent regulating processes. It is through these recurrent thoughts that the individual is actively trying to process the information.

5.1.3 Coping impact upon mental health

Williams, Weiberand and Smith (1992) found that coping acted as a mediator between personality and mental health. Coping may be a stronger predictor of health outcomes than personality, as coping measures are directly concerned with the strategies individuals are attempting to use to manage stress, whereas personality is assessed by reference to more general attitudes, beliefs and behaviours (Parkes 1994). Lazarus and Folkman (1984b) suggested three ways in which coping may adversely affect somatic health status:

- (1) Coping can influence the frequency, intensity, duration and patterning of neuro-chemical responses.
- (2) Coping can involve the use of injurious substances such as excessive use of alcohol, smoking, drugs, or when it involves the person taking physical risks.
- (3) Certain forms of coping (particularly denial type processes) can impair health by impeding adaptive health/illness related behaviour.

5.2 Theories of Coping

5.2.1 Lazarus Coping Theory (1966)

Lazarus's theory of coping focuses on the transactional nature of stress and coping, the relationship between the person and the environment. Furthermore, by describing coping as a process, as discussed in Part 1, the dynamic and developing nature of both the coping strategies used and the situation itself, are emphasised. This is in direct contrast to the 'trait approach' to coping, which emphasises the dispositional characteristics which influence coping strategies (e.g. Kobasa 1979). Due to the comparative inflexibility of the trait approach, it is unable to adequately predict coping strategies in the long-term, thereby lacking longitudinal predictive capabilities (Folkman 1982).

As discussed in Chapter 1, stress is experienced by an individual when there is a perception of threat to the self. Inherent to this process is primary and secondary appraisal, with primary appraisal assessing whether there is a problem or not, and secondary

appraisal assessing the various coping strategies that are available to the individual. Thus, during secondary appraisal, the coping process has begun.

As with the majority of coping theories, Lazarus and colleagues attempted to classify coping reactions and ways to measure the coping responses. With regard to classification of coping reactions, Lazarus (1966) divided these into two: direct action oriented and purely cognitive defensive manoeuvres. Direct action oriented reactions occur when an individual directly addresses the cause of the problem, thereby attempting to reduce the threat. This grouping is divided into a further four categories of actions aimed at strengthening the individual's resources against harm, attack and avoidance, and inaction. The initial category of strengthening one's resources against harm refers to choosing a coping strategy which will allow the individual greater perceived control or mastery, of the threatening situation. Protection against attack refers to those strategies used to prevent harm occurring in the first place, such as some form of attack or aggressiveness against the threat. Avoidance refers to the avoidance of any contact with the anticipated stressor; with fear being the main coping response in this category (Lazarus 1966).

The last category in this grouping, inaction, occurs when an individual is either incapable of reacting to a stressor, or feels this is the best route for them at the time. No action occurs on the part of the individual, where feelings of apathy and resignation are apparent. Finally, cognitive defensive manoeuvres, or reappraisals, occur when individuals attempt to cognitively deceive themselves about the threatening situation. Such activities include denial, isolation and rationalisation, where individuals 'reappraise' the situation, evaluating it as unthreatening.

5.2.2 Classification of coping

Lazarus and colleagues (Folkman and Lazarus 1980, Lazarus and Folkman 1984) divided coping strategies into two main groupings: problem focused and emotion focused. Problem focused coping refers to actively dealing with the problem, where behaviour is concerned with either attempting to change the stressful situation or manage it. The emphasis is therefore upon constructive or confrontative behaviours. It has also been

called a strategic approach to coping, with a cycle of activities described (Cox 1987). Recognition and diagnosis of the problem constitutes the initial step, then actions and evaluations are undertaken and finally, re-analysis of the situation. Problem focused coping is believed to be an effective method of coping in many situations as it allows the individual to confront the issue and potentially change the situation. Latack (1986) found that across three types of role stress (role ambiguity, conflict and overload), individuals reporting active, positive ways of managing stress were less likely to report job related anxiety, dissatisfaction and a willingness to leave the organisation. Parkes (1990) found a direct effect of direct coping on GHQ scores, showing a buffering effect upon mental health (stressors considered were work demand and work support).

In contrast, emotion focused coping is concerned with regulating emotion, with behaviours which will reduce the feelings of stress. Examples include drinking, excessive exercising or seeking social support. Due to the lack of focus on dealing with the stressor itself and merely concentrating upon the reaction, this has been argued to be a less effective method. Many studies have found that emotion focused coping tends to be maladaptive, whereas problem focused coping tends to be adaptive (Billings & Moos 1984; Hart et al 1995).

The concepts of problem and emotion focused coping are similar to those of action oriented and cognitive defensive, respectively, described above in Lazarus' earlier work. Although coping is divided into two classifications, this does not mean they are mutually exclusive. Individuals can use both emotion focused and problem focused methods within one situation, the combination of which is illustrated by the term 'coping patterns' (Folkman & Lazarus 1980).

This focus upon only two factors of coping behaviour has been criticised by Cox and Ferguson (1991). Cox and Ferguson believe that cognitive appraisal should be included as a further category, similar to the initial stage of Billings and Moos' (1982) three part model on coping. Lazarus (1991) argues that although cognitive appraisal is not explicit in their categorisation, emphasis is placed upon the appraisal process within their coping theory, in addition to the inclusion of appraisal scales within their research (Folkman & Lazarus 1982).

5.2.3 Pearlin and Schooler (1978)

Pearlin and Schooler (1978) have concentrated on the purpose of coping, dividing coping into categories based on the effects an individual hopes to achieve. The three categories are changing the situation, responses that change the meaning of the situation so that a stressful consequence is less likely and responses that control the stressful consequence after it has occurred.

Changing the situation refers to attempts to modify or change a stressful situation. Examples cited by Pearlin and Schooler include negotiation in a marriage and discipline in parenting; another example would be changing jobs if the job was causing problems. Although the authors found that adopting this route was associated with reduced levels of stress, it was also found to be the least frequently used coping strategy. Pearlin and Schooler believed that this could be because individuals may often lack the ability, knowledge or capacity to change the situation, or because they may fear negative consequences if direct action is taken; it may also be that the situation is not amenable to change.

By changing the meaning of the situation, the individual's perception of the situation as stressful can be changed. Examples of such strategies are positive comparison and selective ignoring. Positive comparison refers to comparing one's situation with another, worse off, individual's situation. Selective ignoring refers to changing the focus of the situation from a negative aspect to a positive aspect. With respect to a working environment, an employee may focus upon the high rates of pay if they are finding the work understimulating.

Finally, reducing the negative impact of stress includes behaviours such as avoidance of the problem, denial, ventilating feelings, avoiding talking or thinking about the issue or excessive drinking. By not focusing on the stressor and trying to decrease the symptoms, the situation can appear to be less stressful in the short term. Such methods have generally been found to be maladaptive to mental well-being and can contribute to the development of acute and chronic distress (McFarlane 1988a). Similarly, Kobasa (1982) found that

withdrawal, smoking, drinking and use of medication were associated with maladaptive outcomes, while Rick and Guppy (1994) found the use of avoidant strategies to be significantly associated with perceptions of poor health.

However, avoidance can be adaptive if individuals have little control over events, particularly in the workplace (Parkes 1990). In Vietnam, soldiers implemented measures of their own to deal with or vent their anger, frustration and fear. Drug abuse, violent activity directed towards their comrades, insubordination (Boman 1982), abusive violence towards enemy and non-combatant indigenous populations (Grady 1989) were all apparent to comparatively high levels.

With regard to the utilisation of coping strategies in varying situations, Pearlin and Schooler (1978) found there to be differences in effectiveness in the coping strategies used. With regards to work, it was found to be more effective to devalue the work, placing work and its stressors in a secondary place. It was also found that the type of personality of the individual was important in coping with stressful situations effectively; confidence and a sense of control were successful characteristics.

5.3 Variability of Coping

5.3.1 Situational coping

The choice of and successful use of these coping responses is determined by the nature of the situation (Mattlin, Wethington & Kessler 1990), the personal and social resources available and the type of reasoning adopted by the individual's appraisal process. Evidence tends to suggest that coping efforts across different types of situations are more variable than stable. Menaghan (1982) found greater support for specificity of coping according to roles rather than generalised coping styles across role areas. Recent research tends to focus upon contextual coping, and suggests that the use of emotion or problem focused strategies depends on the person-environment fit (Folkman & Lazarus 1985). Folkman describes coping as a dynamic process, and argues that much research looking at stress fails to consider the changes in emotional response and its effect upon coping strategies.

In situations not amenable to personal control, emotion-focused or avoidant coping strategies may be adaptive (Wong and Kapoupek 1986; Collins, Baum & Singer 1983), but if some control of the situation is possible, problem focused strategies appear to play a major role (Forsythe & Compas 1987; Vitaliano 1990). For example, coping strategies that are effective in domestic and marital settings may fail to alleviate distress in occupational settings, or do so only to a certain extent (Menaghan & Merves 1984, Pearlin & Schooler 1978). There are, of course, constraints within organisational settings which may limit possibilities of constructive action by individuals. In the 1986 Pearlin & Schooler study they discuss how when individuals felt their self esteem to be at stake, they used more confrontative coping, self control, escape avoidance and accepted more responsibility. 'Planful problem solving' was used more when people thought they could change the situation for the better, while distancing was used more in encounters not amenable to change. In conclusion, most authors generally do not state that a particular type of coping is the most effective; it depends on the situation.

5.3.2 Stage Approach

Edwards (1988) considers adaptive coping to be the capacity to use different strategies to meet the demands of different phases of a continuing stressful transaction. Bolger (1990) used an examination situation as a basis for a longitudinal study on coping; he found changes pre and post examination stages and that the patterns depended on the level of neuroticism of the individual. The ability to use both active and passive coping may lead to less fatigue and other costs of coping (e.g. physiological) than exclusive use of either style (Cohen 1986). Folkman and Lazarus (1980, 1981) assessed coping responses over a series of episodes for each individual, to examine the extent to which patterns of problem /emotion focused coping were replicated across episodes. They concluded that individuals were more variable than consistent in their coping behaviour. Several other studies have examined consistency/ flexibility in appraisal coping; Patterson, Smith, Grant, Clopton, Josepho & Yager (1990), found that higher levels of consistency were associated with higher levels of negative affectivity. This reinforces the argument that an inflexible approach to coping strategies is in fact maladaptive.

5.3.3 Measuring coping

The measurement of coping responses tends to focus upon lists of coping techniques with respondents asked to rate their use with respect to examples of each technique. A common measurement is the Ways of Coping Checklist (Lazarus & Folkman 1966), which lists 66 cognitive and behavioural coping strategies, largely looking at those attempting to change the situation and those regulating emotions: problem and emotion focused. This scale has had a significant impact, but there are now more psychometrically sound scales. Carver, Scheier and Weintraub (1989) developed a measure where coping strategies were grouped into ten categories: active coping, suppressing competing activities, positive reinterpretation, acceptance, seeking social support, seeking instrumental support, denial, focusing on emotions, behavioural disengagement and mental disengagement. Edwards and Baglioni (1993) believed there were five groups of coping responses: changing the situation, devaluation, avoidance, symptom reduction and accommodation.

5.4 Coping strategies

A number of coping strategies, or styles, have been discussed in earlier sections of this chapter, addressing styles such as problem and emotion focused coping, avoidance, direct action and cognitive defensive coping, and changing the situation as well as the meaning of the situation. A number of specific coping strategies will be discussed below in order to highlight the range of commonly used coping techniques. Suppression, social support, humour, physical exercise and working things out alone will be briefly discussed.

5.4.1 Suppression

Suppression refers to attempts to repress stressful situations, generally by not addressing the problems. Parkes (1990), in her studies on teacher trainees, found that high levels of suppression were associated with low GHQ scores, irrespective of levels of perceived environmental stress. This is consistent with Valliant (1976) and McCrae and Costa (1986) who found the potential adaptive significance of suppression as a coping mechanism. Suppression is likely to be effective in situations where people have little or no control

(Collins, Baum & Singer 1983). However, it may be that suppression is associated with lower levels of experienced distress, or it may just reflect a tendency to suppress or under report symptoms that are experienced. In a military context, Shatan (1973) observed that a numbing and denial affect may well have made the levels of reported combat neuroses during times of conflict, lower than in reality. Because of rotational systems of tours of duty, soldiers could utilise these defence mechanisms during periods of non-combat in order to maintain normal functioning. These processes have been found to be capable of controlling stress reactions for prolonged periods after the war experience. This could in part, explain the occurrence of delayed onset PTSD.

5.4.2 Social Support

Social support can be defined as the support accessible to an individual when needed, in the form of relationships to individuals, groups or the community at large (Lin, Simoene, Ensel & Kuo 1979). Social support involves significant others giving tangible support in the form of material assistance and information, and advice and guidance that helps the individual function effectively in daily life (Cutrona 1990). Social support allows an individual to believe that he is cared for, esteemed and valued, and belongs to a network of communication (Kirmeyer & Doagherty 1988). Leiter (1991) suggested that not only does social support enhance an individual's sense of well-being, but that the absence of social support is in itself a stressor. Social support may be the most effective way in operationalising individual strategies for coping under stress, by asking for advice and talking over possible actions and impact. Finally, support influences coping by enhancing an individual's mood, facilitating and validating feelings towards the trauma and assisting in cognitive reappraisal (Lyons 1991, Dyregrov 1989).

Seeking support from others is considered to be one of the most effective coping strategies (Taylor 1983; Durham, McCammon & Allison 1985; Paton 1989). Cobb (1976) found that those who utilised social support were less likely to be stressed. Social support has been associated with positive personal adjustment and physical health, as a main or direct effect (Cohen & Wills 1985). Keane, Scott, Chavoya, Lamparski and Fairbank (1985) found that PTSD symptomatology is significantly related to social isolation and reduced social

support. Social support in the working environment is critically important in moderating or attenuating the adverse effects of organisational stressors on personal functioning (Kobasa & Pucetti 1983). Indeed, Lazarus and Launier (1978) found social support to be more salient to morale, health and social adjustment than the frequency and severity of the stressor itself.

5.4.3 Humour

Humour can be an effective defence mechanism against stress (Kaplan & Saddock 1989). It generates a feeling incompatible with distress and anger and generally lowers tension. Humour is often used as a temporary means of coping with an event, to allow individuals to continue working; this is generally seen in the police and other largely male dominated professions (Alexander & Wells 1991).

5.4.4 Physical Exercise

Nowack (1991) reports that physical activity and exercise significantly contribute to an individual's sense of well-being. Brown and Siegal (1988), in a longitudinal study of stress and well-being, found that the negative effects of stress on health declined as exercise levels increased. They suggest that feelings of mastery, control and self efficacy increase with exercise, and that these affect well-being. Companies where physical fitness programmes have been provided for employees, have found an improvement in health levels, as measured by lower absenteeism and fewer consultations with doctors (Marshall & Cooper 1981). The military, of course, places a high value on physical fitness, although there is a large range of fitness levels within the Army.

5.4.5 Working things out alone

Alexander and Wells (1991) reported that the most common method of coping among regular police officers was working things out on their own. They found it was the least helpful means of coping for the Piper Alpha disaster. Often people experiencing traumatic

reactions retract from each other emotionally and interpersonally, which is symptomatic of traumatic stress.

5.5 Individual Differences in Coping Strategy Use

Cox and Ferguson (1991) state that individual difference variables have been studied as either components of the appraisal process, or as moderators of the stress-health relationship. Differences in coping are therefore likely to be a fundamental aspect of individual differences in the process of stress. These are discussed in detail in Chapter 4, while gender and age difference will be discussed below with respect to coping techniques.

5.5.1 Gender differences

There have been numerous studies investigating differences in coping style utilised by males or females. Folkman et al (1987) found that men were more likely to use coping strategies involving self control, while women more frequently used social support. Parkes (1990) found that men were more likely to use suppression, while Rick and Guppy (1994) found that female civil servants more frequently used problem focused coping and seeking social support. Generally, Pearlin and Schooler (1978) found that women reported less use of effective strategies and greater use of “selective ignoring”, which tends to exacerbate stress. Billings and Moos (1981) also found that women tended to use avoidant coping strategies. Other research suggests that men tend to take direct action, whereas women used distraction and relaxation (Folkman & Lazarus 1980, Pimely & Novacek 1984). In contrast, Parasuraman and Cleek (1984) found that female managers reported greater use of adaptive coping strategies (planning, seeking information and setting priorities). Thus, it appears that the evidence is not conclusive, although it tends to support the notion that males use direct strategies to a greater extent, while females may use avoidant or social support methods more.

5.5.2 Age and personality differences

With regard to age, Rick and Guppy (1994) found that older employees reported more frequent use of problem focused coping and less frequent use of seeking social support. It could be that older individuals have more confidence and experience to deal with problems the most effective way that they can. Furthermore, it may be that older people feel they are unable to burden their support structure with their problems, as they feel they should be able to cope on their own. Considering personality measures, high extraversion and low neuroticism have been found to predict the use of those strategies judged to be more effective (McCrae & Costa 1986). Type A personalities tend to report greater use of active coping, planning and suppression than do Type Bs (Carver et al 1989, Latack 1986).

SUMMARY

This chapter initially discussed the concept of coping and its impact upon mental health. Two notable theories on coping were highlighted, those of Lazarus (1966) and Pearlin and Schooler (1978). 5.3 considered the variability in coping methods used by individuals, while 5.4 briefly discussed a number of coping strategies and their relationship to mental health. Finally, a number of individual differences in coping strategy utilisation, in terms of gender, age and personality were highlighted.

CHAPTER 6

Intervention Strategies

Introduction

As the prevalence of stress research has increased, research on the management of stress and associated interventions has also increased (Palmer and Dryden 1994). As Cooper and Cartwright (1994) describe, the increase in stress management interest has expanded beyond academia

“In the last few years there has been an explosion of health promotion or ‘wellness’ programmes in US and UK industry. Such activities as exercise, stress management training, smoking cessation and counselling are encouraged by virtually every medium available - radio, TV, magazines, books - and are taking place not only in the home, schools etc, but also in the workplace.”

This chapter will address intervention strategies for both organisational and occupational stress. There are a number of approaches: those concerned with the focus of the intervention and those concerned with the level of the intervention. These are briefly discussed, with examples of secondary level intervention with respect to training and psychological debriefing, discussed in greater detail. Finally, good practice for organisational intervention is highlighted.

6.1 Focus of Intervention

6.1.1 Overview

There are a number of approaches to the management of stress. Many authors make a distinction between those objectives which focus upon the organisation or the individual (e.g. training in coping techniques) (Ivancevich & Matteson 1986). DeFrank and Cooper (1987) conducted a review of worksite stress management programmes discussing those interventions and outcomes of each approach. Broadly, they found that these can be divided into three categories: those interventions which are concerned with changing the

individual, changing their relationship with the organisation, or changing the organisation itself.

Newman and Beehr (1979) posit a more complex model along three dimensional lines. First, the management is focused at either the organisation or the person; this is termed the primary target. The nature of the response refers to whether the treatment would be preventative or curative, while the adaptive response refers to whether the person, the organisation, or an outsider performs the intervention. The advantage of this approach is that it is able to incorporate both the focus, purpose and agent of the intervention.

6.1.2 Individual focus.

Many reviews have found that most stress management interventions are individually focused, designed for managerial and white collar workers and concerned with changing the worker as opposed to the work itself (Ivancevich, Matteson, Freedman & Phillips 1990). There are a number of approaches that individual stress management interventions can take:

- (a) Educational. This involves a conceptual overview of stress, its causes and manifestations. This may also include certain stress management techniques.
- (b) Cognitive-behavioural techniques. These include stress inoculation (Miechenbaum 1972) and anger control (Novaco 1975). This is based upon the rationale that the way an individual conceptualises the situation will determine their emotional reaction.
- (c) Anger reduction strategies, utilising some form of relaxation training.
- (d) Personal skills training, such as assertiveness, time management or negotiation.

The outcomes of this approach are to improve an individual's mood and physical health, decrease sleep disturbance and reduce subjective experience of stress. Ganster, Fusilier and Mayes (1982) carried out a muscle relaxation study on public sector employees and found effects on the level of epinephrine and depression; these results did not fade after four months. Murphy (1983) conducted a study on 28 nurses, assigning them to biofeedback, progressive relaxation training or a self relaxation (placebo or non-specific effects) control group. It was found that no treatment was superior to the others and there was no apparent

overall effects on a variety of psychological strains, self reported behavioural strains and self reported performance, either in the short term or three months later. Murphy (1984a) believes there are strong indications that these programmes are effective in reducing both physical and psychological manifestations of strain, either post-intervention or relative to a control group.

This approach places the responsibility for stress problems on to the individual, by providing the employees with the necessary skills to cope with any problems that may arise. Such a focus may be both preventative and curative, in the sense that if employees possess the skills to deal with a stressful situation, this may lessen the perception of threat or helplessness, in addition to helping employees to cope with an event once it has occurred.

6.1.3 Individual / organisational interface focus.

The individual/ organisational interface is the second category of workplace intervention identified by DeFrank and Cooper (1987). This approach concentrates upon the boundary between work and the individual, considering such factors as the person-environment fit, relationships at work and issues such as participation and autonomy. This category would be included within the organisational primary target dimension of Newman and Beehr's (1978) model. Outcomes associated with this level are concerned with decreased burnout and absenteeism, and improved job satisfaction, productivity and performance (DeFrank and Cooper 1987).

6.1.4 Organisational focus.

Interventions at the organisational level consider issues such as the structure and climate of the organisation, selection and training, job characteristics and job rotation. Outcomes include improved productivity, greater recruitment and retention success and fewer healthcare claims. An example would be a study by Jackson (1983, 1984) which assessed the impact of holding twice monthly staff meetings in a hospital. She conducted a four month follow up and found that both role conflict and role ambiguity had been reduced by

the intervention. As mentioned above, organisationally targeted interventions are utilised to a lesser extent than individually targeted ones; Ivancevich, Matteson, Freedman and Phillips (1990) reviewed the literature and found only four reports of organisationally targeted occupational stress treatment programmes.

Ideally, preliminary research should identify those areas which are causing individuals stress in the organisation and focus the stress management intervention accordingly, incorporating the response within an organisational perspective. It is argued by Hart (1995) that consistent with the findings on police officers (Hart et al 1995) and teachers (Borg 1990), that the organisational context in which people work is more important than the work itself in determining psychological outcomes. This suggests that an organisational, rather than an individual approach is more likely to benefit personnel overall. However, as Beehr (1995) states, the organisational causes of stress are largely ignored, perhaps as these are often more difficult to address.

The difference between the individual and organisationally targeted treatments is important to ascertain. Individually targeted treatments do not alter the cause of the problem, merely dealing with the symptoms. If organisational changes are necessary and not implemented, then the effects-oriented treatment (such as relaxation training) will need to be implemented on a permanent basis.

6.1.5 Criticisms

Many of the evaluations of individually targeted stress management programmes are often unclear as to whether the problem is one of occupational/ organisational stress (Beehr 1995). Programmes involving employee counselling which are available at a place of work, are not always involved with organisationally specific problems, but include welfare difficulties, problems at home and existing personal or trait difficulties. When account is not made of organisational and non-organisational problems, it is not possible to assess them within an occupational stress treatment context. A further criticism by Beehr (1995) is that studies on occupational stress treatment methods often fail to measure or identify job stressors (or do so inadequately). Thus, the main criticism appears to be the

assumption that problems are occupational stress problems. The effectiveness of combinations of treatment strategies also needs to be assessed, looking at combinations of individual and organisational strategies (Beehr 1995).

6.2 Objectives of Stress Management

6.2.1 Overview

There are at least three distinct sets of *objectives* which have been adopted by organisations in managing workplace stress and its health effects (Cox et al 1990, Cox 1993). This is an alternative way to classify stress management interventions and will therefore overlap with some of the interventions described earlier in this chapter. Primary interventions are concerned with prevention; for example, control of hazards and exposure to hazards by design of the work place or the job, ergonomics, risk assessments or generalised stress management training. Secondary interventions can be described as 'timely reaction'. These are often based upon management and group problem solving, in order to improve the organisation's ability to recognise and deal with problems as they arise. Finally, tertiary interventions are concerned with dealing with the effects of stress and helping people to recover. Examples would include counselling and employee assistance training.

6.2.2 Primary intervention

Murphy, Hurrell and Quick (1992) concluded that job redesign and organisational change remained the preferred approaches to stress management, because they focus upon reducing or eliminating the sources of the problems in the work environment, rather than expecting the worker to just deal with it. This can be difficult for many organisations to change, particularly large and bureaucratic organisations with a strong tradition. The military falls within this category, where each job is role based and highly dependent upon hierarchy. Murphy (1988) reviewed a number of interventions which addressed the nature and design of the work environment (e.g. Wall & Clegg 1981; Jackson 1983). Wall and Clegg considered worker control over the work process, while the study by Jackson found

that increased participation in decision making resulted in significant reductions in role ambiguity and role conflict.

6.2.3 Secondary intervention

Secondary intervention involves education, training, increased awareness and having structures in place to deal with any difficulties that may arise. MacLennan (1992) describes how an American bank was experiencing problems of high turnover, sickness absence and low productivity. The organisation formed 'action teams' from each area, trained them in problem solving and identification and rotated employees on and off the teams to ensure equal participation. Within the first year turnover was reduced from 50% to 25%.

6.2.3.1 Psychological Debriefing

Psychological debriefing is included in the secondary intervention category as it is a process which could be implemented automatically (or be a mandatory requirement) following a traumatic incident, ideally 24 to 48 hours post incident. Psychological debriefing occurs within a group meeting of people who have experienced a traumatic incident, in an attempt to reduce unnecessary psychological after effects. Dyregrov (1989) and Mitchell (1983) have advocated methods of psychological debriefing or 'critical incident stress debriefing', which tend to follow a similar approach. Initially the debriefer will perform introductions and establish the rules of the session, for example, total confidentiality is required and participation is not forced. Individuals then discuss the facts of the incident, their experiences, and then their emotional reaction to it; the debriefer can probe these. During the fifth stage of normalisation the debriefer ties together the impressions and reactions the participants have spoken about, discussing the commonality of the experiences and reactions, thus re-inforcing individuals' sense of being normal. The debriefer must then turn to the future, considering coping strategies and mobilising support from families and friends. Finally, disengagement must occur, where any unattended areas are discussed, questions can be raised and information on when and how to seek further help is given.

Psychological debriefing has considerable intuitive appeal as it is a structured form of social support which has the capacity to normalise the experiences of the individual. Despite its ever increasing popularity, there is little systematic evidence that the process decreases levels of symptomatology (Raphael, Meldrum & McFarlane 1995). Many of the problems lie with the lack of adequately evaluated and controlled trials. Many of the trials which attempt to systematically evaluate the effect of psychological debriefing have found that there are few statistically significantly positive benefits (Deahl, Gillham, Thomas & Searle 1994; Watts 1994). In a study on emergency workers who were surveyed one year after attending serious bus crashes, nearly one half of those personnel who were debriefed still reported considerable symptoms; furthermore, those who had been debriefed had significantly higher scores for morbidity and distress on the GHQ and IES (Griffiths & Watts 1992). A further longitudinal study of nearly 200 people following an earthquake showed similar findings (Kenardy, Webster, Lewin, Carr, Hazell & Carter in press). Two years after the event those who had been debriefed showed less improvement in symptomatology over time, although they did report the debriefing as helpful.

Raphael, Meldrum and McFarlane (1995) discuss that debriefing may increase problems perhaps because the debriefing process focuses on the trauma, medicalises responses to stress by calling them symptoms and does not take into account individual's personality, coping styles and psychological morbidity. However, psychological debriefing does appear to be effective in terms of individuals' subjective responses, in that many feel that expressing their feelings helped them overcome some of the difficulties.

6.2.3.2 Re-adjustment following an operational tour

Similar to the occurrence of a discrete traumatic incident, completion of a military operational tour and the subsequent return home to 'normality' can also create significant re-adjustment problems. Immediate integration within a family group and re-acceptance of societal norms and way of life upon return can be particularly difficult. Boman (1982) suggested a number of strategies to aid re-integration for returning combatants:

- (a) Gradual transition to a non-combat role
- (b) Re-orientation to civilian roles and routines

- (c) Formal ceremonies acknowledging dimensions.
- (d) Sharing of experiences with immediate unit group
- (e) Forewarning of veterans of new stressors associated with transition
- (f) Maintenance of meaningful non-combat roles.

Boman believed that (d) and (e) could occur within a formalised debriefing process. The remaining strategies should perhaps be standard procedures within a military unit. In order to achieve this a greater awareness of stress is needed in all military personnel, particularly those in command positions. Thus, the organisation should provide education on stress throughout the career cycle.

6.2.4 Tertiary intervention

Tertiary intervention involves providing support and assistance to individuals once they have a mental health problem. Examples include Employee Assistance Programmes (EAPs), of which alcohol problems are the most common form of EAP, although employee counselling is part of all EAPs (Winkelpleck 1984). Given that the traditional emphasis on EAPs is one of employee counselling, it follows that this intervention is primarily an individually focused method.

6.2.4.1 Counselling

Counselling is aimed at helping people cope with their personal and work lives better; it is not an organisational level intervention and therefore organisational issues such as sources of pressure and job satisfaction are unlikely to be affected by counselling interventions (Highly & Cooper 1996). The benefits of counselling for police officers is well reported (Waters 1990, Duckworth 1990). The Post Office introduced a counselling service due to concerns over levels of mental health within the organisation. This was evaluated by Cooper and Sadri (1991), who found that following treatment, those personnel who came forward for counselling showed significant improvements in both mental health and reduced sickness absence. There were no improvements in outcomes such as job satisfaction or organisational commitment.

Highly and Cooper (1996) compared results from counselling across nine organisations and found that after counselling, clients reported improvements in work related mental health and physical well-being. They found no change either in job satisfaction or sources of pressure. Thus, they concluded that overall, counselling can be effective in helping individuals, but does not necessarily have a measurable impact at the organisational level. As Rick, Hillage, Honey and Perryman (1997) stated, that while counselling helps the individual to cope with their situation, it should not be done in isolation from the job characteristics that may be contributing to the problem.

6.2.4.2 Treatment of PTSD

Tertiary intervention also includes treatment of disorders such as PTSD. With PTSD, once diagnosed, some form of treatment is required. When a traumatic stress *reaction* is apparent, the disorder has not crystallised and, with quick simple treatment, emotional first aid can be given, without hospitalisation (or evacuation) and an expectation that the individual will get better. Under these conditions the individual is likely to improve noticeably (Proximity, Immediacy and Expectancy; Salmon 1919). However, once the trauma has become a disorder and has been apparent for more than three months, treatment is more difficult. Horowitz (1986) argued that early intervention of trauma related stress can reduce stress levels, and quite possibly prevent delayed or chronic stress reactions such as PTSD. There are a number of ways in which PTSD can be treated, including using psychotherapy (focused and short term), drugs and cognitive-behavioural methods.

6.2.4.3 Cognitive-behavioural treatment.

With regard to behavioural treatment, Fairbank and Nicholson (1987) identified two practices; exposure therapies or relaxation strategies. Exposure therapies include systematic desensitisation or flooding, and controlled exposure to associated stimuli. Stress management and relaxation strategies focus on controlling the symptoms. Marshall (1986) identified a number of treatment needs:

- (a) Re-experiencing the traumatic event, preferably with someone who has 'been there'

- (b) Identifying the emotional content of the memories and their impact now.
- (c) Examination and acceptance of facts
- (d) Examine how the event affected their values system, self judgement
- (e) Development of a positive self image and management of specific problems arising from PTSD experience.

The British Royal Navy founded a four week Post Traumatic Stress Management course (PTSM) at Haslar in 1987. The course adopts a cognitive behavioural approach, focusing on education of anxiety management and relaxation techniques. Analysing data from 194 military course attendees over the previous seven years, Nevison, Flower and Naish (1996) found there to be significantly fewer reported symptoms in a number of instances. Using the General Health Questionnaire (Goldberg & Hillier 1979), the Beck Depression Inventory (Beck et al 1961) and the Impact of Events Scale (Horowitz et al 1979), there was a general trend for a decrease in symptomatology at the end of the course, with a gradual rise to the three month follow up assessment. They conclude that, despite methodological problems inherent in a post hoc analysis, the lack of a comparison group and the decrease in sample size at each stage of the study, the course made considerable advances in improving the lives of those PTSD sufferers.

6.2.4.4 Biochemical treatment

Some psychiatrists believe that a biochemical approach to treatment of PTSD is effective. Fairbanks and Nicholson (1987) found a depletion of noradrenalin during exposure to prolonged stress, surmising that this may be linked to “learned helplessness”. This depletion of noradrenalin may lead to adrenergic hyperactivity, therefore the individual becomes susceptible to over-activation following transitory stimulation. This sensitivity could account for the contradictory behavioural patterns of decreased motivation and lethargy in addition to the hyperactive symptomatology (e.g. exaggerated startle response, intrusive thoughts, nightmares and uncontrollable anger) experienced by PTSD sufferers. Monamine oxidase (MAO) inhibitor has been used as a potential chemical intervention. MAO acts as a catalyst on the breakdown of reabsorbed noradrenalin in the adrenergic neurones. It has also been suggested that one could supplement soldiers’ diets with

tyrosine, which is a precursor of noradrenalin, found in common foods (Salter 1989). Other drugs which have been used to treat PTSD include Amytryptiline and Fluoxetine.

6.3 Good Practice for Intervention

When considering an ideal framework for intervention, it is useful to look at the legal requirements concerning hazard control and risk management. The Regulations for the Control of Substances Hazardous to Health 1988 (COSHH) and its subsequent amendment in 1990, require implementation in a structured problem solving way. These requirements imposed an obligation on all employers to undertake an assessment of health risk for activities associated with substances hazardous to health; it ensures a proactive approach to the assessment and prevention or control of exposure. The requirements are set out in three steps:

- (1) Identification of hazards
- (2) Assessment of associated risk
- (3) Implementation of appropriate control strategies
- (4) Monitoring of effectiveness of control strategies
- (5) Re-assessment of risk
- (6) Review of information needs and training needs of workers exposed to hazards.

This approach can be successfully used in defining a stress management programme. Cox (1993) formulated a Control Cycle with regards to the management of stress, based upon the above criteria:

- (1) Acceptance that employees are experiencing problems or stress at work.
- (2) Analysis of possible stressful situation, identification of hazards involved, nature of harm to individuals and the possible mechanisms by which these factors are related.
- (3) Assessment of risk to health associated with those hazards and the experience of stress.
- (4) Design of reasonable and practicable control strategies.
- (5) Planning and implementation of those strategies.
- (6) Monitoring and evaluation of the effects of those strategies, feeding back into an appraisal of the whole process.

Its cyclical nature suggests continuous improvement in both problem solving and problem management. However, one criticism regards its assumption that there are undisputed links between sources of stress, experience of strain, individual and organisational outcomes and the success of stress management interventions in reducing the consequences (Rick, Hillage, Honey & Perryman 1997).

In a review of the literature, Rick et al (1997) identified five key elements of an effective approach to stress management. These included assessment and diagnosis of the problems, the generation of solutions, effective implementation of the programme, evaluation and continuous monitoring and feedback into the assessment process.

SUMMARY

This chapter has considered stress management interventions, highlighting categories defined by DeFrank and Cooper (1987), Newman and Beehr (1978) and Cox et al (1990), which address both the focus and level of such intervention. Finally, templates for good practice for an organisation implementing a stress management intervention are described.

CHAPTER 7:

Rationale

Overview of Chapter

This chapter provides a brief summary of the issues discussed in the preceding chapters of the literature review, then identifies the major limitations or areas where there is a comparative lack of research. Two models are proposed based upon the reviewed literature; one based upon an overall concept of stress and another, specifically military model is proposed, based upon an operational deployment. The rationale for the research is then explained, in addition to a description of the research hypotheses.

7.1 Brief summary of literature

The six chapters comprising the literature review address the fundamental components of the theoretical basis of stress and its management. Chapter 1 provides an introduction to stress, describing the theories in terms of a historical perspective. Early research concentrated on stress comprising a characteristic of the environment (Spielberger 1976), where stress will produce a strain on a largely passive individual. This reflects a stimulus based model, as opposed to the physiological approach which is termed a response based model. The physiological model concentrates upon the biological reaction to external stressors; for example, the General Adaptation Syndrome (GAS) defined by Seyle (1956). Criticisms were directed at both of these approaches due to their inability to account for the role of psychological processes in the manifestation of the stress response (Cox 1978). The Psychological Model considers the stress process as a dynamic relationship between the individual and the environment, with a particular focus upon the cognitive process of appraisal. The perception of a threat to oneself is intrinsic to the concept of stress.

Chapter 1 also considers the effects of stress, looking at physiological, psychological, organisational and social effects. Specific military stressors and responses are highlighted, emphasising the range of responses which can occur (for example, drug abuse, accidents, anxiety, low commitment). It is also important to note that, although the literature is convincing with regard to the relationship between stress and ill health, it is not

unequivocal (Cox 1993). Finally, ways of measuring stress are discussed, in terms of objective and subjective measures.

Chapter 2 considers occupational, or organisational, stress, concentrating principally on two important models: Warr's (1987) Vitamin Model and Beehr and Newman's General Model of Occupational Stress (1978). These two models consider occupational stress in terms of a transactional approach, incorporating aspects such as individual differences, environmental factors, and the consequences of stress. Although some criticisms have been directed at the occupational stress models, it is recognised that they provide a good basis for understanding the multifaceted nature of occupational stress.

The chapter then concentrates on discussing the various occupational stressors in turn, highlighting both civilian and military research in the areas. Those that are currently particularly relevant to the military are issues such as levels of workload, supervisory support and leadership, opportunity for control and role in organisation (ambiguity and conflict). Final mention is made of the relationship between the home and work interface, an issue that is of considerable importance in the military due to the requirement for a high degree of interdependence between work and home lives.

Traumatic stress is discussed in Chapter 3, concentrating on a military perspective. The historical aspects of battle trauma are initially considered, as these principles and experiences are influential in understanding the evolution of the classification of traumatic stress reactions. A number of conflicts this century are then discussed in terms of the rates and causes of stress reactions. Aside from Vietnam, which was considered due to the high degree of psychological and psychiatric research on trauma, the conflicts chosen are primarily those involving British military personnel. As can be seen, there is comparatively little published research on the British military experience of traumatic stress following WWII.

The chapter on individual characteristics provides a review of the large number of factors which have been found to influence the existence and course of stress. Initially, the various relationships between the variables and their categorisations are discussed, in terms of

mediating and moderating effects. This is followed by a discussion on the purpose of attempting to identify individual characteristics as risk factors for stress problems in the military; ultimately to screen 'at risk' individuals from active service. Biographical, personality and environmental characteristics are discussed, with particular reference to military research.

The section on coping techniques describes two major theories of coping, those of Lazarus (1966) and Pearlin and Schooler (1978). Coping theories generally comprise of categories of coping strategies, either in terms of types of coping, or indeed purpose of the coping. Lazarus divided coping into problem and emotion focused techniques, while Pearlin and Schooler devised categories of changing the situation, changing the meaning of the situation and controlling the stressful consequence after it has occurred. However, these categories are not deemed to be mutually exclusive, with individuals utilising various strategies at different stages of a stressful transaction. The utilisation of a particular coping strategy is likely to depend upon previous experience of successful outcomes and upon the capabilities available at the time.

The final chapter considers intervention strategies that can be used in the management of stress. When categorising organisational intervention, classification can depend upon the focus of intervention (individual, organisational, interface - DeFrank & Cooper 1987), or it can depend on the objectives of the intervention (primary, secondary or tertiary, Cox et al 1990). Special attention is placed on psychological debriefing due to the current popularity in its use following traumatic exposure, highlighting both the positive and negative research on the subject. Finally, a model for good practice is provided, with emphasis on the continued monitoring and reassessment of risk.

7.2 Limitations of current research

There are a number of limitations within the literature that has been reviewed, in terms of both theoretical and practical issues. One major issue is the inability for the major theories on stress to encompass all the aspects which influence the onset and course of stress. No major theory appears to include stress experiences, individual differences and coping in

one model. For example, Beehr (1995), Beehr and Newman (1978) and Cooper (1986) all propose a linear model, where stress is experienced, will be influenced by certain individual differences and will then produce an outcome. No mention is made of the coping process. Conversely, Lazarus (1966) incorporates the coping response but does not address individual differences.

A further issue is that of feedback between various stages of the stress process, or indeed that of reciprocal relationships between various 'stages' or aspects of the process. Certainly the models of Beehr (1995) and Cooper (1986) are linear, and do not illustrate the dynamic relationship between the various facets of the models. The inclusion of a feedback loop between the outcome variable and the perception of stress would refer to the process of cognitive reappraisal, so widely cited from Lazarus (1966).

Few studies also incorporate both traumatic and organisational stress, preferring to see these as distinct entities. However, these need not necessarily be considered independently, particularly within an occupational setting where there is risk of exposure to traumatic events, on varying scales (police, Accident and Emergency workers, military personnel, firemen). In such circumstances, the presence of either traumatic or occupational stressors is likely to exert an influence on the other, either in terms of perception of threat, decrease of available coping skills, increase in susceptibility or potentially increase the degree or intensity of symptomatology. Furthermore, those factors which influence occupational stress, also influence traumatic stress (for example, leadership, team cohesion, neuroticism). Thus, it is fundamental not to look at occupational and traumatic stress in isolation.

There is comparatively little research on stress in the British Army as a result of conflicts since WWII; even more scarce is research into occupational stress in the British Army. Many of the studies which have been conducted on trauma, suffer from small sample sizes (Deahl et al 1995) or inadequate sampling techniques (O'Brien & Hughes 1991, Orner et al 1993). There is also a distinct paucity of information of a longitudinal nature, although one study (Lawrenson 1994) did sample personnel before and after a six month tour of Northern Ireland. There is also a lack of 'baseline' data across the British Army regarding

stress experiences and reactions, with the studies discussed providing only a very narrow focus following, or at, times of conflict.

Few studies, both military and civilian, actually ask the individuals what they define as stressful. Often it is the researcher's predetermined view of what is stressful which dictates the classification of stress and the design of the study. This can result in a narrowed perspective in the study of stress, as the individuals that are being studied are not provided with an opportunity to describe what they find difficult. Thus, studies may refine a list of stressors, but very rarely identify different issues.

Finally, an individual's evaluation of a situation, or belief in their actions is seldom, if at all, taken into account in stress research. It is argued that this is of particular importance in a military operational context, when soldiers are no longer deployed in defence of their country against an external threat, but used to perform internal security roles or multinational roles in support of the UN or NATO. It was therefore considered important to establish if there were any effects on psychological well-being based on an individual's evaluation of the deployment situation.

7.3 Rationale for current research

The design of this research was directed by the need to conduct a piece of work for the Army to inform and direct their policy on stress; in addition this piece of work is intended to fulfil the requirements for a PhD. For the Army, it was important to consider the stressors that occur both during normal peacetime duties and those on operational deployments; to obtain valid measures of mental health and to study this within a framework which focused on managing stress within the Army. Thus, it was considered necessary to obtain 'baseline' data from information collected from a cross sectional survey across the British Army, reinforcing this with a longitudinal survey from an operational tour. The longitudinal survey not only provides an insight into the specific problems encountered on the operational tour, but a unique opportunity to examine if there are any predictive factors associated with mental health.

The large numbers of psychological mechanisms influencing mental health and well-being, identified in Chapter 4, illustrate the breadth that the study could address. It was, however, considered necessary to focus on a modest number of these variables in order to ensure a comparatively short questionnaire, in addition to concentrating the analysis and discussion on those variables considered to be most relevant.

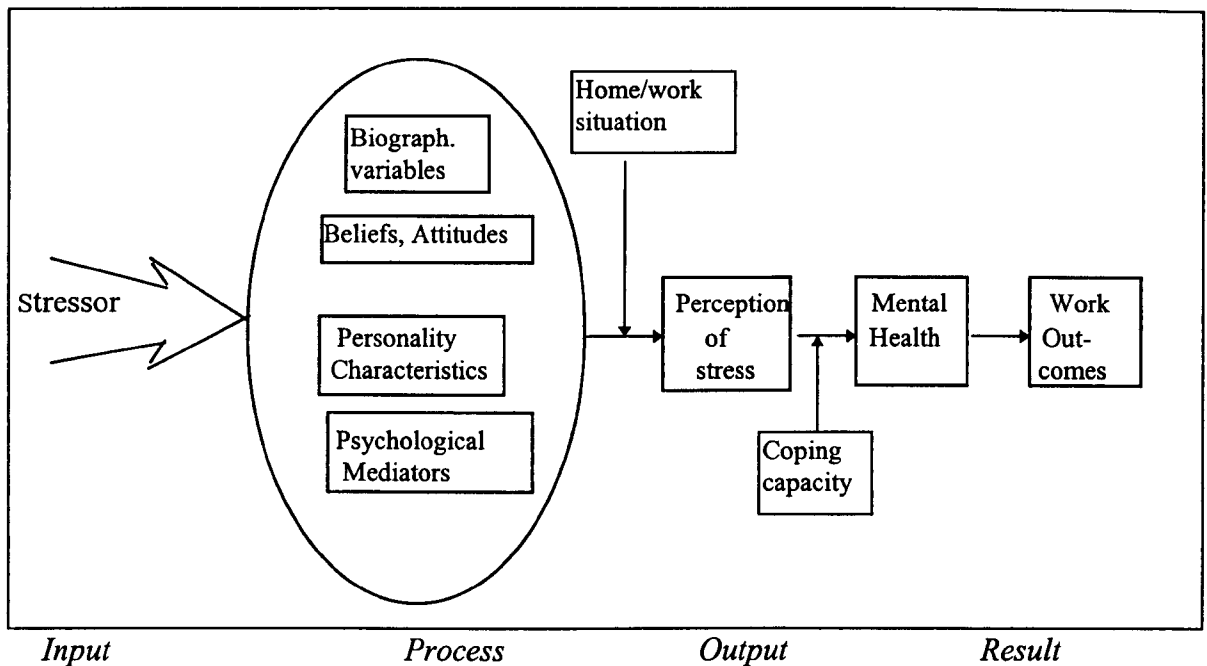
The questionnaires used are comprehensive in coverage, addressing the areas of demographic details, attitudes, training, experiences, personality characteristics, well-being and coping. This was considered to be important at both an applied and theoretical level. Response based measures, such as the GHQ (Goldberg 1978), fail to provide information about the way in which personal and occupational factors contribute to psychological well-being. Hart et al (1995) believe it is necessary to separately assess personality characteristics (Costa & McCrae 1980), coping processes (Carpenter 1992) and both positive and negative work experiences (Hart 1994). This allows these variables to become integrated into a more inclusive model explaining individuals' psychological responses to their work (Heady & Wearing 1992).

The psychological mechanisms studied were neuroticism, trait anxiety, mastery and self esteem. It was considered important to include the well validated and reliable trait measures of neuroticism and trait anxiety, in order to provide more stable information to support the state outcome measure of the GHQ12. Mastery was used to obtain a measure of locus of control, while self esteem identifies a level of confidence in oneself, both of which were deemed to be particularly relevant to military personnel. The constructs of Type A behaviour and psychological hardiness were not considered, due to the criticisms of these measures identified in the literature (Powell 1987, Carver 1989), and were therefore not considered to be of particular use in this study.

The model overleaf illustrates the theoretical model used as a basis for this study. The model proposed is a practical model applied to the Army, which provides a conceptual overview of the processes involved. It is recognised that the model is somewhat simplistic, although such an approach is useful to illustrate those factors influencing the onset and course of stress.

7.4 Model proposed

Fig 7-1: Process of stress



As figure 7-1 illustrates, there are numerous variables within this model which may impact upon stress an individual may experience and the related mental health outcome. A 'stressor' may be a particular event (e.g. a death) or a more long term situation (e.g. high workload). The perception of this stressor is modified by biographical variables (rank, sex, age), individual's belief structure (attitudes and cognitions), personality characteristics (neuroticism, trait anxiety) and psychological mediators (mastery, self esteem). These variables modify the perception of the stressor, as does the current home or work situation. If, for example, an individual is experiencing relationship problems with his or her partner at home, then this may well amplify the perception of a stressor in the work sphere. Finally, the coping capacity of the individual will in turn, influence the mental health outcome (GHQ12, IES). This model supports the multi-faceted view of occupational stress promulgated by Moyle (1995), Parkes (1994) and Warr (1987). In order to incorporate all elements of the study and to ascertain the relative contributions of each factor, multivariate analyses is required.

7.5 Cross Sectional Approach

A cross sectional study (Study 1) was used in order to obtain 'baseline' measures of the levels of mental health across the British Army. Army personnel are not identical; the Army includes individuals from a variety of backgrounds, interests and attitudes. For example, there are differences between officers and soldiers, males and females, the corps and the teeth arm units. Each unit has its own culture, with traditions and working practices generally held in esteem by its members. Therefore, in order to ascertain a measure which is representative of the Army as a whole, it is important to ensure these groups of personnel are included within the survey, and the results interpreted as such.

Ultimately the *raison d'être* for the Army is to deploy on active duty; therefore, much psychological research has focused upon soldiers' performance and experiences during, or as a result of, operations. However, the majority of an individual's career is not spent on operations, but in training, working in desk appointments (for many officers) and performing routine duties and requirements. Studying these aspects of a soldier's Army career, as part of a cross sectional approach, are fundamental, as they comprise the major element of a Service career.

Finally, it is also important to recognise that organisational stressors occur both in peacetime and while on operations, as traumatic stressors occur both on operations and in peacetime. It is a misnomer to believe that trauma only exists while on active duty; soldiers can be exposed to trauma during training accidents or road traffic accidents. Furthermore, denying the importance of organisational stressors can lead to problems of poor retention rates, low motivation and morale, in addition to mental health problems. Thus, by including both organisational and traumatic stress issues within both the cross sectional and longitudinal operational survey, one can ascertain the comparative problems throughout an Army career.

The cross sectional approach also allows the researcher to identify residual rates of stress across various categories, in an ad hoc manner. With adequate numbers, this can allow the researcher to direct future research into areas which are likely to need further study.

7.6 Longitudinal Approach

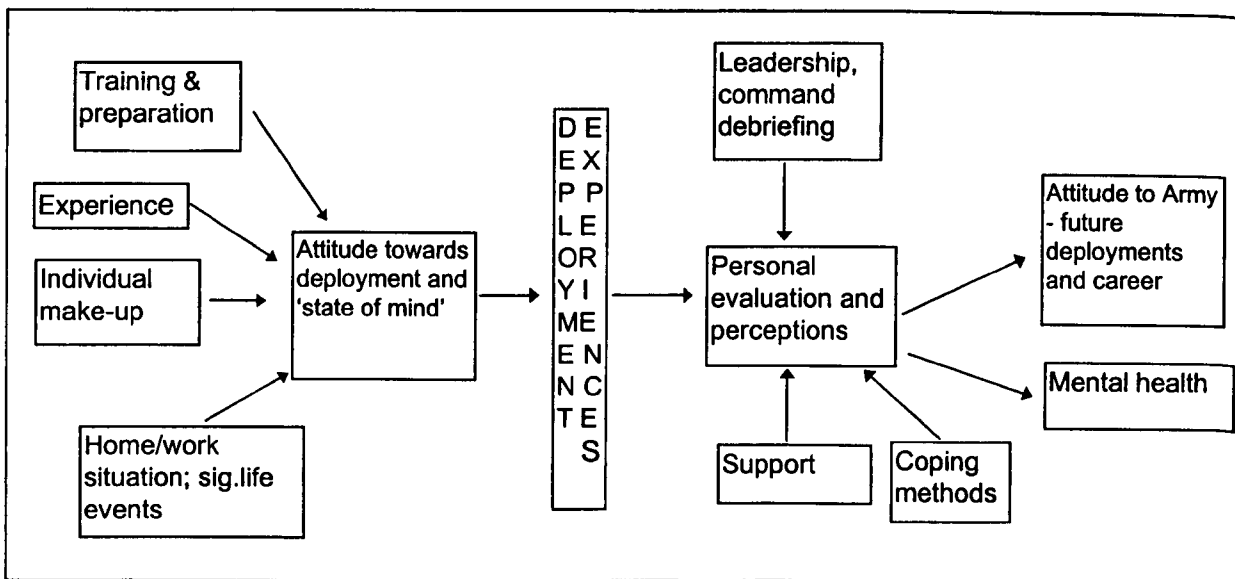
The longitudinal, repeated measures methodology of the second study, ensures that the same major variables can be measured between a specific time interval (an operational deployment) allowing study of the maturation of the relationships. Such an approach has received widespread support in the stress literature (Parkes et al 1994, Lazarus 1981, Hart et al 1995), due to the advantages it entails. Lazarus and DeLongis (1983) stated the greater capability of a longitudinal cohort study to ascertain causality between the variables, when comparing a cross sectional study. More sophisticated statistical designs can also be used to test the predicted causal relationships (Zapf, Dormann & Frese 1996), including measures such as hierarchical multiple regression analyses or moderated path analyses. Linked to this is the capability of longitudinal designs to account for methodological problems experienced with cross sectional studies, such as the moderating effects of confounding variables (Zapf et al 1996).

In an applied context, a longitudinal study on an operational deployment allows for a more detailed examination of the stressors experienced and perceptions during the deployment. An operational deployment is a discrete occurrence for a period of six months. Therefore, any changes that occur following the deployment could generally be attributed to the experiences on or as a result of the deployment. This is of particular concern to the Army, which needs to ascertain areas of difficulty in order to consider if improvements need to be made to aspects of the training or support provided.

Figure 7-2 illustrates the proposed factors influencing mental health at various stages of the deployment. On the left hand side, it can be seen that attitude towards the deployment and an individual's state of mind can be influenced by their individual make-up (personality variables), their previous experiences, training and preparation for the deployment and their general situation at home or work (including the occurrence of significant life events). The individual will then deploy for six months. Both during and after the experiences from that deployment, the individual will form evaluations and perception of the events; some which might be perceived to be stressful, others not. These perceptions will be influenced by support during and after the deployment, the coping

methods utilised and the leadership and command debriefing of the deployment and associated events. In turn, these perceptions will have an influence on attitudes towards the Army, particularly concerning future deployments, military career aspirations and mental health.

Fig 7-2 Attitudes and evaluations with respect to an operational deployment.



Thus, by using both cross sectional and longitudinal cohort designs, a robust and comprehensive study of stress in the British Army can be undertaken, investigating both occupational and traumatic stress. One is able to ascertain 'baseline' levels of well-being and establish departures from this, with the descriptions of difficult experiences providing some of the detail regarding the potential reasons.

7.7 Research Objectives

This work was carried out in an applied context, completing a programme of work for the Ministry of Defence, in addition to the academic requirements to fulfil a PhD. Thus, there is a considerable amount of information collected which will be of particular interest to the MoD (e.g. differences across the rank structure and Arms and Corps) and therefore not discussed or analysed for this study.

7.7.1 Research objectives for Study 1

The primary aim of the cross sectional study was to obtain details and frequencies of stressful experiences of serving personnel, highlighting areas where there are particular difficulties. A baseline measure of context free mental health was also sought across the British Army, with attention paid to individual differences (rank, age, marital status and Arms or Corps). The importance of individual and psychological variables in influencing organisational outcomes, such as morale and desire to leave, in addition to context free mental health, were also studied.

The specific research objectives were:

1. A simplified version of the proposed model in Figure 7-1 will be explored by data analysis. This will illustrate that individual differences influence the perception of stress, in addition to context free mental health influencing organisational specific outcomes.
2. To examine data to identify notable differences in psychological health between various categories of personnel within the Army.
3. To examine the data to identify the interrelationships between the GHQ12, IES, Neuroticism, Trait Anxiety, Self Esteem, Mastery and coping techniques to support those found in the literature.

7.7.2 Research objectives for Study 2

The primary aim of the longitudinal study was to ascertain if there were any direct effects of the six month operational deployment upon context free mental health, by investigating changes over time. The main factors described as 'stressors' throughout the operation were also expected to be identified. Finally, it was also important to ascertain if there were any predictors of mental ill health which could be identified at two stages of the operation.

This could have an impact upon selection/ or screening out of vulnerable personnel, in addition to training aspects.

The specific research objectives were:

4. To identify if there are any significant differences over time, in the context free mental health of the respondents. Similarly there may be a reliance upon different forms of coping behaviour at Time 2, as opposed to Time 1.

5. A simplified version of the proposed model in Figure 7-2 will be explored by data analysis. This will illustrate that individual differences influence context free mental health within an operational deployment, and thus ascertaining if there are any predictors of mental ill health which could be identified at two stages of the operation.

6. To examine data to identify if there are notable differences in psychological health between various categories of personnel within the Army.

SUMMARY

This chapter provided a summary of the literature discussed in the previous 6 chapters. The rationale for the study was discussed, illustrating the dual requirement for the research study: the applied military requirement and the academic PhD requirement. A theoretical model was then proposed and discussed in terms of both the cross sectional and longitudinal components of the study. Finally, the research aims and objectives were stated.

CHAPTER 8:

METHODOLOGY

Overview of Method Chapter

This chapter describes the methodological details of the two stage research programme. The two stages consist of a cross sectional study (Study 1) across the British Army and a two wave longitudinal study (Study 2) of an infantry deployment to Northern Ireland. The questionnaire material was predominantly the same for both studies, and will be detailed in the appropriate methodology sections. Thus, this section describes the target populations, the sampling techniques and research instruments used and the methodological procedures adopted for both studies.

8.1 Study 1: Cross Sectional Study

8.1.1 Sample

For the cross sectional survey it was important to be able to obtain as broad a response as possible across the Army. It was decided to base the sample upon three broad categories: sex, rank and unit type. Personnel throughout the Army were grouped in terms of the classifications in tables 1 and 2. Further details of cap badge inclusion into each group are provided at Appendix 1.

Table 8-1: Classification of personnel into Arms and Corps

G1	Personnel support and medical services
G3(Inf)	Infantry
G3(non-inf)	Teeth arms other than infantry
G4	Logistic support services

Table 8-2: Classification of personnel by rank.

Senior Officers	Major and above
Junior Officers	2Lt, Lt and Captain
SNCOs	Sgt, SSgt and WO
Junior Ranks	Pte, LCpl and Cpl equivalents

Data on the composition of the Armed Forces across rank (soldier/ officer), sex (male/ female) and Arm (G3(Inf)/ G3(non-Inf)/ G1 Services/ G4 Services) were obtained from the Defence Analytical Services Agency (DASA). Based upon the composition of the Armed Forces at the time of sending out the questionnaire, the following distribution of questionnaires was required per 2000.

Table 8-3: Distribution of questionnaires, proportionate to size.

	Officer (m)	Officer (f)	Soldier (m)	Soldier (f)
G3 (Inf)	52	-	478	-
G3 (Non Inf)	82	2	594	22
G4 Corps	46	4	452	38
G1 Corps	32	14	142	42

2000 soldiers were selected at random from the DASA database, proportionate to size, across the above variables.

8.1.3 Questionnaire Design

8.1.3.1 Pre-trial interviews

Interviews were conducted with 20 Army personnel, across the rank structure and across Arms. The researcher visited a number of bases, arranging an interview with the Adjutant, discussing the study with him and requesting the opportunity to speak to a number of soldiers across the rank structure. A quiet interview room was provided and all personnel interviewed were asked if they wanted to take part; no pressure on them was applied in either way. A copy of the semi-structured interview can be seen at Appendix 2. All interviewees were assured of the confidentiality of the interview. Although a mini tape recorder was used to aid the researcher, interviewees were told they could ask the researcher to switch the tape recorder off at any stage if they felt they wanted to. This opportunity was availed of on a number of occasions. Each interview was between 40 minutes to 2 hours in duration.

It was important that the interview was not considered either as an assessment of the individual or indeed as a counselling session. It was made clear that only the researcher would listen to the tapes and destroy them afterwards, and that if they felt they needed

further help the researcher could direct them to someone who could help them. The purpose of the research was also made clear to the interviewees, that this research was to support the Army policy on stress management and that this would provide recommendations regarding the training on stress and support structures within the Army. Attitudes towards stress and training, experiences of stress, social support, confidentiality and implications of seeking Army support were addressed during the interview.

8.1.3.2 Pilot Study

A draft questionnaire was designed on the basis of the interviews and literature. There were many factors and attitudes deemed to be important in the study on Army stress, and these were collated in a format which incorporated Likert scored attitude statements, free response sections and questions requiring responses to be circled. A pilot sample of 46 Army personnel was obtained by a number of sources, comprising of varying ranks, corps and gender. The Commanding Officer (CO) of the Royal Electrical and Mechanical Engineers (REME) unit on the researcher's establishment was contacted and agreed to distribute the questionnaire; personnel participating in military vehicle trials at the researcher's establishment also agreed to complete and comment on the questionnaire; and recent graduates of the Army Command and Staff Course similarly provided feedback.

Both written and verbal comments were requested on the content, style and questioning format. Responses were studied regarding the inclusion of items into the final questionnaire, with particular attention paid to any questions considered confusing or repetitive, in addition to aspects not covered, or considered not to be relevant or appropriate. The questionnaire was also sent to two psychologists (academic supervisor and MOD sponsor/ customer) for technical comment.

8.1.4 Questionnaire composition

The questionnaire (Appendix 3) can be divided into a number of sections. Section 1 requests demographic data and military experience. Section 2 comprises attitude statements concerning Army life and stress, while section 4 considers any training the

respondents may have received on stress. Section 5 is a free response section requesting descriptions of the three most difficult experiences during their Army career, any effects these experiences may have had and how they coped. The penultimate section considers social support and perceived confidentiality when seeking help. The final section asks if there have been any significant events which have affected them personally over the last year and a free response section requesting comments on stress in the Army and how they believe the Army should deal with the issue.

There was also a number of published standardised psychological questionnaires, which would be able to provide a comparative measure of research conducted on other sample populations, in addition to investigating psychological characteristics, mental health and coping strategies in the sample population. These were chosen on the basis of the rationale discussed at section 7.3.

The pilot study and military advice led to the deduction that an excessively long questionnaire would reduce the response rate and potentially the validity of the responses, compared with a shorter survey, seen to be relevant to the target population. As a result, shortened versions of a number of particularly long standardised questionnaires were obtained, by statistical analysis of the predictive capacity of the items and the subsequent scale reliabilities of an earlier PhD study (Daniels 1992). Details of these will be given alongside each questionnaire description. The complete questionnaire took approximately 30 minutes to complete. The questionnaires used are discussed below:

8.1.6 Questionnaire Instruments

8.1.6.1 Army Questionnaire

Part 1 Biographical Information

This section requested responses on items relating to age, rank, sex, length of time spent in the Army and marital and family status. If married, respondents were asked if they were serving accompanied and how much separation they had experienced over the last four years. Information was also requested on experiences of various military operations. This

information was required to establish if there were any significant differences with regard to mental health and stressors dependent upon these variables, in addition to establishing the characteristics of the sample population.

Part 2 General Statements

This section consisted of 30 statements on Army life, morale, attitudes towards stress, leadership, support within the Army, pressures and uncertainty in the Army, confidence in military training and liking of unpredictable or dangerous situations. These items are based upon a five point Likert scale, where 1=Strongly agree and 5=Strongly disagree. These items were included to ascertain attitudes towards stress and to identify the influences affecting Army personnel. Four questions then ask whether individuals know anyone who has experienced stress related difficulties during their time in the Army (YES/NO), followed by three questions on whether the respondent has experienced stress from work, specific incident stress related to active duty or from problems at home or barracks. These last four questions were based upon a four point scale ('Not at all' to 'A lot').

Part 3 Stress Training

This section refers to stress training: whether people have received any (what it was and how useful was it) and acceptance of the types of personnel who teach Army personnel about stress. The latter part consisted of 13 questions, divided into two parts. The initial part listed six personnel who had taught Army personnel about stress (e.g. Army doctor (MO), Padre, Army psychiatrist, Army psychiatric nurse (CPN), an MOD psychologist or the Officer Commanding (OC)). Respondents were requested to circle each person based upon the extent to which they felt the personnel would be best to teach them about military stress. Answers were based upon 4 descriptors: 'Not at all' through to 'Definitely'. The second part listed those personnel who could teach them about stress (e.g. SNCO, a unit officer, a SSAFA worker, civilian expert, a stress trained soldier of equal rank within the battalion, serving NCO/officer who had experienced stress) and again asked respondents to circle their answer. This allows an understanding of who the most appropriate personnel would be to instruct Army personnel about stress. As attitudes towards stress are so important, in terms of training, it is important that the person teaching stress gains the respect and perhaps identification, of those Army personnel being instructed.

Part 4 Support for Problems

Six questions relate to support for stress related problems. The first question concerns who the respondents are most likely to approach for support with any stress problems they may have. Eleven options are provided (friend in unit, friend outside the Army, NCO, officer, MO, padre, SSAFA/WRVS, partner, family member, doctor external to Army or no-one) and respondents were asked to circle any options that applied to them. The next four questions referred to perceived confidentiality and effect upon their career if they sought help for stress related problems within the Army.

Part 5 Stressors

This section concerns stresses experienced and are based upon free response. Respondents are asked whether there have been any significant events which have had a major effect on them over the last 12 months, and if so to describe them. Respondents were then asked to describe the three most difficult things which they have had to deal with during their Army career, stating when they occurred and in what circumstances. Space was then provided for respondents to state why they found them difficult and what effects these difficulties had on them. This section is very important, as it allows individuals to state what they perceive to be stressors, rather than relying on pre-conceived ideas of researchers and past studies.

Finally, a free response section was provided for respondents to add anything concerning stress they have experienced, or how they believe the Army should be dealing with stress.

8.1.6.2 Standardised Questionnaires

General Health Questionnaire (GHQ12).

The GHQ12 is designed as a self administered screening test aimed at detecting the psychological components of ill health. The questionnaire focuses on disturbances in normal functioning and is sensitive to transient disorders and is therefore particularly useful in assessing individuals distressed as a result of a recent event. It is less effective in identifying individuals who have been feeling under stress for some time and to whom certain symptoms have become normal to them. This would tend to suggest that it may not

always determine those individuals suffering from chronic stress reactions (Duckworth 1990).

The GHQ is available in a number of forms (Goldberg 1978). The longer item version has been reported to be unsuitable for research aimed at examining factors in the work situation (Banks, Clegg, Jackson & Kemp 1980). Furthermore, it is sometimes inappropriate to ask questions on suicidal ideation, which the GHQ28 contains. The GHQ12, containing only 12 items renders it more appropriate for occupational questionnaire studies. This measure is viewed as a uni-dimensional and context free measure of well-being (Warr 1990).

The GHQ12 contains six positively loaded items and six negatively loaded, asking respondents to rate how frequently symptoms of mental health have occurred of late. There are a number of scoring methods used - this study used the original GHQ system of coding (0,0,1,1). This allows a maximum score of 12 and a threshold score of three. This method of scoring can avoid 'middle users' of response scales. Although this method reduces a four way response into a bimodal scale, Goldberg & Williams (1988) report this as only marginally less efficient than the Likert form of scoring and does not differ in the identification of 'caseness'. The Likert method of scoring (0,1,2,3) reflects intensity and is reported to obtain greater sensitivity, and thus more suitable to correlational analysis (Banks et al 1989).

The GHQ12 is reported to have a validity coefficient of 0.77 and 0.72 against psychiatric criteria (Goldberg 1972). The split half reliability of the GHQ12 is 0.83 using the Likert scoring (Goldberg and Williams 1988). Banks et al report the GHQ12 to give alpha coefficients of between 0.82 and 0.90, using the standard GHQ scoring method in occupational studies.

Impact of Events Scale (IES)

The IES was designed by Horowitz, Wilner and Alvarez (1979). It classifies the effects of stress into two major categories: intrusion and avoidance. Intrusion refers to the penetration of thoughts, images, feelings or dreams and to a variety of repetitive

behaviours that are distressing to the individual. Avoidance refers to tendencies of psychic numbing, conscious denial of meanings or consequences or behavioural avoidance of situations common to the stressful experience. The relative salience of intrusion or avoidance is not conceived as constant, but as a series of alternating phases during the course of the post traumatic experience (Horowitz 1982).

The questionnaire describes 15 emotional reactions. The respondent is asked to indicate on a four point scale ranging from 'not at all' to 'often', how frequently he experienced each reaction during the week and how intense the experience was; each item is scored 0,1,3,5. In a study by Horowitz (1980) she found the split half reliability of the total scale to be high (0.86); internal consistency of the subscales, as calculated using Cronbach's alpha was also reported to be high (intrusion =0.78; avoidance =0.82). A further correlation of 0.42 between both subscales indicates that while they are related they do measure different dimensions (Horowitz et al 1979).

Neuroticism

The neuroticism scale is a personality based measure, forming a stand alone component of the original Eysenck Personality Questionnaire. This scale examines the tendency to experience negative emotions, instability of mood and associated anxieties. Examples of items are "Are you troubled by feelings of guilt" and "Does your mood go up and down". Respondents have to reply on a four item Likert scale where 1 = Almost Never and 4 = Almost Always. The full 12 item scale is a widely used research tool to measure neuroticism or negative affectivity with widely reported consistency and reliability; for example internal reliabilities of 0.86 (Parkes 1990) and 0.84 (Moyle 1995). The short item version used in this study was obtained from research conducted and validated by Eysenck and Eysenck (1964), with an alpha value of 0.79.

Mastery

Mastery relates to the concept of 'locus of control', considering the extent to which an individual feels they are in control of or can influence events. Mastery is a seven item scale written by Pearlin and Schooler (1978) and includes items such as "I have little control over the things that happen to me" and "What happens to me in the future mostly

depends on me". Respondents were requested to indicate the extent to which they agreed with each item on a four point Likert scale (1= Strongly Agree to 4= Strongly Disagree). Folkman, Lazarus, Gruen and Delongis (1986) provided a validation of the scale and Cronbach's Alpha coefficients of the scale have been identified as 0.74, 0.75 and 0.8 by Huyck (1991), Folkman et al (1986a) and Thoits (1987). These statistics illustrate the acceptable psychometric properties of the mastery scale.

Trait Anxiety

The trait anxiety component of the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch & Luschene 1974) was used to measure anxiety. This scale measures the stable characteristics of nervousness, ability to make decisions easily and restlessness. The trait anxiety scale in its entirety contains 20 items. Data from Daniels (1992) was used to obtain the six most predictive items. Using a stepwise multiple regression procedure, six items yielded a Multiple R of 0.959, R^2 of 0.919 and an Adjusted R^2 of 0.915. The internal reliability of these six items yielded a Cronbach's Alpha of 0.753, while a test-retest reliability on a further sample yielded an alpha of 0.832. Respondents were requested to indicate the frequency with which they felt certain criteria, such as "I feel nervous and restless". A four item Likert scale was used, ranging from 1= Almost Never to 4= Almost Always.

Self Esteem

This scale is a measure of confidence and belief in oneself, with very low levels of self esteem suggesting feelings of low self worth and helplessness. The Self Esteem scale (Rosenburg 1965) contains 10 items, such as "At times I think I am no good at all". Respondents are required to state how they generally feel, on a four point Likert scale, ranging from 1= Strongly Agree to 4= Strongly Disagree. Data was used from Daniels (1992) to obtain the most predictive items. Using a stepwise multiple regression procedure, five items yielded a Multiple R of 0.975, R^2 of 0.950 and an Adjusted R^2 of 0.948. The internal reliability of these five items yielded a Cronbach's Alpha of 0.753, while a test-retest reliability on a further sample yielded an alpha of 0.767.

Coping Techniques

There are several ways of categorising the strategies used by individuals to cope with events. Edwards and Baglioni's Cybernetic Coping Scale (1993) provides information on five ways of coping with context-free stressful experiences. These five categories are Avoidance (scale items 15,16,19), Devaluation (2,9,14), Changing the situation (4,7,12), Accommodation (1,8,13) and Symptom Reduction (e.g. letting off steam, physical exercise; scale items 3,5,10,16). An extra item on "I drink more alcohol" was added within the Symptom Reduction sub-scale, as it was considered that this was a fairly common method for coping. The complete 'cybernetic' coping scale used by Edwards and Baglioni (1993) contained 40 items. The authors of the scale performed a confirmatory factor analysis on the scale, reducing the number of items to 20, by utilising the highest loading items. For this study the most appropriate highest loading items were identified and used to form a shortened scale.

In order to assess the influence of social support as a coping behaviour three items were taken from the Ways of Coping Checklist (Folkman, Lazarus & Dunkel-Schetter 1986). Edwards and Baglioni performed a confirmatory factor analysis on the checklist, identifying the items with the highest loading. For this current study, the Social Support scale was taken from this analysis (scale items 6,11,17).

Thus, a 19 item Coping scale was used where respondents were required to indicate on a five point scale whether, 1=I do not use this technique, through to 5=I always use this technique. Edwards and Baglioni (1993) report Cronbach's Alpha reliability coefficients to be a minimum of 0.79 for the Cybernetic Coping Scale and Seeking Social Support scale to be 0.65. However, it must be noted that these were based upon the original six item version of the scales.

8.1.7 Questionnaire administration and sample

Questionnaires, with a covering letter from Chief of Staff (AG) describing the purpose and importance of the study (Appendix 4), were distributed by post to those selected Army personnel. Confidentiality was assured, no names or personnel numbers were requested on

the questionnaire and it was stated that no information on individuals would be fed back to the Army. Envelopes addressed to the researcher were provided and free despatch was available by handing in the sealed envelopes to the Administration office at each unit. The researcher's name, address and telephone number were provided at the end of each questionnaire. This was in addition to the covering letter stating that if individuals experienced any difficulties or wished to speak to anyone concerning problems they should speak to their Medical Officer, who may either be able to help them or direct them to someone who can.

8.2 Study 2: Longitudinal study

8.2.1 Sample

An infantry battalion due to be deploying to Northern Ireland for a six month tour, was identified by MOD (Army). A battalion is generally approximately 600 strong, comprising infantry personnel and a number of support personnel (e.g. clerks, cooks, engineers, medics). It should also be noted that the battalion was understrength and so deployed with 70 attached personnel, 20 of whom were from the Territorial Army (TA). A total of 18 different cap badges were deployed under the Commanding Officer (CO).

Table 8-4: Categorisation by unit

RS	Personnel from the Royal Scots
Permanently Attached	Personnel attached to IRS on a 2 or 3 year tour (e.g. RLC, REME, AGC)
Temporarily Attached	Personnel attached to IRS for the deployment, from Regular Army units
TA/ Regular Reserves	TA personnel attached on S-Type engagements and Regular Reserves

This part of the survey was included in order to study the impact of an operation and the stresses experienced on an operation, hence effort was directed at ensuring as high a response rate as possible. It was also fundamental that the regiment were fully supportive of the study, hence, it was important to 'fit in' with what was deemed reasonable with regard to the number of questionnaires administered. When a unit is in the period prior to deployment, they are extremely busy, with a large degree of training, organisation and administration to complete. Hence, questionnaire administration is obviously not a

priority. 300 questionnaires were sent to the regiment to be distributed across a range of ranks and cap badges, to be administered via the Chain of Command.

Time 1 Sample

300 questionnaires were sent to the regiment approximately two weeks prior to departure, and were distributed to soldiers via the Chain of Command, on an ad-hoc basis. 281 questionnaires were completed and returned.

Time 2 Sample

Approximately 300 questionnaires were sent to Battalion HQ one month prior to return from Theatre. A list of Army numbers of those personnel who had completed the pre-deployment questionnaire was sent to the 2IC to ensure that the sample members were given a questionnaire. 192 questionnaires were completed approximately two weeks prior to the end of the tour and sent back to the researcher in individually sealed envelopes.

8.2.2 Questionnaire Instruments

For Study 2, a small number of changes were added to the cross sectional questionnaire already described, in order to ensure relevancy for this part of the study. In order to tie up pre and post questionnaires, Army numbers were requested, although confidentiality was emphasised.

8.2.2.1 Army Questionnaire

A copy of the Time 1 and Time 2 questionnaires can be found at appendices 5 and 6 respectively.

Time 1

Part 1 Biographical Information

This section of the questionnaire remains identical to the cross sectional questionnaire.

Part 2 Military Experience and Deployment Specific

This section contains information on previous operational tours. Nine questions are also asked concerning the specific deployment to Northern Ireland. Two questions requested free response answers on understanding of their deployment role and of the political situation in NI. Respondents were asked to rate how well they felt they understood the situation ('Not at all' to 'Very well') and whether they felt the UK should have troops deployed to NI ('Not at all', 'Unsure', 'Definitely'). The final five questions in the section refer to expectations concerning the deployment and perceived preparation. These items are based upon a four point Likert scale (1='Definitely' to 4='Not at all').

Part 3 General Statements

This section of the questionnaire remains identical to the cross sectional questionnaire.

Part 4 Stress Training

This section of the questionnaire remains identical to the cross sectional questionnaire.

Part 5 Support for Problems

This section of the questionnaire remains identical to the cross sectional questionnaire.

Part 6 Free Response

Respondents were asked if there had been any significant events which have had a major effect upon them over the last 12 months, if so, to describe it. A free response section was also provided for respondents to add anything concerning stress they had experienced, or how they believed the Army should be dealing with stress.

Time 2

Part 1 Biographical Information

Only six questions were included in this section, as it was assumed that respondents had completed the pre-deployment questionnaire (and would not want to repeat anything). A further question was added to ask whether the respondent was temporarily attached to the battalion just for the operation.

Part 2 Deployment Specific Questions

Ten items were included in this section. The first two questions requested respondents to circle how well they felt they had achieved their role as a unit and as an individual ('Very Well' to 'Not at all well'). The next five items were similar to those in the Time 1 study, and where necessary, in the past tense (e.g. Did you enjoy the operation). Three questions were also asked concerning relationships and whether respondents felt they had been in close contact with partners and family and friends at home (1='Not at all' to 4='Definitely').

Part 3 General Statements

This section of the questionnaire remains identical to the cross sectional questionnaire.

Part 4 Stress Training

There were only three questions comprising this section, requesting whether respondents had received any stress training either prior to or during the deployment. Respondents were then asked if this had been useful, or if it would have been useful.

Part 5 Stressors

This section concerns stressors experienced during the deployment and are based upon free response. This is similar to those questions asked in the cross sectional survey, in that respondents were asked to describe the three most difficult things they had experienced during the deployment. Space was provided for respondents to state why they had found them difficult and what effects they had had on them. Finally, a free response section was provided for respondents to add anything concerning stress they had experienced, or how they believe the Army should be dealing with stress.

8.2.2.2 Standardised Questionnaires

The standardised questionnaires used for Times 1 and 2 were identical to those used in the cross sectional study. These included the GHQ12, IES, Neuroticism, Trait Anxiety, Mastery, Self Esteem and Coping Techniques. These are described in section 8.1.6.2.

8.2.3 Procedure

8.2.3.1 Pre-deployment

The Commanding Officer (CO) was approached by the Adjutant General Operation branch (AG1 Ops) describing the stress management study and requesting the battalion's involvement in the survey. The CO delegated the administration of the study to the 2IC (Second in Command), who liaised directly with the researcher. The 2IC felt he would practically be able to obtain approximately 200 questionnaire responses, distributed across a range of ranks.

300 questionnaires were sent to the battalion approximately two weeks prior to the first departures and were distributed to soldiers across the rank structure, via the chain of command on an ad-hoc basis. Information on the study and the questionnaire itself was provided on the front of each questionnaire. Confidentiality was assured and it was stated that only the researcher would read the questionnaires, and at no time would military personnel have sight of the questionnaires. 281 questionnaires were completed and returned individually in the provided envelopes, free in the internal post system. The researcher visited the battalion at their base in Northern Ireland, where informal interviews were conducted with the CO, 2IC, Adjutant, Det Commander, Regimental Admin Officer (RAO), Company Commanders, numerous officers and soldiers across the ranks (approximately 50 personnel).

8.2.3.2 Post-deployment

Approximately 300 questionnaires were sent to Battalion HQ in Northern Ireland one month prior to return from theatre. A list of Army numbers of those personnel who had completed the pre-deployment questionnaire was also sent to the 2IC. 192 questionnaires were completed approximately two weeks prior to the end of the tour and sent to the researcher in individually sealed envelopes. The researcher then visited the battalion at their base in Scotland one month post deployment. Informal interviews were conducted with the CO, 2IC, Adjutant, Det Commander, RSM (Regimental Sergeant Major),

Company 2ICs, Medical Officer (MO), Padre, four further officers, soldiers across rank (ten personnel) and a selection of wives.

8.2.3.3 Follow-up letters

Approximately one month after the Time 2 Sample had returned from deployment, follow-up reminder letters and repeat questionnaires were sent to those personnel who had not completed the Time 2 questionnaire. A second follow-up reminder was not considered appropriate, as it was deemed that it might alienate personnel.

8.3 Methodological considerations

When using cross sectional data it is important to consider the way in which 'environmental demands' are being measured; whether they are objective conditions or subjective experiences. If they are subjective experiences, then it is necessary to consider the extent to which these measures reflect primary or subsequent appraisals (Lazarus & Folkman 1984). As Karasek & Theorell (1990) stated, broad questions about workload ("not enough time") are more likely than specific questions to be affected by self report biasing factors. The particular difficulty is with an affective element incorporated in the independent variable (self report of mental health levels) as well as being the core of the dependent variable; in these cases a spurious main effect is built into the observed relationship. A reliance upon self report data does introduce the problem of identifying whether the individual's self reported experiences are a valid indicator of their actual experiences. To minimise this problem of method variance, standardised scales were used with well known psychometric properties (Spector 1987).

However, it must also be stated that the experience of stress is in itself subjective, therefore, it could be argued that stress is only validly measured in a subjective manner. French et al (1982) studied over 2000 male workers looking at work stress, particularly the Person-Environment fit theory. They found a good correspondence between the objective and subjective measures of well-being, and that the objective measures on self reported health could largely be accounted for by the subjective measures. Objective measures only

accounted for some 4-6% of the variance above that accounted for by the subjective measures.

It was important to obtain a qualitative element of the study, in addition to the use of quantitative research. This allows for the respondents to introduce their own perceptions and experiences to the research, rather than the findings being structured purely by the researcher's beliefs and understandings. Due to the importance of attitudes concerning stress and related issues in the military population, it was deemed fundamental to approach this study to obtain as wide an opinion as possible. For these reasons, the study combined both a qualitative and quantitative approach. The use of a semi-structured interview format was used to provide the background information to support the questionnaire design. This allowed informed discussion on the topic and the researcher to pick up salient themes, and to establish the factors relevant to stress within the Army population. Semi-structured interviews were also used to consolidate and validate findings from the operational elements of the survey.

Quantitative research in the form of a postal survey with self completion questionnaire provided a cost effective and practical means of obtaining a large amount of respondents. This minimised interviewer-respondent effects and largely eliminated the subjectivity of the data analysis. Although it may have served to provide a form of anonymity, the general mistrust of Army personnel with regard to stress and the impact on their careers will no doubt have prevented some individuals from either replying or giving full disclosure. This may have particularly been the case in the longitudinal study, which requested Army numbers in order to tie up the responses. In order to increase the response rate and decrease the time that respondents were required to complete the questionnaire, it was felt that the questionnaire length should be kept to a minimum. However, using shortened, although highly valid and reliable versions of standardised questionnaires, may cause the particularly purist researchers a degree of concern.

8.4 Ethical Considerations

(1) Subjects' informed consent: Each survey provided information either on or attached to the questionnaire, detailing the content and purpose of the study. For Study 1, those soldiers who received a questionnaire did not have to reply if they did not want to. No records were kept of the soldiers who were sent a questionnaire, so follow up questionnaires were not sent to non-responders. With respect to the longitudinal survey, although soldiers were given the pre-deployment questionnaires by their chain of command, this was in an ad hoc fashion and no details were kept by the officers. Post deployment, soldiers who did not reply to the questionnaire were sent a follow up questionnaire and a letter by the researcher thanking them for taking part in the study and requesting a response. Both the organisation and employees were aware of the survey. During the interviews, if any person appeared or felt reticent to talk, then no further pressure was applied.

(2) Confidentiality and anonymity: As mentioned, Study 1 did not request any details on individual's identity. Study 2 did request Army numbers, although effort was made to reassure respondents of the confidentiality of responses. Each respondent was provided with their own envelope to be sent back straight to the researcher.

(3) Feedback and application of results: The results from this study provided fundamental input into the Army policy on stress management. The reports written by the author (Harvey 1996, 1997) were circulated within the Army and MOD, in addition to providing the report as feedback to the infantry regiment studied in Study 2.

(4) Survey induced reactions: All questionnaires carried the researcher's name and contact details if anyone felt they wanted to discuss the study, or seek further help. The questionnaire itself contained a section on social support, listing those personnel who an individual could seek help from, ranging from their Medical Officer (MO), Army Community Psychiatric Nurse (CPN) through to friends and family. Hence, if an individual felt they were experiencing adverse reactions from completing the questionnaire (induced memories), then it was evident from where help could be sought. At the end of

the questionnaire a section was included which thanked the participants for their time and effort and also stated that if they were experiencing difficulties, to visit their MO.

8.5 Treatment and analysis of data

The survey data was entered into and analysed on SPSS PC for Windows (Statistical Package for Social Sciences). Descriptive, univariate and multivariate analyses were undertaken (see Hays 1988). Correlations between variables were computed using the Pearson Product Moment Correlation Coefficient; while differences between categories of personnel were assessed by t-tests and analysis of variance. Multiple regressions (MRA) were used to analyse the relationship between a criterion variable and a range of predictor variables. These techniques also assess the strength of the relationship and determine the importance of each predictor.

SUMMARY

Chapter 8 described the research methodology for Study 1 (cross sectional) and Study 2 (longitudinal). The instruments used for both studies are described in detail, as were the procedures adopted.

CHAPTER 9:

RESULTS OF STUDY 1

Overview of chapter

This chapter considers the results of Study 1, the cross sectional survey. The format of this section will be under the following headings:

1. Sample representativeness and demographic details
2. Described experiences of stress
3. Descriptive analysis of important variables
4. Mental health and psychological measures - group differences
5. Predictions of mental health problems, morale and desire to leave.

When statistics such as analyses of variance are used, further details are provided in Appendix 10.

9.1 Sample Representativeness

9.1.1 Response Rate

705 personnel replied, which provided a response rate of 35%. This is not unexpected for a postal survey, with no follow up of non-responders. A breakdown of respondents is detailed below:

Table 9-1: Response rate of sample, Study 1

	Soldiers		Officers		<i>Totals</i>
	Male n(%)	Female n(%)	Male n(%)	Female n(%)	
G3(inf)	125 (18)	0	46 (7)	0	171 (24)
G3 (non-inf)	192 (27)	8 (1)	51 (7)	1	252 (36)
G1	55 (8)	13 (2)	20 (3)	6 (1)	94 (13)
G4	146 (2)	11 (2)	30 (4)	1	188 (27)
<i>Totals:</i>	518	32	147	8	705

Table 8-3 details the numbers of personnel required in each category in order to represent the composition of the British Army at the time of the survey. Table 9-1 details the response rates obtained in the cross sectional survey with the percentage of the total respondents provided in brackets. To assess the sample adequacy of the responses Chi Squared (χ^2) values were calculated. Based on a sample of 705, the return rate of both sex ($\chi^2 = 0.283$, $df=1$, 704 , $p > 0.05$) and Arms and Corps ($\chi^2 = 3.297$, $df=1$, 704 , $p > 0.05$) categories are representative of the British Army

population characteristics. The return rate of soldiers and officers is not representative ($\chi^2 = 75.5$, $df=1$, 704, sig different). It has to be noted that while the responses are numerically representative of females/males in the British Army, the sample of females comprises 40 respondents. This may result in an over-generalisation to females within the British Army as a whole. Officers significantly over responded (by 74) and soldiers significantly under responded (by 70). This gives a standard representative sample of approximately 660, with a secondary sampling of higher ranking officers. This provides reliable and stable results for those personnel who are the 'decision makers' and who are responsible for the day to day running of the Army.

9.1.2 Sample Demographic Details

A demographic breakdown is provided below, indicating marital status and operational experience of respondents. Classification of categories of Arms and Corps that are used in this study is also provided at Appendix 1. 68% of respondents are married and 8% separated; 53% have children. Only 14.7% have not experienced an operational tour; 63% have experienced at least one tour in Northern Ireland, 22% of personnel have participated in Operation GRANBY and 22% have participated in deployments to the Former Republic of Yugoslavia (FRY).

Table 9-2 Rank and Family Status

	Marital status			Children	Total Frequency (%)
	Single n(%)	Married n(%)	Divorced/ Separated (%)	Children n(%)	
Jnr Rks (Pte, LCpl, Cpl)	137 (38)	194 (54)	29 (8)	126 (35)	360 (51)
SNCO (Sgt & above)	12 (6)	164 (85)	17 (9)	147 (76)	193 (28)
Jnr Offs (2Lt, Lt, Capt)	19 (31)	35 (60)	5 (9)	27 (46)	59 (8)
Snr Offs (Maj & above)	6 (7)	80 (91)	2 (2)	73 (83)	88 (13)
<i>Totals</i>	24%	68%	8%	53%	100%

Table 9-3 Operational Experience

	Op BANNER n (%)	Op GRANBY n (%)	Ops in FRY n (%)	Other Ops n(%)	Total Frequency (%)
Jnr Rks	190 (53)	83 (23)	94(26)	90(25)	360 (54)
SNCO	149 (77)	48 (25)	35 (18)	73 (38)	193 (28)
Jnr Offr	37 (63)	4 (7)	12 (21)	14 (24)	59 (8)
Snr Offr	67 (76)	21 (24)	12 (14)	31 (35)	88 (13)
<i>Totals</i>	63.4%	22.4%	21.7%	29.5%	

Table 9-4 Number of personnel who have undertaken operational deployments

	No Ops. n(%)	1 n(%)	2 n(%)	3 n(%)	4 n(%)	5 to 10 n(%)	Total Frequency(%)
Jnr Rks	64 (17)	134 (37)	90 (25)	48 (13)	13 (3)	11 (3)	360 (54)
SNCO	19 (10)	42 (22)	51 (26)	31 (16)	22 (12)	27 (14)	193 (28)
Jnr Offr	11 (19)	23 (40)	40 (21)	3 (6)	3 (5)	4 (7)	59 (8)
Snr Offr	9 (10)	22 (25)	21 (24)	11 (12)	13 (15)	12 (14)	88 (13)
<i>Totals</i>	14.7%	32%	24.9%	13.7%	7.4%	7.8%	

Tables 9-2 to 9-4 provide details of the demographic breakdowns of the sample respondents. Table 9-2 identifies the number and percentage of personnel in various marital status categories, in addition to the number of personnel who have children. Table 9-3 details the numbers of personnel who have participated in specific recent operational deployments. Op BANNER refers to operations in Northern Ireland, Op GRANBY refers active duty in the Gulf War, while Ops in FRY refers to operations in the Former Republic of Yugoslavia. The totals identified at the bottom of the table illustrate the percentage of respondents who have been on each operation; personnel may have participated in more than one operation. Finally, table 9-4 details the numbers and percentages of personnel who have undertaken various numbers of operational deployments. It can be seen that only 14.7% of personnel have not participated in an operation, while over one quarter of personnel have completed three or more operations.

Thus, a wide range of personnel and personal categories is accounted for in this sample, allowing for investigation of individual differences. Similarly, a variety of military experience is held by personnel within the sample, providing the capacity to analyse specific military issues.

9.2 Described Experiences of Stress

This section considers experiences of stress, regarding these in the context of organisational stressors, various operational deployment stressors and home and social stressors. The most frequently described stressors in each of these spheres are highlighted and briefly discussed in Chapter 11.

9.2.1 Coding of descriptions

Respondents were asked to describe the three most difficult things they had experienced during their time in the Army. It is argued that what individuals find difficult to deal with is a 'stressor', as their coping strategies are likely to be stretched to deal with the situation. Furthermore, the question was used as it is simple, easy to understand and does not use the potentially alienating term 'stress'.

9.2.2 Responses

Sixty-seven percent of the respondents completed parts of the section, while the remainder of respondents either stated that they had not experienced anything stressful, or declined to complete the section. A total of 1065 descriptions were obtained. Each description was coded into two categories; the first category determined the context in which the stressor occurred (operational deployment, work/ organisational or home/ social) and the second category determined the type of stressor. For example, a soldier may experience stress on an operational deployment, yet his most difficult problems may be derived from separation from his family. The second category was coded in accordance with the categories cited in Appendix 7, which includes a full break down of frequencies.

9.2.3 Context of stressor

The following two tables consider the total number of responses (not respondents) and review the breakdown by categories. When considering the sphere of the stressor, the number of personnel deployed on each operation must be noted (Table 9-3), as this will obviously effect the number of personnel likely to experience deployment related problems. As can be seen, the majority of stressors occurred within the work/ organisational sphere, which is perhaps not surprising as personnel will spend the vast proportion of their career not on operational deployments.

Table 9-5: Breakdown of sphere in which stressor occurred

Sphere/ context of stressor		Number of responses (%)	
During an operational deployment	NI (n= 441)	202 (19)	405 (38)
	Gulf (n= 156)	85 (8)	
	FRY (n= 153)	75 (7)	
	Other (n= 208)	43 (4)	
Work, organisational		521 (49)	
Home, social		139 (13)	

9.2.4 Category of stressor.

Table 9-6 breaks down each of the descriptions into meaningful categories, based upon an emergent content analysis. Only those categories with frequencies above 19 have been included, which comprises 798 of the total number of descriptions. As mentioned previously, full details of the categories and frequencies are provided at Appendix 7. As can be seen, the major difficulties are concerned with separation from partners and family and the negative impact that the Army has upon their home lives. Participation in career training courses and interviews is also a major difficulty, as is ‘change or uncertainty’ (changing jobs, job insecurity, uncertainty within operational scenarios etc.).

Table 9-6 Frequency of stressor types

Stressors	Frequency (%)
Separation from family/partners and Army impact upon family	84 (7.9)
Career courses, interviews etc.	82 (7.7)
Change or uncertainty	72 (6.8)
Poor man-management	55 (5.2)
Death of fellow Army personnel	54 (5.1)
Potentially life threatening situation	44 (4.1)
Workload	43 (4.0)
Relationship break-up	42 (3.9)
Death of a friend	41 (3.8)
Pressure or responsibility	40 (3.8)
Responsibility of bad news, dealing with welfare problems	39 (3.7)
Own illness, accident, assault	36 (3.4)
Under attack	33 (3.1)
Negative family events	30 (2.8)
Death of immediate family	29 (2.7)
Failure in work, career disappointments	28 (2.6)
Death of civilians, including children	27 (2.5)
Suicides (witnessed, or of close friend or person within unit)	19 (1.8)
<i>Total</i>	<i>798(74.9)</i>

9.2.5 Stressors within each sphere

When considering each sphere in isolation with its associated major stressors, it can be seen that within each sphere varying categories of stressors are reported as major difficulties. Tables to 9-7 to 9-9 show the most frequently endorsed categories within each sphere (that is, frequencies above five) and their associated percentages.

Table 9-7 Stressors within the organisational sphere

Work/ Organisational Sphere	Frequency (%)
Career, training courses	64 (12)
Change or uncertainty	42 (8)
Poor man-management	40 (8)
Separation problems	36 (7)
Workload	31 (6)
Welfare problems	29 (6)
Death of Army personnel	25 (5)
<i>Total in sphere</i>	522

Table 9-8 Stressors within the deployment sphere

Deployment Sphere	Frequency (%)
Separation problems	34 (9)
Life threatening situation	28 (7)
Death of Army personnel	26 (6)
Under attack	25 (6)
Death of a friend	24 (6)
Change/ uncertainty	24 (6)
<i>Total in sphere</i>	405

Table 9-9 Stressors within the home/ social sphere

Home/ social Sphere	Frequency (%)
Relationship break-up	24 (18)
Death of immediate family	17 (12)
Family events - negative	14 (10)
Separation from family	14 (10)
Change/ uncertainty	6 (5)
<i>Total in sphere</i>	139

9.3 Descriptive Data Analysis with Important Variables

9.3.1 Descriptive analysis

This section is included to provide the basis for the statistical results discussed in sections 4 and 5, where the means, standard deviations, inter-scale correlations and internal reliabilities (Cronbach's Alpha) are detailed below in table 9-10.

9.3.2 GHQ12

The GHQ12 was scored using the standard scoring method, where the four point scale was scored dichotomously (0,0,1,1). The scale has a mean value of 2.3 out of a possible 12 maximum score, although the standard deviation was high (3). This illustrates that although the mean was below the standard threshold score of 3 (Goldberg & Williams 1988) there was significant variation, with 34% of respondents scoring 3 and above. This number appears quite high, although it is in keeping with other larger scale studies on police (26%: Brough 1996; 29% Hetherington 1994) and civil servants (38% and 36%, Rick 1994). The internal reliability of the GHQ12 is 0.88 which compares favourably with results from other surveys. For example, both Parker et al (1995) and Moyle (1995) reported values of 0.9. This illustrates that the GHQ12 is a uni-dimensional measure, providing a high level of internal reliability.

9.3.3 Neuroticism

The mean value for neuroticism was 11.64, where the maximum possible value was 24 and the minimum score was 6. Higher values suggest greater neuroticism and negative affectivity. The results tend to suggest that respondents generally scored quite low on negative affectivity, indicating comparatively few problems. Although a six item version of the scale was used, one can standardise these results to the more common 12 item version, in order to allow for comparisons. By multiplying by two the mean result obtained from this study, 23.28, is similar to those of Brough (1998) in her study of police officers, where she found mean values to vary between 21.35 and 22.46. The Cronbach's Alpha for the neuroticism scale was 0.718, illustrating

a good level of internal reliability. Results by Parkes (1990) and Moyle (1995) found reliabilities of 0.86 and 0.84 respectively.

9.3.4 Mastery

A maximum value of 28 could be obtained on the seven item scale, indicating a high degree of perceived mastery; the mean score obtained was 20.583. This illustrates that the respondent population generally feels they have a high degree of mastery, comparing equally with Franks and Faux (1990) who found a mean score of 20.8 (s.d. 5.3) and Thoits (1987) with a mean score of 21.90 (s.d. 4.42). The internal reliability was high, 0.812, and again, compared favourably with Franks and Faux and Thoits (0.78 and 0.77 respectively).

9.3.5 Self Esteem

The self esteem scale has a maximum of 20 possible points (five item scale), with the highest values signifying high self esteem. The mean value was 16.23, illustrating that the respondents' levels of self esteem were high. The internal reliability was high (0.785), signifying a reliable instrument. Although comparisons are difficult due to the usage of the shortened item version of the questionnaire, it is possible to scale up the results from this study (x2) in order to reflect those obtained in the full ten item version. A study by Creed, Hicks and Martin (1998) on unemployed people undergoing training obtained mean scores of 31.99. These scores are slightly lower, although similar, to those obtained in this study (32.46).

9.3.6 Trait Anxiety

Trait anxiety was measured using a six item version of the scale, which makes direct comparison to other results difficult. The possible maximum value was 24 and the minimum value was 6, and the mean score obtained was 10.57 (s.d. 3.17). To obtain some measure of comparison, it is possible to scale up the results to represent the full 20 item version. This yields a mean value of 35.23 (by multiplying 10.57 by 3.33). Looking at the table of norms provided by the STAIS-AD Manual (1983) it can be seen that the mean value for working male adults is 34.89 (s.d. 9.19) and the mean value for military recruits (under training) was 37.64 (s.d. 9.51). Thus, it can be seen that

the results from this study are very similar to other studies conducted using the trait anxiety measure. This suggests that generally, respondents were not high in trait anxiety. Again, the Cronbach's Alpha was high, 0.787, suggesting high internal reliability.

9.3.7 Coping Measures

The descriptive statistics for the five sub-scales within the Cybernetic Coping Scale and the sub-scale of Social Support are illustrated in table 9-10. The higher the score, the greater use of the coping strategy. The means for each scale vary between 10.05 to 7.66, with 'changing the situation' being the most frequently stated coping style. This is perhaps not surprising in a military environment, where personnel, particularly officers, are taught to consider a situation in a variety of ways and how best to deal with eventualities, tackling a problem in a logical and reasoned manner. The second highest coping strategy was 'symptom reduction' (9.2); again, perhaps not surprising when one thinks of the emphasis in the Army on physical recreation and sport, in addition to the team aspects of socialising together. The lowest mean scores were for 'accommodation' and 'avoidance' (7.78 and 7.66 respectively), suggesting that military personnel tend to adopt a more confrontative style to coping, rather than changing their expectations or avoiding the situation (with the exception of 'symptom reduction').

The descriptive statistics presented by Edwards and Baglioni (1993) refer to the original 40 item questionnaire, therefore cannot be used to compare the results obtained in this study. The only sub-scale for which there was a poor reliability was the 'symptom reduction' scale (0.468). When removing the item on alcohol consumption, which was included by the researcher, the internal reliability remains questionable.

It can be observed from the inter correlations in table 9-10, that the majority of relationships reflect those established in previous research. For example, there are high and significant relationships between the GHQ12 and neuroticism, mastery, self esteem and trait anxiety (between 0.46 and 0.52). For example, Moyle (1995) reported a correlation between GHQ and neuroticism to be 0.55 ($p < 0.001$).

9.4 Mental Health and Psychological Measures - Group Differences

9.4.1 Mental Health

This section considers the overall values of mental health, in terms of the GHQ12 and IES, identifying a percentage of responders who report to be experiencing a degree of problems. In the interests of consistency with the longitudinal survey, mental health will be considered in terms of the GHQ12, rather than the GHQ12 and IES combined. The results of the GHQ12 and the psychological standardised measures are then considered in terms of various categories of personnel. The differences examined are: rank, age, marital status, receipt of stress education and the occurrence of a significant life event. Table 9-12 provides details of the most frequently described stressors within certain spheres in the IES questionnaire, while tables 9-13 to 9-19 show the percentage of respondents who reached the cut-off criteria and detail the significant statistical analyses.

9.4.1.1 GHQ12

The GHQ12 was scored using the standard scoring method (0,0,1,1), where the minimum score was 0 and the maximum was 12. Goldberg (1972) and Goldberg and Williams (1988) suggested that a threshold level of three and above was considered to identify those personnel who are experiencing poor mental health. Two hundred and thirty-four respondents, 33%, reported a GHQ12 value above the cut off of 3, while 184 (26%) respondents reported a GHQ12 value above the threshold of 4. Table 9-12 provides details of the GHQ12 scores and the number of personnel who scored the different values between 0 to 12. The GHQ12 is taken as being the main outcome measure for this study. One can establish that the percentage of respondents above the threshold level are

experiencing some degree of poor mental health, therefore it would be interesting to know the percentage who are experiencing more severe problems in terms of traumatic stress reaction symptomology. Thus, a two stage approach can be used; firstly establishing those respondents who are experiencing problems (GHQ12), then attempting to find out why those respondents are experiencing difficulties (IES).

Table 9-11 Breakdown of GHQ12 scores

GHQ12 score	Frequency (cum %)
0	309 (44.0)
1	96 (57.7)
2	64 (66.8)
3	50 (73.9)
4	41 (79.7)
5	31 (84.1)
6	34 (88.9)
7	16 (91.2)
8	20 (94.0)
9	14 (96.0)
10	8 (97.1)
11	10 (98.5)
12	10 (100.0)
<i>Total</i>	<i>703</i>

9.4.1.2 IES

The IES provides a link between evidence of sickness and exposure to trauma, and then links this to PTSD. The standard 0,1,3,5 scoring was used on the four point scale (Horowitz et al 1979). Thus, one can establish fairly robustly (within a self report questionnaire study) those individuals who are experiencing significant mental health problems, as they have scored above the threshold on the GHQ12 and then scored within the top third of responses on the IES. Forty nine percent (n = 345) of respondents completed the IES. Often people will not complete this questionnaire as they believe they have not experienced an event which they deem to have made a particularly traumatic impact upon them. The questionnaire requested respondents to recall experiences during their Army career, as opposed to the original IES questionnaire which asked people about their traumatic experiences during the past seven days. Thus, a greater number of responses are to be expected due to the time and potential experiences accumulated. There

is a total of 165 personnel who state that they are still experiencing certain symptomology concerning the described event, which comprises 23.5% of the total sample population.

9.4.1.3 Context of stressor

The descriptions obtained from the IES were coded in the same manner as the stressors described in table 9-6. Considering the spheres of these descriptions, 41% were within the work/ organisational sphere, 19% in Northern Ireland, 11% on Operation GRANBY, 8% in FRY, 6% on a different deployment and 15% in the home/social sphere. Table 9-12 details the most frequently endorsed 'traumatic' events.

Table 9-12 Most frequently endorsed traumatic events - IES

Most frequently described events	Frequency (%)
Death of Army personnel	25 (7.3)
Death of a friend	23 (6.7)
Life threatening situation	18 (5.2)
Death of civilians	17 (4.9)
Death of immediate family	17 (4.9)
Separation problems	16 (4.6)

As can be seen from table 9-12, these events are largely traumatic in nature, involving witnessing events or experiencing a life threatening situation. However, death of immediate family and separation from partner are included within this grouping. Although the former could be argued as being potentially traumatic in nature, the inclusion of the latter stressor and indeed many other less frequently endorsed 'non-traumatic' stressors (such as workload, failure in work) does highlight some difficulties with the IES as an effective measure of PTSD/traumatic type symptomology. (Some individuals find the questionnaire difficult to understand, long and repetitive.) These categories will however be included within the analysis, as respondents have stated their experiences as having certain symptomology, hence this must be taken into account.

9.4.2 Personnel with likely mental health problems

As mentioned earlier, in order to obtain a percentage of respondents who are experiencing significant mental health problems, it is useful to consider both the IES and GHQ12 scales in conjunction. Those personnel who scored high values on the GHQ12 (33%) represent those that fall into the grey area of the sub-clinical and clinical population. Out of this group there are a number of personnel who are feeling low or strained, but are not *currently* experiencing intrusion and avoidance symptomology characteristic of PTSD (as measured by the IES). High value IES scores have been taken as the top third of values obtained by those respondents completing the IES questionnaire. Published criteria for IES threshold scores were not appropriate due to the differences in timescales. The original IES requested respondents to refer to an incident in the previous seven days, while the Study 1 questionnaire requested respondents to refer to a traumatic event during their Army career. These findings therefore provide an indication of the number of respondents experiencing difficulties.

Figure 9-1 Use of GHQ12 and IES Questionnaires

<i>Lo GHQ</i>	<i>Hi GHQ</i>
<i>Lo IES</i>	<i>Lo IES</i>
<i>Lo GHQ</i>	<i>Hi GHQ</i>
<i>Hi IES</i>	<i>Hi IES</i>

Figure 9-1 provides an illustration of the use of both the GHQ12 and IES. This study is therefore considering those personnel in the lower right quadrant as those who are experiencing difficulties. In order to establish the number of personnel who were experiencing problems at the time of the survey, it was necessary to exclude those respondents who stated that they were not currently experiencing difficulties. Using a threshold score of 40 on the IES (the top third of IES scorers who were currently experiencing problems) and personnel above the GHQ12 threshold, left 43 respondents who fell into the category of personnel who at the time of the survey were experiencing PTSD symptomology. This constitutes 6% of the total survey population and 18.4% of the high value GHQ population. Interestingly, the Norwegian UNIFIL study found similar

results (5%), of personnel who displayed increased GHQ and PTSS (Post Traumatic Symptom Scale) scores on a cross sectional sample of soldiers who had participated in UN deployments.

Due to the comparatively small number of respondents who fell into this ‘high problem’ category, it was decided that further analysis would only be conducted on those personnel who reported high GHQ12 levels and that they had experienced intrusion and avoidance symptomology as identified by the IES, but were not necessarily *currently* doing so. The IES threshold was therefore decreased to 27 (the top third of IES scorers who *had* experienced problems). This increased the numbers within the problem sample to 76 (10.8% of the total sample), which provides a more reliable sample for statistical analysis.

9.4.2.1 Individual differences and mental health problems

A new variable was created to represent whether respondents were in the ‘problem’ group or not, coding 0 for not in the problem group (n = 629) and 1 for being in the problem group (n = 76). Initially, percentages of personnel within each of the individual categories were calculated as an exploratory analysis and are shown in the tables below. Then, either an Anova or an Independent T-test was calculated on the data to establish if there were any significant differences based upon varying categories of personnel with regard this ‘problem group’ variable. This is an important part of the research as it allows identification of any individual differences in mental health and psychological variables.

Following each table, a secondary table (labelled *_a*) provides details of any significant differences obtained on the psychological measures with regard to the individual difference categories. Full details of the analyses where anovas were conducted are provided in Appendix 11; only those measures that yielded significant differences have been highlighted.

9.4.2.2 Rank

Table 9-13 Reported mental health problems by rank

	Jnr Rks	SNCO	Jnr Off	Snr Off	Significance
% in problem group	13.3%	9.3%	8.5%	4.5%	F(3,699) =2.27, p<0.1

Table 9-13a Psychological measure scores by rank

Measure	Significance
GHQ12	F(3,685) =3.68, p< 0.01
IES	F(3,699) =2.78, p< 0.05
Neuroticism	F(3,691) =2.85, p < 0.05
Trait Anxiety	F(3,691) =8.46, p <0.001
Mastery	F(3,686) =8.54, p< 0.001
Self Esteem	F(3,688) =5.8, p < 0.001
Avoidance	F(3,693) =11.9, p < 0.001
Devaluation	F(3,688) =4.09, p < 0.01
Change Sitn	F(3, 693) =17.1, p < 0.001

As rank increases the reported likely problems decrease, both in terms of the GHQ12 and the IES. This shows that the lower ranks state a lower level of general mental health, in addition to greater levels of potentially traumatic problems. Rank also yielded significant differences with regard to neuroticism, self esteem, trait anxiety and mastery. With the lower ranks, both neuroticism and trait anxiety were higher. The findings for trait anxiety were particularly robust, which remained significant even when controlling for age and status ($F = 3.93$, $df = 3,686$, $p < 0.01$). This suggests that, generally, the higher ranks report being more mentally stable and self confident, or conversely, it could mean that the higher ranks are less willing to admit to difficulties or insecurities. There could be a number of contributing factors, such as self selection, where an individual remains in the environment where he can accept the constraints or enjoys that environment. Also, generally, the more senior rank in the Army, the greater control there is over the working environment.

With regard to self esteem and mastery, Junior Officers displayed the highest values and Junior Ranks the lowest values. One would expect Junior Officers to display high rates of self worth and self confidence, but the lower rates for Senior Officers is surprising. Perhaps as one matures, generally greater humility is displayed. With regard to the utilisation of coping strategies, there were significant differences in the use of avoidance, devaluation and changing the situation across the rank structure. As rank rises, use of

changing the situation increases while use of avoidance decreases, which is in keeping with the comparatively greater empowerment of the higher ranks. Devaluation is reported to be used more by Junior Ranks, followed by Senior Officers and SNCOs, then Junior Officers.

9.4.2.3 Age

Table 9-14 Reported mental health problems by age

	17 - 21	22 - 25	26 - 30	31 - 39	> 40	Significance
% in problem group	10.4%	17.3%	9.4%	7.1%	9.6%	F(4,701) =2.53, p< 0.05

Table 9-14a Psychological measure scores by age

Measure	Significance
GHQ12	F(4,687) =3.1, p< 0.01
IES	F(4,370) =2.53, p< 0.05
Neuroticism	F(4,693) =4.42, p< 0.01

It can be observed that there is a significant difference between age categories in terms of mental health, from both the GHQ12 and IES data. The highest number of problems can be found in the 22 to 25 age group (17.3%). It could be argued that within this group there may be a greater number of personnel wanting to establish stable relationships and may be feeling constrained by the competing pressures from partners and work. Neuroticism values yielded significantly different results on the basis of age, and remained significant when controlling for rank and marital status (main effect F(6,686) = 4.19, p<0.001). Younger personnel reported higher values of neuroticism, perhaps suggesting that the greater experience the more stable the personality, or conversely, that the more stable personality chooses to remain within the Army.

9.4.2.4 Arms and Corps

Table 9-15 Reported mental health problems by Arms/ Corps

	G3(inf)	Other Teeth Arm	G4	G1	Signif
% in problem group	8%	10.7%	13.3%	9.6%	n/s

Table 9-15a Psychological measure scores by Arms/ Corps

Measure	Significance
Symptom Reduction	F(3,689) =2.93, p< 0.05
Devaluation	F(3,687) =5.23,p< 0.001

Percentages of problems across Arms and Corps vary, with G3(Inf) displaying the lowest reported rate and G4 displaying the highest; this was not significant. Again, there were no significant differences concerning mastery, self esteem, neuroticism and trait anxiety. G3(Inf)'s greater purported use of symptom reduction as a coping strategy would tend to reinforce the stereotypes of an infantry soldier as drinking with his mates to try and ignore a personal difficulty. It could be argued that the infantry may report the least symptomology and fewer rates of mental health problems, largely because they may not acknowledge any difficulties they have and cope by attempting to dispel the feeling and not the cause. This is somewhat reinforced by the significantly greater use of devaluation by G3(Inf), particularly when compared to G1 Corps.

9.2.4.5 Marital Status

Table 9-16 Reported mental health problems by marital status

	Single	Married	Divorced	Significance
% in problem group	13.5%	10%	11%	n/s

Table 9-16a Psychological measure scores by marital status

Measure	Significance
Trait Anxiety	F(2,689) =6.09, p< 0.01
Self Esteem	F(2,687) =9.0, p< 0.001
Avoidance	F(2,692) =7.2, p< 0.001
Change Situation	F(2,692) =5.3, p< 0.01

With either the GHQ12 or the IES there were no significant differences between marital status, although there was for trait anxiety. There does appear to be a trend towards single soldiers displaying higher rates of mental health problems, with married soldiers reporting the lowest. Single personnel also reported significantly lower rates of self esteem. This would tend to reinforce the importance of a spouse as a means of social support, in addition to the extra stability that a spouse provides with regard to a soldier or officer's domestic situation. With regards to coping techniques, single personnel report a

significantly higher degree of avoidance as a strategy and an underutilisation of changing the situation. This would tend to suggest a greater reliance on less effective means of coping, with less of a willingness to confront issues. This is likely to be linked to the lower rates of self esteem.

9.2.4.6 Significant Life Events

Table 9-17 Reported mental health problems by occurrence of a significant life event

	Sig. life events	No sig events	Significance
% in problem group	17.6%	6.2%	Ind t = -7.78, df=465, p<0.001 (u) ¹

Table 9-17a Psychological measure scores by occurrence of a significant life event

Measure	Significance
GHQ12	Ind t = -5.17, df=520, p<0.001 (u)
IES	Ind t = -4.46, df=436, p<0.001 (u)
Neuroticism	Ind t = -4.98, df=570, p<0.001 (u)
Trait Anxiety	Ind t = -3.55, df=692, p<0.001 (e)
Mastery	Ind t = 4.93, df=687, p<0.001 (e)
Self Esteem	Ind t = 4.28, df=519, p<0.001 (u)
Symptom Reduction	Ind t = -3.32, df=690, p<0.001 (e)

Respondents were asked if there were any significant events which had had a major effect on them over the last year, and if so, to describe them. When separating those respondents who stated they had experienced a significant event and those who had not, there were significant differences with regard to GHQ12 scores, IES scores, neuroticism, trait anxiety, mastery and self esteem. Thus, personnel who had experienced a significant event within the last year were more likely to report lower mental health and be experiencing greater PTSD type symptomology. These results are convincing in reinforcing the argument that the presence of a significant life event is liable to make an individual more prone to experiencing low mental health. With regards to coping strategies, symptom reduction was the only technique which was utilised significantly greater by respondents who had experienced a significant life event. This illustrates that after such an event, individuals are more likely to utilise individual and maybe ritualised coping mechanisms (for example, always going for a run if feeling tense and frustrated).

¹ 'u' refers to unequal variance, while 'e' refers to equal variance.

9.2.4.7 Stress Education

Table 9-18 Reported mental health problems by stress education

	Educated	Not Educated
% in problem group	9.1%	11.5%

Table 9-18a Psychological measure scores by stress education

Measures	Significance
GHQ12	Ind t = 3.96, df=423, p<0.001(u)
Trait Anxiety	Ind t = 2.52, df=691, p<0.001(e)
Mastery	Ind t = -3.29, df=686, p<0.001(e)
Social Support	Ind t = -2.95, df=689, p<0.005(e)
Change Situation	Ind t = -3.66, df=693, p<0.001(e)

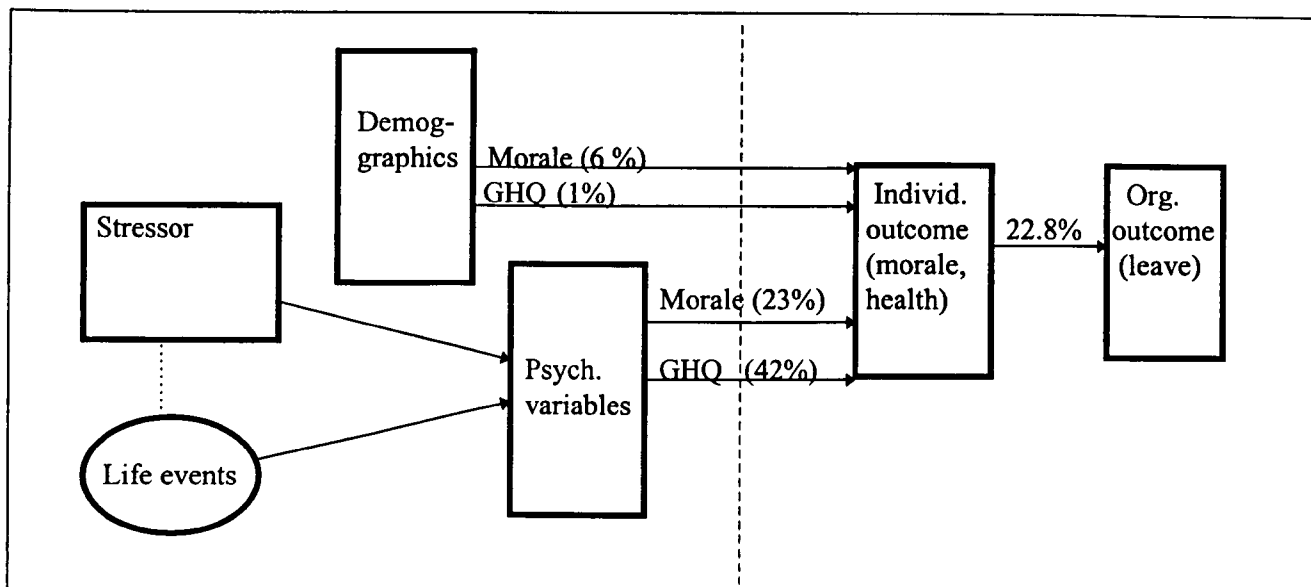
Although the item on stress education did not refer to any specific training, but to training in a global context, this allows for assessment of the impact of an awareness of stress. The findings are convincing in illustrating the effectiveness of receiving some degree of education on stress and its management. Although there is no significant difference with regard to inclusion in the 'problem' group and whether personnel had been educated on stress or not, those who had been educated on stress reported significantly lower GHQ12 levels, trait anxiety and higher levels of mastery. Thus, it appears that in terms of mental health levels, there is obvious benefit to receiving some form of stress education. When looking at coping strategy utilisation, 'stress educated' personnel were significantly more likely to use social support and changing the situation as techniques for coping. It could be argued that these are effective coping strategies as they allow the individual to confront the problem, discuss it and potentially work out the most effective way to deal with it.

9.5 Multiple Regression Analyses/ Restricted Path

This section of the chapter considers the relationships between the variables and their possible, albeit restricted, path of influence. The approach used is essentially to be considered as descriptive, allowing exploratory research to establish the relatively important variables predicting outcomes, rather than in absolute terms. A series of multiple regression analyses (MRA) was conducted based on the model illustrated in Figure 9-1 below. The percentage of variance accounted for for each pathway of influence is detailed in the figure. The figure is a simplified version of the model proposed in Chapter 7. This

staged approach was used with separate MRAs to allow specific pathways to be identified and investigated with the data collected.

Fig. 9-2 Path of influence of stress outcomes



A restricted path analysis is used for this cross sectional data set, due to its ability to explore the causal relationship between variables. A path analysis enables multiple regression procedures to be used to test formally reviewed causal models, and will be applied here to the proposed well-being model. The technique provides quantitative estimates of both the direct and indirect causal relationships between the variables in the model, allowing illustration within a diagrammatic format (Bryman & Cramer 1993; Tabachnik & Fidell 1996).

Organisational Outcome

A MRA was conducted, to establish the variables which significantly predicted desire to leave the Army (*"I would leave the Army now if I could"*). Listwise deletion of missing data was used, due to the comparatively large number of respondents and the small amount of missing data. Analyses were conducted with pairwise deletion of missing variables and compared with the listwise method. It was decided that there was little difference with the results, and as listwise provides a more robust solution and lacks the limitations of the former method (Hays 1988), the listwise procedure was used.

The analyses conducted were on a theoretical basis, illustrated in figure 9-1. At step 1, own morale and GHQ12 were forcibly entered into the MRA to establish the amount of variance they contributed to in terms of the ability to predict whether an individual would want to leave the Army.

Table 9-19: MRA - desire to leave the Army

Variables entered	Beta	Probability
GHQ12	0.079	0.041
Own morale	0.436	0.000
R=0.48, R ² =0.23, Adj R ² =0.23, F=102, df=2,682, p=0.00		

Stage 2 considered the prediction of GHQ12 and own morale on the basis of the psychological variables. All these variables were forcibly entered into two separate equations to establish if any were significant predictors and the amount of variance they accounted for in terms of own morale and GHQ12.

Table 9-20: MRA - Psychological variables on own morale

Variables entered	Beta	Probability
Self Esteem	-0.118	0.027
Neuroticism	0.101	0.026
Mastery	-0.195	0.000
Trait Anxiety	0.102	0.050
Devaluation (coping)	-0.154	0.000
Symptom Reduction (coping)	0.078	0.040
Social Support (coping)	-0.032	0.400
Accommodation	0.083	0.032
Avoidance (coping)	0.028	0.489
Change Sitn (coping)	-0.123	0.002
R=0.48, R ² =0.24, Adj R ² =0.23, F=19.8, df=10,632, p=0.00		

Table 9-21: MRA - Psychological variables on GHQ12

Variables entered	Beta	Probability
Self Esteem	-0.194	0.000
Neuroticism	0.312	0.000
Mastery	-0.149	0.000
Trait Anxiety	0.148	0.001
Devaluation (coping)	-0.010	0.796
Symptom Reduction (coping)	0.051	0.127
Social Support (coping)	0.010	0.754
Accommodation	-0.023	0.499
Avoidance (coping)	-0.045	0.208
Change Sitn (coping)	0.015	0.674
R=0.65, R ² =0.425, Adj R ² =0.416, F=46.1, df=10,625, p=0.00		

Demographics as predictors

Stage 3 considered the prediction of GHQ12 and own morale on the basis of the demographic variables. All these variables were forcibly entered into the equation to establish the amount of variance they accounted for in terms of GHQ and own morale.

Table 9-22: MRA - Demographic variables on GHQ12

Variables entered	Beta	Probability
Unit	-0.015	0.714
Rank	-0.115	0.038
Years served	-0.091	0.221
Marital status	-0.418	0.676
Own children	0.042	0.381
Years left to serve	-0.003	0.944
Participation in NI Ops	-0.006	0.888
Participation in Gulf war	0.025	0.526
Participation in FRY	-0.010	0.801
Participation in other Ops	0.005	0.900
Age	0.028	0.716
R=0.159, R ² =0.25, Adj R ² =0.009, F=1.54, df=11,654, p=0.114		

Table 9-23: MRA - Demographic variables on own morale

Variables entered	Beta	Probability
Unit	0.067	0.094
Rank	-0.179	0.001
Years served	-0.027	0.708
Marital status	-0.035	0.393
Own children	-0.010	0.826
Years left to serve	-0.113	0.004
Participation in NI Ops	-0.039	0.344
Participation in Gulf war	0.043	0.253
Participation in FRY	-0.075	0.049
Participation in other Ops	-0.009	0.816
Age	0.017	0.821
R=0.27, R ² =0.07, Adj R ² =0.06, F=19.8, df=11,666, p=0.00		

On the initial path, prediction of desire to leave the Army, 23% of the variance was accounted for by GHQ12 and own morale, significant to $p < 0.001$. Own morale was a more significant predictor of wanting to leave the Army, while the GHQ12 was less important.

On the next stages, prediction of own morale and GHQ12 from the psychological variables and demographic variables was conducted. The psychological variables were able to predict the GHQ12 to a substantial degree (41% variance accounted for), and own morale to a slightly lesser extent (23% variance accounted for). With regard to the GHQ12, all personality variables (neuroticism, trait anxiety, self esteem and mastery) significantly predicted GHQ12 levels, while none of the six coping variables did so. More variables were significant predictors of own morale, although in conjunction they were not able to account for the same degree of variance. In fact, the only two variables which did not predict own morale were the coping strategies of social support and avoidance. Perhaps this is because morale is predominantly a work variable and social support refers predominantly to the home and social situation 'external' to the Army.

With regard to the ability of demographic characteristics to predict GHQ12 and own morale, they were particularly unsuccessful. Demographic variables could only account for 0.9% of the variance for GHQ12 and 6% of the variance for own morale. Rank was the only significant predictor of the GHQ12, perhaps illustrating the better conditions of service for higher ranked personnel and their greater control over their work and related home situation. Three variables significantly predicted own morale, yet only two of them, rank and number of years left to serve, had acceptable Beta values. The more years an individual has left to serve, as a rule, the lower the morale. Furthermore, the higher the rank the generally lower morale ($r = -0.2$), although this relationship is not particularly strong.

SUMMARY

This chapter has considered the cross sectional questionnaire in terms of the sample representativeness. Described experiences of stress are categorised in the context of organisational, deployment or home/ social spheres, in addition to categorisations of the actual experiences. The major difficulties are concerned with separation from partners and family and the negative impact the Army has on their home lives. Participation in career training courses and interviews is also a major difficulty, as is change or uncertainty.

Descriptive analyses were conducted on the 'important' variables (psychological variables, GHQ12 etc.), identifying 33% of personnel as reaching a threshold of three and above on the GHQ12. When combining this data with the IES scores, identifying personnel who either had or were experiencing intrusion or avoidance symptomology, a 'problem' group of 11% of the sample was identified. Numerous significant individual differences were detected with respect to various characteristics (sex, rank, age, marital status and Arms/Corps) and mental health and psychological variables, and were discussed accordingly. Finally, multiple regression analyses were conducted to ascertain the, albeit restricted, path of influence, in support of the proposed well-being model. Morale and well-being accounted for 23% of a desire to leave the Army, while the psychology variables accounted for 23 to 42% of morale and well-being, respectively. In conclusion, there was support for the simplified model, proposed at figure 7-1. The evidence suggested that the strongest pathways were between the psychological and personality variables to own morale and GHQ12, and from own morale to organisational outcome (desire to leave the Army).

CHAPTER 10:

RESULTS OF STUDY 2

Introduction

This chapter details the results of the two wave longitudinal operational survey (Study 2), where questionnaires were administered before and near the end of a six month operation. The format of this section will be under the following headings:

1. Sample response and demographic details
2. Described experiences of stress
3. Descriptive analyses of important variables
4. Mental health and psychological measures - changes pre and post deployment, and group differences
5. Predictions of mental health problems, morale and desire to leave.

When statistics such as analysis of variance are used, further details are provided in Appendix 12.

10.1 Sample response and demographic details

300 questionnaires were sent to the regiment, although the 2IC said that realistically he would only be likely to obtain approximately 200 responses. As mentioned previously, the purpose of this study was to obtain as large a response as possible, as opposed to obtaining a proportionate to size representative sample. In terms of 'unit', personnel have been categorised into whether personnel are permanent members of the Royal Scots, whether they are 'permanently attached' (generally two to three years posting to the regiment, engineers, cooks, logistic personnel), 'temporarily attached' (Regular personnel posted to the regiment purely for the operation, often volunteers) or TA (Territorial Army personnel attached to the regiment for the operation on an S-Type engagement, generally for one year)/ Reserves (Ex-Regular personnel who maintain a reserve liability for three years).

As can be seen from table 10-1, although 281 personnel completed the pre-operational questionnaire (Time 1), 192 personnel completed both Time 1 and Time 2 questionnaires,

comprising a 68% follow up rate. As this part of the study is concerned with longitudinal data analysis, only those personnel who completed both questionnaires at Times 1 and 2 will be considered.

Table 10-1 Number of respondents in each study phase

	Completed both Qs	Completed Q, T1	Total
Pre-deployment	192	89	281
Post-deployment	192	-	192

Table 10-2 Sample characteristics (n = 192)

Rank	5.1% Officers, 3.6% SNCOs, 91.2% Junior Ranks
Unit	79.6% 1RS, 2.6% Perm Attd, 11.0% Temp Attd, 6.8% TA/ Reserves
Sex	100% male
Status	59.4% single, 33.3% married, 6.3% divorced or separated
Age	38.3% 17 to 21, 32.6% 22 to 25, 17.6% 26 to 30, 10.9% 31 to 40, 0.5% > 41
Prev op exp	43.0% no tours, 17.1% 1 tour, 35.7% 2 to 4 tours, 4.1% 5 tours and over
Specific ops	28.5% Operation GRANBY 49.7% Operations in NI 0.5% Operations in FRY

10.1.2 Sample Limitations

There are a number of limitations which need to be highlighted at this juncture. The response rate for the second questionnaire was 68%, which was reasonably high and can be considered adequate. There were no differences in the sample composition between respondents at Time 1 and those who completed both Time 1 and Time 2 questionnaires, across ranks, unit, sex and age.

The majority of respondents were junior rank (91.2%) and there were only a small number of SNCOs and officers. With the latter two groups of ranks, analyses comparing ranks is likely to result in an overgeneralisation, therefore they must be treated with caution. All respondents were male, hence analyses do not compare males and females. There was a limited number of Permanent Attached and TA personnel, therefore statistical analyses of these groups and comparisons are likely to be overfitted (Cohen and Cohen 1984); hence these results must be treated with some caution. In some instances, calculations considering these groups of personnel have not been analysed on the basis of the small number of these individuals within the sample group.

10.2 Described Experiences of Stress

This section considers the described experiences of stress for personnel on the operation. Respondents were asked to describe the three most difficult things they experienced while they were on Operation in Northern Ireland.

10.2.1 Responses

The descriptions obtained were categorised as detailed below in Table 10-3 with their associated frequencies (above the value of two). 136 out of 192 respondents wrote between one and three descriptions of their difficult experiences. The tables below illustrate the most frequently described problems across the ranks and 'unit groups'. It was decided to include all categories with two or greater frequencies, as the high frequency stressors were generally the more 'mundane' stressors, while the low frequency stressors provide an illustration of some of the issues facing the troops during the tour. It was therefore felt necessary to illustrate this range of responses.

Table 10-3 Categories and frequencies of stressors

Stressor Category	Frequency (%)
Separation and communication problems	62 (21.0)
Routine, monotony of job	34 (11.5)
Lack of sleep	25 (8.5)
Poor man management, lack of communication down Cof C	22 (7.5)
Lack of own time, long working hours	19 (6.4)
Living conditions and facilities	16 (5.4)
Close living together, no privacy	14 (4.7)
Overwork	13 (4.4)
Integration issues, others not doing their share of work	13 (4.4)
Confinement to camp	11 (3.7)
Pointless inspections and tasks	11 (3.7)
Change in lifestyle	11 (3.7)
Change when cease-fire ended	8 (2.7)
Problems at home	8 (2.7)
Maintenance of motivation - command responsibility	4 (1.4)
Pressure not to make mistakes	4 (1.4)
Senselessness of deployment, what will it achieve?	3 (1.0)
Making command decisions	3 (1.0)
'Hands tied', but know who suspects are	3 (1.0)
Having to discipline others, ensure they all work	3 (1.0)
Helping out at a RTA	2 (0.7)
Motivation problems	2 (0.7)
Problems defining a role	2 (0.7)
Interaction with public/ or lack of it	2 (0.7)

10.2.2 Stressors categorised by rank and unit

As was previously noted, due to the inadequate sample sizes for SNCOs and officers, and of attached personnel, it is difficult to draw comparisons regarding the described stressful experiences. However, these results will be briefly highlighted in order to provide greater insight regarding those factors affecting the different categories of personnel who are deployed on the operation.

10.2.2.1 Rank

Tables A9-1 to A9-3 in Appendix 8 provide details of the most frequently described stressors within each rank grouping. The percentages cited refer to the percentage of described stressors. All ranks report 'separation and communication', 'routine job and

monotony' and 'poor man management' to be particular stressors. These are cited as the three most frequently described stressors for all ranks, with the exception of Junior Ranks, where 'poor man management' is listed as the fifth most frequently described stressor. For Junior Ranks, 'lack of sleep'(8.9%), 'lack of own time' (6.8%) and 'living conditions' (5.7%) are cited as particular problems. SCNOs cite 'integration issues' (14.3%) as a further problem. While officers cite 'motivating soldiers' (9.5%), 'making command decisions' (9.5%) and 'disciplining others' (9.5%) as particularly difficult.

10.2.2.2 Unit or attachment

Tables A9-4 to A9-6 in Appendix 8 provide details of the most frequently described stressors within each unit grouping. The percentages cited refer to the percentage of described stressors. Again, 'separation and communication problems' and 'routine job, monotony' were cited within the three most frequently described stressors for both the Royal Scots and temporarily attached personnel. Not surprisingly, due to the proportion of respondents, the Royal Scots also cite 'lack of sleep'(7.5%), 'living conditions' (6%), 'lack of own time' (6%) and 'close living together' (6%) as particular problems. Temporarily attached personnel also cite 'integration issues' (13%) and 'lack of own time' (10%) as stressors.

10.3 Descriptive data analysis with important variables

10.3.1 Descriptive analysis

This section is included to provide the basis for the statistical results discussed in sections 10.4 and 10.5. An understanding of the basic relationship of each variable to each other is necessary when interpreting these results, particularly when considering the same variable set for different times. Time 1 (pre-deployment) correlations are stated initially, followed by the correlational and exploratory analysis for Time 2 (post-deployment). When discussing each variable, correlations are calculated between Times 1 and 2, which provide a measure of test-retest reliability.

Table 10-4 Inter-scale correlations and descriptive analysis for Time 1 (n= 192), with T2 GHQ12

GHQ12	α=0.89																																					
Rank	-0.077	-																																				
Unit	-0.072	-0.079	-																																			
Status	-0.009	0.069	-0.061	-																																		
Ops	0.032	0.17**	-0.118	0.271*	-																																	
Attd?	-0.086	-0.117	0.85	-0.018	-0.108	-																																
Neurot	0.596**	-0.012	-0.109	-0.024	0.016	-0.105	α=0.74																															
Master	-0.511**	0.095	0.126+	0.044	0.066+	0.113	-0.332**	α=0.69																														
S Anx	0.478**	-0.167**	-0.064	-0.07	-0.167+	-0.066	0.511**	-0.478**	α=0.71																													
SEstim	-0.44**	0.103	0.004	0.059	0.099	0.015	-0.303**	0.584**	0.141+	α=0.69																												
Avoid	0.037	0.093	0.017	-0.007	-0.017	0.089	0.087	0.199**	0.007	0.091	α=0.62																											
Deval	0.069	0.019	0.073	0.032	0.06	0.067	0.199**	0.007	0.186*	0.055	0.508**	α=0.78																										
Change	-0.019	0.205*	-0.052	0.089	0.076	-0.099	0.139+	0.186*	0.114	0.229**	0.229**	0.352**	α=0.70																									
Reduct	0.209**	-0.106	0.073	0.032	-0.044	-0.062	0.281**	-0.057	0.114	0.427**	0.427**	0.464**	0.357**	α=0.56																								
Supt	0.113	0.066	-0.055	0.057	0.105	-0.102	0.249**	0.115	0.113	0.152+	0.152+	0.270**	0.419**	0.274**	α=0.67																							
Accom	0.118	-0.027	0.002	0.079	0.102	-0.043	0.291**	0.002	0.041	0.254**	0.254**	0.428**	0.544**	0.312**	0.365**																							
GHQ12 T2	0.396**	0.004	0.105	-0.019	-0.046	0.065	0.290**	-0.275**	0.091	-0.242**	0.058	0.003	-0.031	0.063	0.133																							
Mean	2.76	1.15	1.45	0.55	1.35	0.19	12.12	20.31	11.80	15.66	8.82	8.76	9.58	12.95	8.71																							
S.D.	3.15	0.52	0.94	1.06	1.61	0.4	3.50	3.76	3.03	2.65	2.89	2.91	2.61	3.27	2.92																							
	GHQ12	Rank	Unit	Status	Ops	Attd?	Neurot	Mast	T Anx	SEstim	Avoid	Deval	Change	Reduc	Supt	Accom	GHQ12 T2	Mean	S.D.																			

Note ; * p < 0.05, * p < 0.01, ** p < 0.001

Table 10-5 Inter-scale correlations and descriptive analysis for Time 2 (n= 192)

GHQ12	$\alpha=0.76$																				
Rank	-0.045	-																			
Unit	0.105	-0.08	-																		
Status	-0.019	0.069	-0.061	-																	
Ops	-0.046	0.17**	-0.118	0.271*	-																
Attd	0.065	-0.14	0.85	-0.018	-0.108	-															
Neurot	0.396**	0.015	-0.091	-0.06	-0.047	-0.14	$\alpha=0.63$														
Master	-0.411**	0.144	0.097	0.097	0.114	0.044	-0.318**	$\alpha=0.70$													
S Anx	0.315	-0.236**	-0.061	-0.039	-0.084	-0.045	0.281**	-0.355**	$\alpha=0.74$												
SEstm	-0.132**	0.083+	0.126	0.08	0.083	0.132	-0.416**	0.591**	-0.131	$\alpha=0.71$											
Avoid	0.036	-0.151	0.031	-0.072	-0.06	0.013	0.088	-0.011	0.107	0.02	$\alpha=0.70$										
Deval	0.086	-0.079	-0.052	0.003	-0.079	-0.073	0.077	0.056	-0.088	0.114	0.549**	$\alpha=0.82$									
Change	0.061	0.197**	0.017	-0.135	-0.01	-0.04	0.071	0.133	-0.225*	0.208*	0.353**	0.595**	$\alpha=0.67$								
Reduct	0.132	-0.01	-0.113	-0.033	-0.062	-0.119	0.251**	-0.115	0.009	-0.028	0.382**	0.459**	0.415**	$\alpha=0.48$							
Supt	0.077	0.05	-0.023	-0.067	0.026	-0.074	0.211*	0.057	-0.029	0.069	0.359+	0.315**	0.359**	0.254**	$\alpha=0.64$						
Accom	0.083	-0.126	-0.12	-0.143	-0.01	-0.141	0.141	0.035	0.023	0.006	0.427**	0.542**	0.40**	0.270**	0.345**	$\alpha=0.65$					
Mean	2.59	1.16	1.44	0.55	1.35	0.19	12.43	20.44	11.92	15.86	8.07	8.80	9.62	12.57	8.23	8.22					
S.D.	2.56	0.49	0.93	0.40	1.61	0.40	3.85	3.24	3.22	2.60	2.81	2.55	2.46	2.84	2.72	2.60					
	GHQ	Rank	Unit	Status	Ops	Attd	Neuro	Mast	T Anx	SEstm	Avoid	Deval	Chang	Reduc	Supt	Accom					

*Note: + p < 0.05, * p < 0.01, ** p < 0.001*

10.3.2 GHQ12

GHQ12 has a mean value of 2.76 and 2.59 for Times 1 and 2 respectively, with a higher standard deviation at Time 1. The inter-scale correlation was 0.396 ($p < 0.01$), showing a fairly high degree of test-retest reliability. This shows that at Time 1 there was a greater variety of reported mental health levels, in that some respondents were considerably anxious and experiencing some difficulties, whilst many other personnel were not. It can be seen that there were no differences between Time 1 and Time 2, thus showing there was not a significantly greater degree of mental health problems as a direct result of the operation. The internal reliability of the GHQ12 ranges from 0.76 (Time 2) to 0.89 (Time 1), with the cross sectional results obtaining a value between this. The GHQ12 was scored using standard GHQ12 scoring methodology (0,0,1,1) and a cut off score of three or above was used to determine those individuals with mental health problems. Prior to deployment, 39.2% of respondents displayed a GHQ12 value above three. When comparing this with Time 2 respondents 39.5% reported experiencing some difficulties.

10.3.3 Neuroticism

The mean value for neuroticism was 12.12 and 12.43 for Times 1 and 2 respectively; again showing that there was no differences as a result of the operation. The inter-scale correlation was 0.48 ($p < 0.01$), showing a high degree of test-retest reliability. This is reassuring to note, as neuroticism is purported to be a stable personality factor, where results for individuals should not significantly change over a short time period, such as six months. The internal consistencies are 0.739 and 0.632 for Times 1 and 2 respectively. Time 2 shows a comparatively low alpha value, suggesting a lower degree of reliability of the measure.

10.3.4 Trait Anxiety

The mean reported values for trait anxiety were 11.80 and 11.93 for Times 1 and 2 respectively; again showing no differences between Times 1 and 2. The inter-scale correlation was 0.43 ($p < 0.01$), illustrating a high degree of test-retest reliability; again, to

be expected due to the trait aspect of this measure. Values appear to be slightly higher than for Study 1, as they do for most of these variables. Cronbach's Alpha values were fairly good, (0.709 and 0.739), although not as high as in Study 1.

10.3.5 Mastery

The mean values for mastery were 20.31 and 20.44 for Times 1 and 2, signifying no change between Times 1 and 2. The inter-scale correlation was 0.487 ($p < 0.01$), showing a high degree of test-retest reliability. The internal reliabilities were acceptable for both Time 1 and 2 (0.693 and 0.701 respectively), although again, not as high as for Study 1.

10.3.6 Self Esteem

The mean values for self esteem were 15.66 and 15.86 for Times 1 and 2 respectively; again showing no change between pre and post deployment. The inter-scale correlation was 0.39 ($p < 0.05$), signifying a low inter-scale correlation. The values are slightly lower than those of Study 1. Cronbach's Alpha values are acceptable at 0.691 and 0.707.

10.3.7 Coping Measures

The most frequently endorsed method of coping was symptom reduction, yielding values of 12.95 (Time 1) and 12.57 (Time 2); a considerably higher value than that in Study 1 (9.21). It has to be noted that the internal reliabilities of the sub-scale are low (0.56 and 0.48 respectively), largely due to the inclusion of the item regarding drinking alcohol. The standard deviations were not particularly high, thereby meriting some confidence in the results. The second highest coping strategy used was changing the situation, which yielded values of 9.58 and 9.62 at Times 1 and 2 respectively. Study 1 showed a similar level of purported usage of changing the situation as a coping strategy, all samples showed an acceptable level of internal reliability. The remaining strategies are used to a similar extent to each other, with values ranging from 8.07 to 8.81. The inter-scale correlations, providing the test-retest reliability for the coping strategies were: avoidance (0.44, $p < 0.01$), changing the situation (0.53, $p < 0.01$), symptom reduction (0.614, $p < 0.01$),

accommodation (0.42, $p < 0.01$), devaluation (0.38, $p < 0.01$) and social support (0.49, $p < 0.01$). All these values show a fairly high degree of test-retest reliability, with the exception of devaluation.

10.3.8 IES

Respondents were requested to complete this questionnaire following the deployment about events on the deployment. Nine respondents completed the IES (4.7%), three of whom had scores above 18. Two of the described events were from a previous NI tour (a bomb and being shot at), one description was concerned with a death of a family member, while the other was concerned with helping out at an RTA. In order to obtain a more robust measure, (as described in Study 1) those individuals with high scores on both the GHQ12 and IES (the top third of respondents) were classified as having significant problems, post deployment. *2% of the sample fell into this category.* As this sample is too small to consider as a 'problem group', the problem group was taken as those individuals who scored high values on the GHQ12 (39.2% pre-deployment and 39.5% post deployment).

10.4 Changes between Time 1 and Time 2

This section considers differences between Time 1 (T1) and Time 2 (T2) across the psychological variables and reported mental health levels. Analyses were conducted with various categories of personnel forming the independent variables: rank, age, marital status, whether in a close relationship and the occurrence of a significant life event. It could be argued that the paired t-tests conducted could be discussed in terms of test re-test reliability of the different scales and included in section 10.3. However, as this longitudinal design was focused on any changes following a six month operational tour, it was decided to emphasise any changes over time, discussing these in a separate section in some detail.

The left hand side of tables 10-6 to 10-12 detail the percentage of personnel whose GHQ12 value is above the threshold level of three, at T1 and T2. Within the same tables,

on the right hand side, are the analyses identifying significant changes of the dependent variables (the psychological, coping and mental health measures) within the independent variable categories. The analysis used for this data varies, depending upon the sample sizes within each independent variable. A repeated measures anova is a central procedure, which, it is argued is not as effective when considering data with sample sizes differing dramatically. Hence, a repeated measures anova is used for the analysis of whether in a close relationship (Table 10-9), the occurrence of a significant life event (Table 10-11) and stress education (Table 10-12). Where the sample sizes of each sub-group did differ considerably, paired t-tests were used: ranks (Table 10-6), unit (Table 10-7) and marital status (Table 10-8). The results for those psychological variables that were significantly different between T1 and T2 are provided on the right hand side of the tables below. For example, in Table 10-6 junior rank personnel displayed significant differences between T1 and T2 in the reported use of the coping strategies avoidance, symptom reduction and social support.

10.4.1 Across the Sample

There were no overall significant changes in reported mental health levels between T1 and T2. This finding suggests that there were few significant stress problems directly resulting from the tour. However, there were significant changes with respect to two of the coping strategies used, between T1 and T2. Personnel were less likely to use avoidance as a coping strategy ($t=2.93$, $df=172$, $p<0.01$) and less likely to use social support ($t=2.1$, $df=172$, $p<0.05$).

10.4.2 Group Differences -T1 and T2

Table 10-6: Mental health problems by rank, comparisons T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
Junior Ranks	40.8%	40.6%	Avoidance	$t= 2.4$, $df= 155$, $p< 0.05$
			Symptom Reduction	$t= 2.46$, $df= 155$, $p< 0.01$
			Social Support	$t= 2.04$, $df= 155$, $p< 0.05$
SNCOs	14.3%	14.3%	Neuroticism	$t= -3.36$, $df= 6$, $p< 0.01$
Officers	30%	40%	-	-

Although there appeared to be an increase in mental health problems as a result of the deployment for officers, this was not significant. There were a number of significant changes with respect to the Junior Ranks and coping strategies they used at T1 and T2, with respondents utilising avoidance, social support and symptom reduction to a lesser extent at T2. What is quite surprising is that SNCOS reported significantly higher values of neuroticism post deployment. Neuroticism is a trait measure, which has consistently found to be stable over time. However, as there were only ten SNCOs in the sample, this may affect the results.

Table 10-7: Mental health problems by Unit, comparisons T1 and T2²

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
1 RS	38.1%	36.4%	Avoidance	t= 3.02, df= 138, p< 0.01
			Symptom Reduction	t= 2.24, df= 138, p< 0.05
			Social Support	t= 2.45, df= 138, p< 0.05
Perm Attd	60%	60%	Anxiety	t=-4.81, df= 4, p< 0.01
			Self Esteem	t= 2.99, df= 4, p< 0.05
Temp Attd	40%	52.4%	-	-
TA/ Reserves	41.7%	44.4%	-	-

There were no differences with respect to changes in reported mental health levels between T1 and T2. The Royal Scots did report a significant decrease in their use of avoidance, social support and symptom reduction post deployment. It is not surprising that these results mirror those of the Junior Ranks previously described, as the sample comprises a majority of responders of Junior Rank from the Royal Scots. Permanently Attached personnel showed a significant decrease in self esteem and a corresponding increase in Trait Anxiety, at T2, although they comprise only five respondees. Although one would be unable to draw firm conclusions from this finding due to the low numbers of respondees involved, it does point to the potentially more isolated nature of attached personnel.

Table 10-8: Mental health problems by marital status, comparisons T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
Single	37.3%	36.8%	-	-
Married	41.9%	40.4%	Social Support	t= 2.44, df= 60, p< 0.05
Separated	36.4%	72.7%	-	-

² It must be noted that there are only five Permanently Attached respondents, hence their results must be taken with caution.

Fig 10-9: Mental health problems by relationships, comparison T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
Not close relationship	42.9%	29.4%	-	-
Close relationship	38.2%	41.7%	-	-

Again, although it appears from Table 10.8 that separated personnel are more likely to experience mental health problems as a result of the deployment, this was not statistically significant ($p=0.081$). The correlation between T1 and T2 measures of mental health problems (by cut off criteria) is 0.55, illustrating a comparatively high degree of similarity between T1 and T2. One finding which was not surprising, was that married respondents were significantly less likely to use social support as a coping mechanism, post deployment. Looking at the effects of being in a close relationship, one would expect a significant interaction, but in undertaking a repeated measures anova this was found not to occur ($F(1,165)= 1.38, p=0.24$). This is likely to be because there was a similar number of personnel in a close relationship who remained above the cut off criteria and reported similar scores on the GHQ12.

Table 10-10: Mental health problems by age, comparison T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
17-21 years	39.4%	37.3%	-	-
22-25 years	42.9%	42.4%	-	-
26-30 years	38.7%	45.2%	-	-
30-40 years	30%	31.6%	-	-

There were no significant differences between T1 and T2 dependent upon certain age groups, across any of the psychological variables.

Table 10-11: Mental health problems by occurrence of a recent significant event, comparison T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
Significant life event	53.8%	45.2%	Avoidance	details in text
			Accommodation	details in text
No event	28.3%	35.6%	-	-

Undertaking a repeated measures anova, there was found to be a significant between subjects effect, illustrating a difference in reported GHQ12 levels between those personnel who had experienced a recent significant life event and those who had not ($F(1,169) = 16.5, p < 0.001$). Although there was no significant difference found in the within subjects effects, there was a significant interaction between time and the occurrence of a significant life event ($F(1,169) = 6.1, p < 0.05$). Further analysis revealed a significant effect of time on the use of avoidance ($F(1,172) = 7.97, p < 0.001$) and an interaction between accommodation and the occurrence of a significant life event ($F(1,165) = 8.44, p < 0.01$). When looking at the data it can be seen that those personnel who had experienced a significant life event in the year prior to deployment, were significantly less likely to use avoidance and accommodation as coping measures, at T2. Finally, there was found to be a significant between subjects effect for the occurrence of a significant life event ($F(1,176) = 10.74, p < 0.01$).

Table 10-12: Mental health problems by stress education, comparison T1 and T2

	GHQ Time 1	GHQ Time 2	Significant Differences	Statistics
Stress education	42.6%	38.2%	Avoidance	$t = 2.36, df = 101, p < 0.05$
No stress educ	35.2%	40.2%	Social Support	$t = 2.55, df = 82, p < 0.01$

There were no differences with regard to reported mental health levels between T1 and T2, dependent upon whether individuals had received some form of stress education, when analysed using a repeated measures anova. There was also found to be a significant within subjects time effect for the use of avoidance ($F(1,162) = 7.76, p < 0.01$) and social support ($F(1,162) = 4.16, p < 0.05$). To examine this in greater detail, paired t-tests were conducted, with the results detailed in the right hand column of Table 10-12. Those personnel who had received some training in stress reported significantly less use of avoidance as a coping strategy at T2, while conversely, those personnel who had not been educated on stress were significantly less likely to utilise social support as a coping mechanism.

10.5 Expectations, evaluations and understanding of the deployment

The T1 questionnaire requested respondents to rate their level of understanding of the situation in theatre, in addition to beliefs about the impending deployment and their perceived preparation for it. Similarly, at T2, respondents were asked to rate their perceptions of the deployment, their achievements and understanding of the situation in theatre. These values were then analysed to determine if there was any impact upon mental health levels, either at T1 or T2. The answers to each question were dichotomised, dividing them into positive or negative responses, and these responses were used as independent variables with the GHQ12 as the dependent variable.

It was considered that this approach would be a better alternative to conducting partial correlations, due to the desire to emphasise the positive and negative aspects of each question. It was also decided not to covary out certain characteristics, such as rank, age and unit. This reasoning behind this was the end requirement; that the overall effect is required in order to establish whether there is adequate physical training, briefings and mental preparation for all deploying personnel.

The question concerning belief in whether troops should deploy to NI was divided into three responses and an anova performed. The remainder of the analyses were conducted using independent t-tests. Obviously, at T1 or T2 independently, the causal direction cannot be identified. However, the causal direction of the impact of T1 beliefs on T2 mental health can be ascertained. The results are outlined in tables 10-13 to 10-15 below, where (e) refers to equal variances in the t-distribution and the (u) refers to unequal variances.

Table 10-13: The impact of T1 expectations and understanding on T1 GHQ12.

Time 1 expectations and understanding	Impact on Time 1 GHQ12
How well do you feel you understand the situation?	t = -2.35, df= 134, p < 0.05 (e)
Do you believe that UK should deploy troops in NI?	F = 6.68, df= 130, p < 0.01
Do you believe that your unit can improve the situation?	-
Are you looking forward to the deployment?	t = -4.15, df= 82, p < 0.001 (u)
Considering all the training you have done, how ready, as an individual, do you feel for the Operation?	t = -2.76, df= 19, p < 0.01 (u)
Do you feel mentally prepared for the Operation?	t = -3.31, df= 32, p < 0.01 (u)
Do you think you will enjoy it?	t = -3.66, df= 73, p < 0.001 (u)

As can be seen from Table 10-13, all but one of the T1 perceptions and beliefs are significantly related to mental health. Considering the two statements on '*looking forward to the deployment*' and whether they '*think they will enjoy it*', those respondents who were positive were less likely to be reporting mental health difficulties. The causal direction cannot be ascertained, as it may be that poor mental health makes individuals perceive situations in a more negative light; or conversely, negative perceptions of the forthcoming deployment may result in poorer mental health. With regard to perceived preparation for the deployment, again those who felt mentally prepared and felt that their training had adequately prepared them were less likely to report mental health problems. Finally, those respondents who felt that UK troops should not deploy to NI were more likely to report mental health problems. Perhaps this indicates the importance of the need to believe in what one is doing, particularly prior to a long period on deployment. With regard to understanding the situation in NI, those respondents who felt they understood the situation were less likely to report experiencing mental health problems.

Table10-14: The impact of T1 expectations and understanding on T2 GHQ12.

Time 1 expectations and understanding	Impact on Time 2 GHQ12
How well do you feel you understand the situation?	t = -2.08, df= 125, p < 0.05 (e)
Do you believe that UK should deploy troops in NI?	-
Do you believe that your unit can improve the situation?	-
Are you looking forward to the deployment?	t = -1.91, df= 174, p < 0.05 (e)
Considering all the training you have done, how ready, as an individual, do you feel for the Operation?	t = -2.84, df= 174, p < 0.01 (e)
Do you feel mentally prepared for the Operation?	-
Do you think you will enjoy it?	-

Three of the T1 beliefs had a significant impact upon T2 mental health levels. In these analyses one can ascertain a causal direction. Those personnel who had been looking forward to the deployment were significantly less likely to report mental health problems. Similarly, those respondents who deployed to Theatre feeling that they were well prepared, again reported fewer mental health problems. These findings illustrate the bolstering effects that confidence in training has upon the individual, in addition to a positive outlook. Finally, feeling that they understood the situation resulted in individuals reporting fewer mental health problems at T2, than those who felt they did not understand the situation.

Table 10-15: The impact of T2 evaluations and understanding on T2 GHQ12

Time 2 evaluations and understanding	Impact on Time 2 GHQ12
How well do you understand the situation in NI?	t = -2.95, df= 174, p < 0.01 (e)
How well do you feel you achieved your role as a unit?	-
How well do you feel you achieved your role as an individual?	t = -2.52, df= 173, p < 0.01 (e)
Do you believe that UK should deploy troops to NI?	-
Do you believe that your unit improved the situation?	-
Considering all the training you had done, were you ready, as an individual, for the Operation?	-
Were you mentally prepared for the Operation?	t = -2.66, df= 173, p < 0.01 (e)
Did you enjoy the Operation?	t = -4.46, df= 149, p < 0.001(u)

With regard to T2 evaluations, there were four evaluations which had a significant impact upon reported mental health levels. Whether the respondents felt they had enjoyed the operation or not was significantly related to mental health, with those who felt they had not enjoyed it reporting higher rates of problems. Those respondents who believed that they *had been mentally prepared for the operation* reported fewer problems. This is not a surprising finding, as individuals are likely to evaluate their past feelings in the context of their present feelings. Feeling that they had *achieved their role as an individual* resulted in those individuals reporting higher levels of mental health, illustrating the importance of positive appraisal of a situation. Finally, *understanding the situation in NI* resulted in significantly different levels of reported mental health, with those individuals who felt they did not understand the situation, reporting more problems. Understanding the NI situation was found to be significantly related to mental health at all stages of these analyses, while believing they would enjoy it and feeling mentally prepared were significantly related for both T1 and T2 stages, but not for the longitudinal T1 to T2.

10.6 Multiple Regression Analyses

10.6.1 Overview

There are a number of useful predictions which can be obtained from the longitudinal deployment data, in addition to a variety of methods of analysing the data (Parkes 1994; Nelson, Cooper & Jackson 1995; Daniels & Guppy 1994). Parkes (1994) assessed the mitigating effect of social support upon work related stress, using moderated multiple regression procedures to test the degree to which the predicted model accounted for variance within the outcome measures. Within this multiple regression procedure, Parkes entered the independent variables in a pre-determined order, to control for any potentially confounding variable effects which might contribute to the outcome. The use of multiple regression in this way, to explore various components of occupational well-being has been reported by a number of authors (Moyle 1995; Zapf et al 1996; Guppy & Rick 1996).

In order to examine the longitudinal occurrence of individual psychological well-being, hierarchical multiple regression analyses have been used by a number of authors. Parkes (1986) conducted a longitudinal multiple regression analysis, by entering the T1 dependent variable at the first step of the T2 analysis, followed in subsequent steps by the remaining T2 independent variables. The reasoning behind this is an attempt to partial out the effects of the T1 dependent variable, when measuring the T2 independent variables. In contrast, Nelson et al (1995) entered T1 independent variables in a multiple regression procedure with the T2 outcome variable as the dependent variable. This aims to assess if causality at T2 can be determined at the initial stage of the research.

Due to the applied nature of the current study and the significance that T1 and T2 have (pre and post deployment), it was decided that the approach used by Nelson et al would be most appropriate. Although the T1 dependent variable (GHQ12) could have been placed in the T2 analysis, it was considered that this was not the aim of the research. It was felt that the capability for current well-being to predict future well-being was relevant and important, but not integral to the aims of this research study. For the military, it is important to identify if there are any

particular traits or characteristics of personnel which may predict likely mental health difficulties following a particular deployment.

The longitudinal study will not be restricted in the sense of trying to predict certain variables upon the basis of only a select few, but will attempt to identify those variables which can significantly predict mental health. Hence, the analysis at this section will differ from that conducted under the cross sectional study (Study 1), which concentrated upon a restricted path analysis to ascertain support for the proposed simplified model (Fig. 9-1). These prediction relationships for Study 2 are exploratory in nature and are to be seen as essentially descriptive, ascertaining the relatively important variables predictive of mental health levels, rather than in absolute terms. Due to the large number of variables, separate stepwise MRAs, with listwise deletion of missing variables, were conducted on a modular basis, with variables grouped into the theoretical groups described below:

- 1) Demographic variables and factors not amenable to change
- 2) Beliefs about the deployment and stress
- 3) Training
- 4) Support network
- 5) Organisational issues
- 6) Psychological variables and coping techniques
- 8) Described stressors (only for T2)

Those variables included within each category are described in Appendix 9. Those variables that are statistically significant in predicting mental health from each separate analysis will then be entered together into a final stepwise MRA to predict mental health. It is acknowledged that this approach may violate some of the standard approaches to hierarchical MRA analysis; however it was decided that this would be the most effective method in the study context and in terms of the findings sought. The three final MRAs conducted are described below, as is their relevance to the military:-

(1) Prediction of GHQ12 at T1. These findings could ascertain those individuals who may need support prior to a deployment.

(2) Prediction of T2 GHQ12 levels at T1. This is important to ascertain whether it is possible to screen 'vulnerable' individuals out prior to a deployment.

(3) Prediction of T2 GHQ12 levels from deployment experience (T2). This is important in order to establish those factors during the deployment which may lead to post deployment mental health difficulties.

10.6.2 Prediction of GHQ12 at T1

Table 10-15 provides details of the initial, separate, stepwise MRAs and lists those variables found to be significant predictors of mental health levels at Time 1.

Table 10-16: Prediction of T1 GHQ12 levels, initial analysis

Category	Significant variables	Beta	Probability
Demographics	Significant life event	0.302	0.000
Equation	R=0.30, Adj R ² = 0.088, F=26.3, df=263, p = 0.000		
Beliefs about deployment and stress	<i>Looking forward to deployment</i>	-0.224	0.025
	<i>Do you think you'll enjoy it</i>	-0.224	0.013
	<i>Do you believe UK troops should be deployed in NI</i>	-0.151	0.025
	<i>Believe it's acceptable to suffer from stress in war situations</i>	0.13	0.039
Equation	R=0.52, Adj R ² = 0.25, F=17.1, df=191, p = 0.000		
Training & preparation	<i>Do you feel mentally prepared for the operation?</i>	-0.374	0.000
	<i>How well do you understand the situation?</i>	-0.163	0.045
Equation	R=0.45, Adj R ² = 0.19, F=24.6, df=200, p = 0.000		
Social Support	<i>I do not feel I could talk about personal difficulties to anyone in the Army</i>	0.174	0.004
	<i>I do not get on with the kind of people who join the Army</i>	0.134	0.028
Equation	R=0.24, Adj R ² = 0.49, F=7.8, df=266, p = 0.0005		
Psychological variables	Neuroticism	0.491	0.000
	Mastery	-0.248	0.000
	Self Esteem	-0.149	0.011
Equation	R=0.69, Adj R ² = 0.48, F=71.2, df=233, p = 0.000		
Organisational variables	<i>Currently I feel I do not have enough time to myself</i>	0.245	0.000
	<i>I would leave the Army now if I could</i>	0.244	0.000
	<i>I feel under pressure to get promotion</i>	0.171	0.003
	<i>I feel there's a lot of pressure to get things right</i>	0.134	0.219
	<i>I like it when things are uncertain or unpredictable</i>	-0.124	0.034
	<i>I feel frustrated by a lack of resources</i>	0.118	0.041
Equation	R=0.49, Adj R ² = 0.22, F=12.9, df=247, p = 0.000		

The above variables, that were identified as significant predictors, were then entered into a final stepwise MRA, and table 10-16 provides details of the analysis.

Table 10-17: Prediction of T1 GHQ12 levels, final analysis

Variables	Beta	Probability
Neuroticism	0.418	0.000
Mastery	-0.236	0.0001
Significant life event	0.209	0.0003
<i>Do you think you will enjoy the operation?</i>	-0.202	0.0005
<i>Do you believe UK should deploy troops to NI?</i>	-0.177	0.0016
Equation	R=0.74, Adj R ² =0.53, F=38.544, df=165, p=0.000	

It can be seen that although a total of 18 variables were able to significantly predict GHQ12 levels, when independent stepwise MRAs were conducted within the theoretical groups. However, when these were placed in a stepwise MRA together, only five variables remained significant predictors of mental health as reported by the GHQ. Neuroticism is the most powerful predictor, illustrating its close relationship with poor well-being. This is perhaps not surprising when one considers the correlation between these two variables (0.596, T1); it is therefore likely that there is a high degree of overlap in what these two constructs are measuring. Mastery is a significant predictor, as is believing that they will enjoy the operation, illustrating the effect of a positive attitude and belief in oneself. The presence of a significant life event in the year prior to deployment was also predictive of poor mental health. Finally, believing that troops should be deployed to the province was also indicative of higher reported mental health levels. 53% of variance was accounted for, signifying the high degree of confidence that can be placed in the results, with regard to the ability to predict mental health from these variables.

10.6.3 Prediction of T2 mental health from T1 information

Table 10-17 provides details of the initial, separate, stepwise MRAs conducted on T2 GHQ12 levels from T1 data. This analysis allows the direction of causality to be ascertained, that T1 factors have an effect upon the T2 dependent variable.

Table 10-18: Prediction of T2 GHQ12 levels from T1 data, initial analysis

Category	Significant variables	Beta	Probability
Demographics	Significant life event	0.194	0.010
Equation R=0.19, Adj R ² =0.03, F=6.75, df=173, p=0.0102			
Beliefs about deployment & stress	-		
Training & preparation	<i>Considering all the training you have done, how ready, as an individual, do you feel for the op?</i>	-0.236	0.0078
Equation R=0.24, Adj R ² =0.05, F=7.31, df=125, p=0.0078			
Psychological variables	Neuroticism	0.244	0.0028
Equation R=0.24, Adj R ² =0.05, F=9.21, df=147, p=0.003			
Social support	-		
Organisational variables	<i>Currently I feel that my work is pointless</i>	0.209	0.008
Equation R=0.21, Adj R ² =0.04, F=7.20, df=159, p=0.008			

The above variables, that were identified as significant predictors, were then entered into a final stepwise MRA, and Table 10-18 provides details of the analysis.

Table 10-19: Prediction of T2 GHQ12 levels from T1 data, final analysis

Variables	Beta	Probability
Neuroticism	0.218	0.0047
<i>Currently I feel that my work is pointless</i>	0.206	0.0053
Significant life event	0.148	0.051
Equation R=0.38, Adj R ² =0.13, F=9.12, df=169, p=0.000		

Only four variables were capable of predicting post deployment GHQ12 values at T1, when stepwise MRAs were conducted within the theoretical groups. When these four variables were entered into an equation together, three were significant predictors of GHQ12 values. Again, neuroticism was a major predictor, as was the occurrence of a significant life event prior to deployment. Feeling that the work was pointless was also a comparatively strong predictor, perhaps illustrating the importance of goals, particularly in the military context. The Adjusted R² value was particularly low, with only 13% of variance accounted for. This suggests that these variables on their own are not capable of adequately predicting post deployment mental health.

10.6.4 Prediction of T2 mental health from T2 information

Table 10-20 provides details of the initial stepwise MRAs conducted on T2 GHQ12 levels. The personality measures, were not included in this analysis, although the coping measures were. This was so the trait measures were not taken into account, but merely those factors *during* the deployment that may lead to mental health problems. Table 10-20 then provides details of the final solution to the MRA.

Table 10-20: Prediction of T2 GHQ12 levels from T2 data, initial analysis

Category	Significant variables	Beta	Probability
Demographics	-	-	-
Beliefs about deployment & stress	<i>Did you enjoy the operation?</i>	-0.326	0.0000
	<i>How well do you feel you achieved your role as an individual?</i>	-2.211	0.028
Equation R=0.38, Adj R ² =0.15, F=14.09, df=165, p=0.000			
Training & preparation	<i>Were you mentally prepared for the operation?</i>	-0.186	0.014
	<i>I am confident that my military training provides me with a good basis for jobs I may do in my military career.</i>	-0.153	0.042
Equation R=0.25, Adj R ² =0.05, F=5.68, df=172, p=0.0041			
Social support	<i>I can always rely on my friends to support me in a difficult situation</i>	-0.227	0.0097
	<i>I do not feel I could talk about personal difficulties to anyone in the Army</i>	0.223	0.009
Equation R=0.37, Adj R ² =0.13, F=10.89, df=136, p=0.000			
Organisational variables	<i>I feel frustrated by a lack of resources</i>	0.195	0.006
	<i>On the whole I enjoy my job in the Army</i>	-0.186	0.013
	<i>I feel there is alot of pressure on me to get things right</i>	0.195	0.006
	<i>Currently I feel that my work is pointless</i>	0.191	0.011
Equation R=0.44, Adj R ² =0.17, F=9.98, df=173, p=0.000			
Coping techniques	-	-	-
Described stressors	-	-	-

Table 10-21: Prediction of T2 GHQ12 levels from T2 data, final analysis

Variables	Beta	Probability
<i>Did you enjoy the operation?</i>	-0.242	0.0009
<i>I do not feel that I could talk to anyone about personal difficulties in the Army</i>	0.201	0.0075
<i>I feel there is alot of pressure on me to get things right</i>	0.175	0.0107
<i>I can always rely on my friends to support me in a difficult situation</i>	-0.242	0.0245
Equation	R=0.50, Adj R ² =0.23, F=13.8, df=169, p=0.000	

Ten variables were capable of significantly predicting GHQ12 levels at T2, when stepwise MRAs were conducted within each theoretical group. When these ten variables were entered into a stepwise MRA together, four remained capable of significantly predicting T2 GHQ12 values. An Adjusted R² value of 0.23 was obtained, signifying that these variables were fairly good predictors of GHQ12 levels. Having enjoyed the operation was an important predictor for T2 well-being, while feeling under pressure was able to help determine those with mental health problems. Social support was important in determining well-being post deployment, with two statements concerning the ability to talk to people in the Army about difficulties and reliance upon friends, significantly predicting GHQ12 levels.

SUMMARY

This chapter has considered the longitudinal operational questionnaire, with emphasis placed upon the capacity to study the causal relationships between the variables. Described experiences of stress were categorised and discussed in terms of rank and attachment to the deploying unit. The major stressors identified were separation from partners/ family and the routine and monotony of the job. Descriptive analyses of the 'important' variables (psychological variables, GHQ12 etc.) were conducted at both T1 and T2. Significant differences were identified with respect to various characteristics (sex, rank, age, marital status and Arms/ Corps) at both T1 and T2, in addition to changes between T1 and T2. Respondents' expectations, understanding and evaluations of the deployment were also analysed with respect to GHQ12 levels at both T1 and T2. Looking forward to the deployment and perceptions of preparation and achievement, in addition to understanding the political situation, all significantly affected GHQ12 levels at either T1 or T2. Finally, predictions of GHQ12 at T1 and T2 were undertaken to ascertain the most effective predictors of poor mental health at various stages of the deployment process. Those factors at T1 that were

predictive of T2 GHQ12 levels were neuroticism, feeling that their work was pointless and the occurrence of a significant life event; a small amount of variance accounted for (13%). In conclusion, the results have confirmed the premise of the model in Figure 7-2 . An individual's make-up and home/ work situation influence pre-deployment mental health; beliefs and attitudes are also influenced by these factors, in addition to impacting on pre-deployment mental health.

CHAPTER 11

DISCUSSION

Overview

The Discussion will comprise four main areas. Section 1 will concentrate on the applied findings of both studies with respect to the military. Specific attention will be placed on the described stressors, spill-over between work and home, and the impact of expectations, evaluations and understanding of the deployment (Study 2). Section 2 will provide a theoretical discussion considering the observed relationships between the psychological and coping measures and mental health, for both Study 1 and Study 2. Section 3 will then consider the observed support for the models illustrated at Figures 9-1 and 7-2, and the impact that demographics, coping techniques, personality characteristics and expectations have upon intention to leave the Army and mental health. Finally, the last section will tie up the studies, identifying any support for the hypotheses, and finally providing recommendations for future research.

11.1 Stressors described

As can be seen from the classification of the stress descriptions for Study 1 (9.21) and Study 2 (10.21), there is a wide variety of stressors reported. These cover incidents directly concerning the 'work/ organisational' sphere, traumatic incidents and those concerned with home life. The described stressors will be discussed in terms of these categorisations.

It has to be noted that there are certain differences when comparing the responses from Study 1 and Study 2, due to the temporal differences concerning the studies. Study 1, the cross sectional study, requested respondents to describe the most difficult experiences during their Army career, while Study 2 requested respondents to describe the most difficult experiences while on the operation. Thus, Study 1 responses are likely to be those more memorable experiences which perhaps 'stand out', whereas for Study 2 there were no such memory issues. Study 2 responses are therefore also likely to include the more commonplace and perhaps mundane difficulties, such as routine and boredom.

11.1.1 Organisational Stressors

In Study 1, 49% of responses were related to problems experienced in the work/organisational area, whilst a significant degree of problems described in Study 2 were also concerned with organisational issues. Many of these aspects reflect those detailed in Warr's Vitamin model and the Environmental facet of Beehr and Newman's Model. The frequently cited issues included career pressures, changes and uncertainty, man-management and lack of communication, workload and routine nature of some of the work.

It is often perceived that it would be the traumatic, unsavoury and distressing parts of military (and indeed police work) that would be the most stressful. However, with respect to the police, many studies have found that officers find the organisational rather than operational experiences to be the most stressful (Band & Manuelle 1987; Hart, Wearing & Heady 1993). This view is supported by teacher stress research, where the organisational context of teaching is deemed more stressful than the job itself (Borg 1990; Hart 1994). Similarly, it can be seen that a great many of the difficulties cited by the Army are also organisational. Partly this could be explained by the fact that all personnel will experience organisational issues, yet far fewer personnel will experience traumatic occurrences. Thus, in the context of a deployment to NI during the cease-fire, relatively few personnel will experience anything that could be considered to be traumatic. Deploying to the Falkland Islands during Operation CORPORATE would, of course, have been a different matter, as indeed would an infantry regiment deploying to NI during more hostile times.

11.1.1.1 Career pressures, changes and uncertainty

Goals and task demands and physical security are probably the most relevant of Warr's vitamins to career pressures, changes and uncertainty. In this context, physical security refers to security of tenure. Within a soldier's normal working environment (Study 1), pressure to perform on a training course or on a career related issue produces the most difficulties. With the draw-down of the Armed Forces and the subsequent necessity either to perform well or leave the Army, such a finding is not surprising. The majority of

personnel are concerned about Manning Control Points (MCP), redundancies or achieving in their job so as to remain in the Army (e.g. continuation of short service commissions, transfer to a Regular Commission or their promotional prospects in general). Change and uncertainty can be discussed in similar terms. The appropriately named Options for Change significantly affected many Army personnel, with threats of or actual amalgamations and redundancies, which inevitably produced considerable job insecurity and fears for the future. The effects of these influences are exacerbated by the institutionalisation and dependence the Army fosters in its employees. Indeed, with the advent of the Defence Housing Executive (DHE) and the selling off of the military housing stock, general feelings of security may well have diminished, particularly with the occurrence of the rent prices aligning with the local area.

As a Captain stated in Study 1:

At this time stress seems to be more related to uncertainty about livelihood, career, promotions, finding a new job or career if one has to leave the Army, or the length of separation time from loved ones and family, rather than problems with the actual job on an operational tour. I feel that many personnel are suffering from the disintegration of the armed forces more than anything else.

Within the operational scenario (Study 2), 'pressure not to make mistakes' was identified as a particular difficulty, due to concerns they would be disciplined for mistakes they might make. Not surprisingly, discipline tends to be higher on an operational tour; partly due to the operational context, but also due to the closer proximity and constant contact soldiers have with their chain of command. Pressures also incorporate the requirement for the chain of command to maintain motivation of the soldiers and provide them with a purpose for being in theatre.

11.1.1.2 Man management and communication

Man-management was highlighted as a particular problem within the Army, with many difficulties resulting from a perceived inflexible approach to both work and welfare, personality difficulties and perceived unfairness of decisions. This is to be expected within a large bureaucratic public sector organisation which requires rules to ensure a fairness of treatment. This can be illustrated by the Soldier Leavers Study (Weston-Lovelock 1996) which stated that 'poor man management' was consistently one of the top five reasons for wanting to leave the Army over the previous five years. This is compounded by the strict hierarchical nature of the Army with little room for manoeuvre for the individual with regard to chain of command decisions and the application of them. This all combines to increase the frustration of the individual and engenders feelings of lack of control of their own lives, in both work and social contexts. To this effect, 'opportunity for control' is the analogous vitamin in terms of Warr's model. This can be illustrated by a comment from an infantry corporal in Study 1

Everyone in the Army is put under stress due to bad man-management at all levels, leading to last minute decisions which require flexibility. Unlike his civilian counterpart, there is no option open, but to obey for the serviceman. The individual is afforded very little protection from his superiors.

Lack of communication was incorporated within poor man-management as often it was communication down the chain of command which was the issue. Within the operational scenario (Study 2), some individuals felt frustrated that information was not being passed on, whether it was regarding tactical or welfare issues. A research study (Harvey 1993) on the Centre of Human Sciences (CHS) DERA Soldiers' Continuous Attitude Survey (CAS) (DERA, twice a year) found that the free response sections on the questionnaire suggested dissatisfaction with a lack of communication, that soldiers were often not notified, or given inadequate notice, about factors which directly affected them. This research illustrates the findings obtained by (Caplan et al 1975) and Brousseau (1978) who found that a lack of information about the future and long delays in feedback were related to lowered mental health.

11.1.1.3 Workload

Workload refers to goals and task demands within Warr's Vitamin model along with job pressures already cited in 11.1.1.1. The pressure of an increased workload upon individuals within the Army has been apparent for a number of years, particularly with the advent of Options for Change and the significant draw-down since circa 1991. Posts were "gapped", where jobs were lost and not replaced, with the work falling upon someone else to perform. Reductions in forces combined with the operational commitments, required personnel to deploy on more tours, complete more operational training packages, in addition to fulfilling their peacetime duties and role. These factors are exacerbated with the current manning of the Army, which is under strength, particularly its junior rank personnel. Responsibility therefore falls upon middle managers to 'make ends meet' to fulfil commitments. Comments from Study 1 illustrate the frustration felt by the high workloads:

NCOs and Officers should stop looking the other way and realise that especially now that the workload on individuals has drastically increased, stress from home and work are bound to affect even the strongest character.

11.1.1.4 Routine nature of work

Task variety and opportunity for skill use were two vitamins which were frequently cited by personnel in Study 2, who focused their complaints towards the routine and monotony of their work. The routine and monotony of the job in NI was amplified by the comparative inactivity experienced during the cease-fire, while their training had prepared them for a particularly hostile situation. Hence, there was comparatively little opportunity for skill use, due to the requirement that many of the troops remained within the bases and were not out patrolling the countryside. Furthermore, the working hours were long and generally fairly routine, in a largely unstimulating environment, thereby exacerbating the situation.

11.1.2 Traumatic Stress Experiences

Traumatic experiences account for a significant percentage of described stressors in Study 1. Deaths of Army personnel, both friends and colleagues, comprise approximately 8.9% of described stressors, while experiencing a life threatening situation (4.1%), being under attack (3.1%), seeing civilian deaths (2.5%) and witnessing a suicide, or a friend having committed suicide (1.8%) were also cited. Many of these occurrences did not occur during operational deployments, but may have involved training accidents and road traffic accidents (RTAs); emphasising that any training received on stress and how to deal with it should not just be focused at operational scenarios and briefings.

With respect to Study 2, there was only one traumatic experience described, largely due to the deployment of the regiment during the cease-fire period. A number of soldiers helped out at an RTA near their base, which two respondents described as a particularly difficult experience.

The Impact of Events Scale (IES) also provides information on traumatic stressors, enabling the capability to establish the severity of the experience on the individual. Looking at Table 9-11, it can be seen that incidents involving deaths of Army personnel, friends, civilians and immediate family members are the most frequently cited events, totalling 23.8% of descriptions. Separation from loved ones was also cited as traumatic by 16 (4.6%) of personnel who responded. Separation, and indeed many other less frequently endorsed 'non-traumatic' stressors (such as workload, failure in work) does highlight some difficulties with the IES as an effective measure of PTSD/traumatic type symptomology. It also appeared that some respondents were unclear as to the type of description required, did not distinguish between frequency and intensity of the stressor, and found the questionnaire difficult to understand, long and repetitive.

Of these personnel who described experiencing difficulties on the IES and with a high value GHQ12, 43 respondents were still experiencing difficulties at the time of the survey. This constituted 6% of the total Study 1 population. Interestingly, the Norwegian UNIFIL study found similar results (5%), of personnel who displayed increased GHQ and PTSS

(Post Traumatic Symptom Scale) scores on a cross sectional sample of soldiers who had participated in UN deployments. Similarly, a study by Mehlum (1995) on Norwegian soldiers 6 years following a tour in southern Lebanon, found 5% to be defined as having PTSD. In contrast, a study by deSwart et al (1995) studied a sample of Dutch soldiers after a UN tour in FRY, finding that 20% were experiencing psychological difficulties on account of the mission (5% in therapy).

11.1.3 Military Specific Stressors

With regards to operational deployments, attention is focused on the Northern Ireland responses described in Study 1, which can then be contrasted with the experiences described in Study 2. The spill-over effect between work and home life is then discussed, considering separation difficulties and problems at home. Finally, living conditions and the subsequent lack of privacy and potential integration issues are discussed.

11.1.3.1 Northern Ireland

Up to the cease-fire in Northern Ireland in 1994, a tour was considered to be 'dangerous', with a significant chance of being mortared, subjected to small arms fire, bombed and surrounded in the majority of bases by a hostile civilian population. This, combined with cramped living conditions, constant alertness and suspicion, comparative unpredictability of events, all embedded within a familiar British environment, would have impacted upon the psychology of deploying personnel. Appendix 8, Table 8-1 details the most frequently endorsed descriptions occurring in Northern Ireland in Study 1.

The first four stressors are traumatic in nature, including events such as a life threatening situation, death of Army personnel, death of a friend and being under attack. If the number of personnel who have been on a tour of Northern Ireland (63.4% of the sample) is applied to the Army population as a whole, there are likely to be numerous personnel who have experienced (or are experiencing) related incidents, and indeed difficulties. It must also be noted however, that many personnel enjoyed tours of Northern Ireland as it allowed them to 'soldier' in a familiar environment, not dwelling on or allowing themselves to think

about any potentially traumatic experiences and perceiving the deployment as a challenge and opportunity to undertake the activities they are trained for.

With regard to Study 2, the situation in Theatre was somewhat different, due to the cease-fire for the majority of the deployment (breaking two months prior to the end of the deployment). Table 10-3 details the described stressors and the frequency of endorsement. The differences in circumstances are reflected in the stressors described, in that the majority are organisational, rather than traumatic in nature. Issues such as separation and communication problems with home, routine, man management, overwork, lack of sleep and lack of own time are the most frequently endorsed stressors.

11.1.3.2 Home and social stressors

Stressors occurring within the home and social sphere are those events which do not occur directly within the work/deployment spheres; neither are they directly caused by a soldier's work, although of course failure of relationship may well be related to a soldier's job. These events are likely to be comparable with those in the civilian population, although they may be exacerbated by restricted flexibility within the Army system for the individual to sort out problems; returning home to provide support for family members, or to spend time with other affected individuals. Break up of a relationship is the biggest stressor within this sample; such an experience can be argued to be traumatic in nature. The inability of an individual to have some control of a situation, by spending time with his wife to sort out difficulties, or the inability of the Army to provide support, may often result in the soldier (and his family) becoming extremely resentful towards the Army. This will have knock-on effects on the retention and recruitment of Army personnel, as exemplified by the Soldier Leavers' Survey, which found that 60% of respondents were 'not satisfied' with the general effect of the Army on their marriage.

11.1.3.3 Separation difficulties

In both Study 1 and Study 2, separation from families and/or partners and the Army's impact upon the family was the most frequently endorsed stressor, illustrating the

demanding nature of military employment and its demands upon the family, while both 'in barracks' and during operations. For many years there has been a recognition that there is a substantial interdependence amongst personal and family well-being, recruitment, retention, job satisfaction and productivity (Hunter 1982, Croan et al 1980). Studies have also shown that a soldier's work and family roles may conflict, producing counterproductive consequences for both institutions (Guttek, Nakamura & Nieva 1981, Lopata & Pleck 1983). As a signaller stated:

When a serving member is married the stress will always travel through the spouse, causing both people to suffer at the same time. So help should be given to both parties.

When considering deployment on an operational tour, or for an exercise, the individual is powerless to prevent this, which exaggerates the feeling of helplessness, and increases the intensity of the stressor. Furthermore, unlike many other stressors which are potentially traumatic, separation is not discreet (a separate event or a number of separate events), but becomes a strain, particularly when separation is induced by the normal working patterns and commitments currently required by the British Army. A major stated:

The majority of stress I have experienced does not relate to the military activities I have been involved in, but the effect these have had on my family. Carrying out operations or exercises does not worry me other than the concern for my family while I am away.

Furthermore, such a stressor is likely to be intensified due to the potential consequences, such as a breakdown of the relationship. This can be exemplified by results from the Soldier Leavers Study (CHS 1994), which found that 54% of married responders were not satisfied with the advice and help provided to their wives during their absence. During the cease-fire in Northern Ireland, confinement to camp or lack of motivation for their purpose or an active role in the province allowed time to think more about separation and related anxieties.

11.1.3.4 Welfare difficulties

An unexpected stressor, which 29 personnel found difficult to deal with, was welfare difficulties and the 'responsibility of bad news': for example, telling a mother her son had been killed, or providing support for a soldier whose child has died. As the chain of command forms the bedrock of the Army structure, in all spheres of their employees' lives, it falls upon the chain of command to perform many welfare functions, potentially acting as a filter for the requirement for more specialist help. Although provided with a degree of awareness, it would appear that the military are not adequately trained to deal with welfare problems, in their recognition, methods to help, avenues for referral and most importantly coping strategies for themselves and the ability to 'let go'.

11.1.3.5 Living Conditions and facilities

Living close together and no privacy comprised 4.7% of responses of described difficulties in Study 2. These difficulties were exacerbated by the general confinement to camp, with little or no patrolling occurring. The bases are generally cramped, enclosed and offer no opportunity for privacy, with little personal living space. Confinement is a problem for roulement battalion troops in NI, due to the enclosed and grey nature of the bases, which encourages a claustrophobic atmosphere if there is little chance of freedom of movement. These findings illustrate those of Sandstrom et al (1980) who found that a lack of privacy was deleterious to mental health levels.

11.2 Relationships between the psychological measures

11.2.1 Mental Health levels

In terms of context free affective well-being, Study 1 found that 34% of respondents displayed a value on the GHQ12 above the cut off criteria of three, using the dichotomous scoring method. These results are generally comparable to other large scale studies within the police (Daniels 1992, Brough 1994, Hetherington 1994) and civil service (Rick 1994).

With respect to Study 2, 39% of respondents reported levels of three and above on the GHQ12, both pre and post deployment. This number does appear to be comparatively high, particularly when one considers the equivalent results from the infantry respondents in Study 1. In that study, 30.4% reported levels above the GHQ12 threshold. The period leading up to deployment is an exceptional busy time, with much pressure placed upon personnel to complete training, complete all the administrative requirements, in addition to individuals needing to plan for their separation from partners or families and the pressure that places on personnel. This may account for these elevated levels prior to deployment, which may, to a certain extent, mask the high levels of mental health post deployment, when comparing the two.

It is also interesting to note that at the time of the survey, the regiment was one of the most understrength regiments in the British Army. It could be hypothesised that there is a link between these two factors. Mental health and manning problems are likely to act synergistically, where having fewer soldiers increases the workload and pressures on those left behind. This would generally decrease morale, increasing strain and susceptibility to mental health difficulties, which in turn, make more soldiers want to leave the Army.

There were no overall significant changes in reported mental health between T1 and T2 in Study 2. This finding does suggest that there were few significant stress problems directly resulting from the tour. Those experiences which may have produced specific difficulties are either likely to be discrete events (such as helping out at a number of road traffic accidents), or adjustment problems from long term deleterious situations (such as remaining in a sanger (observation post) for six months).

11.2.2 Mental health and the psychological variables

Previous research predicts positive correlational relationships between the GHQ12, neuroticism and anxiety, and negative correlational relationships between the GHQ12 and self esteem and mastery. This research has supported these findings, in both Study 1 and Study 2. All these relationships have produced correlations with a significance level of $p < 0.001$, with comparatively strong Pearson r coefficients (lowest 0.46, Study 2 T2). These

findings possess high face validity, and it contains no surprise that poor mental health coexists, or indeed comprises, high levels of anxiety and neuroticism and low feelings of self esteem and mastery. This confirms objectives 3 and 6. This section will therefore focus upon alternative relationships between the variables, such as coping strategies and mental health, and individual differences with respect to mental health, coping techniques and psychological variables.

11.2.3 Coping strategies and mental health

This section discusses the various coping strategies and their relationship with the psychological and mental health scales. With regard to coping strategies and their relationship to the GHQ12, there are much lower Pearson r values, between 0.001 and 0.2, although typically around the 0.1 level. There are a number of significant ($p < 0.001$) relationships for changing the situation (Study 1) and symptom reduction (Study 1 and Study 2 T1), having a negative and positive relationship with the GHQ12 respectively. Past research has found a clear relationship between positive coping behaviour, such as problem solving and actively trying to change the situation, and positive mental health, while conversely, poor mental health was associated with escape and avoidance of the problem (Parkes 1990, Suls & Fletcher 1985). It therefore follows that there should also be a positive and significant relationship between changing the situation and mastery and self esteem (as occurs in Study 1), due to the confidence required to believe one is capable of changing a situation. Indeed, these findings support the notion that individuals who are experiencing mental health difficulties are experiencing helplessness and lack of control.

With regard to utilising symptom reduction as a coping technique and its relationship to poor mental health, past research has found this to be a less effective long term strategy (Suls & Fletcher 1985). As symptom reduction refers to behaviours such as drinking alcohol, excessive exercise or other activities to facilitate forgetting the problem, it is not surprising that the stressor, or the impact upon mental health, does not disappear or lessen.

11.2.4 Dynamic nature of coping techniques

Here, one should make the distinction between typical coping behaviours and current coping behaviours. It could be the case that drinking or exercising relieves stress in the short term, if used as a temporary measure. A number of researchers have identified the dynamic nature of coping behaviours (Menaghan 1982), and indeed, the dynamic nature of particular coping techniques and their relationships to mental health (Menaghan & Merves 1984). This can be exemplified by the fact that in Study 2, T1, utilising Symptom Reduction was significantly related to poor mental health, while this was not significant at T2. At T2 respondents had been in theatre for 5½ months and due to return home within two weeks. The six months in theatre were confined, with little or no room for manoeuvre with regard to changing or dealing with stressful situations (e.g. cramped living accommodation, no privacy, potential problems at home). Thus, 'excessive' exercising or trying to forget any problems during those six months, was likely to be one of the few ways of coping with feelings of stress. This supports the finding that problem solving techniques tend to be less effective within an occupational setting (Parkes 1990), due to the lesser degree of power an individual has to change the stressful situation.

When looking at the changes in the use of certain coping techniques between T1 and T2, Study 2, it can be seen that respondents were less likely to utilise avoidance and social support as coping techniques towards the end of the deployment. These findings are to be expected. With individuals physically, geographically and socially confined throughout the six month period, they were unable to avoid particular stressors, either having to confront them, or to try to reduce the symptoms. Similarly, utilising social support to a lesser degree can be explained: by the lack of choice of people to seek support from, the inability to seek a similar level of support from family, partners or friends (who they are not deployed or co-located with), and perhaps the inevitable conclusion of constant confinement with the same people - becoming 'sick of them'. The findings of Sandstrom et al (1980) reflect this, emphasising the negative impact on mental health a lack of privacy can produce.

11.2.5 Inter-relationships of coping variables

Many of the coping techniques are highly correlated with each other, particularly with respect to Study 2. This may be caused by some respondents answering the coping questionnaire in a global manner. Despite using a shortened version, the questionnaire (Edwards and Baglioni 1993) is long and repetitive, requesting similar information throughout, and may well have resulted in some respondents responding with a halo effect. This is more likely to be the case for Study 2, where the vast majority of respondents were junior rank infantry soldiers. In comparison, Study 1 achieved a spread of respondents across the rank and Arms/ Corps structure. As infantry soldiers are required to reach a lower level of verbal/ written intelligence than their corps counterparts, by implication, a questionnaire may be a less effective means by which to obtain information. As research by Stone, Stone & Geutal (1994) showed on their study on US Army personnel, the intelligence levels of respondents influences the effectiveness and validity of questionnaire research.

In attempting to extract some meaning from the inter relationships of the utilisation of the coping techniques, it is perhaps useful to look at those that are significantly related to each other in Study 1. Avoidance of a problem is significantly and positively related to symptom reduction and devaluation of a problem. This has high face validity, as by attempting to reduce the symptoms of a problem by drinking alcohol or exercising, is a means to avoid the problem. The same is true for devaluation, where one places less emphasis on the difficulty and thereby avoids feeling they have to confront or deal with the difficulty. One would have expected a stronger negative correlation between utilising avoidance and changing the situation, due to their apparent incompatibility. However, due to the dynamic nature of utilising various coping techniques, respondents could be completing the questionnaire with a variety of occasions in mind.

Devaluation and avoidance were positively correlated, again, a relationship to be expected. By devaluing a problem, one is in effect avoiding the problem: when devaluing a problem one is thinking *“Oh it’s not that important to me, I shall try and forget it”*, while avoiding a problem, one is thinking *“I won’t think about it now, maybe later”*. Hence, both these

processes are cognitive (as opposed to, changing the situation and symptom reduction which are primarily behavioural) and they result in the individual trying to place less emphasis on the perceived difficulty.

11.2.6 Coping questionnaires - methodological issues

These findings identify two issues with respect to the Edwards and Baglioni (1993) classification of coping strategies, and indeed, coping questionnaires in general. The coping classification utilised in these studies is comparatively highly intercorrelated. One has to question whether each strategy is independent. The Cronbach's alpha coefficients are all acceptable, with the exception of symptom reduction (0.47) and five occasions across both studies, where the value was between 0.62 and 0.67. A principal components factor analysis with varimax rotation was conducted on the coping dataset of Study 1 and can be found in Appendix 10. Although there were six factors extracted with an Eigenvalue above 1, accounting for 63% of the variance, only three of these factors were those promulgated by previous research (Edwards & Baglioni (1993); Folkman et al (1986)); namely accommodation and changing the situation and social support. Devaluation and avoidance were collapsed into one large six variable factor. Finally, symptom reduction was divided into two factors of two variables each; pairing off 'letting off steam' and 'drinking more alcohol' then 'try to relieve tension somehow' and 'try to relax' together. These pairings are understandable as the initial factor is concerned with more external processes, while the latter factor initially appears to be concerned with more low key, perhaps calming, processes.

These findings may highlight the need to question the reliability of the coping factors used. However, it should be noted that the questionnaire was reduced from 24 items to 19, based upon the most predictive items within each factor identified from an earlier study (Daniels 1992). The lack of factor stability could, in part, be due to this. Thus, caution should perhaps be exercised when discussing results connected to symptom reduction, devaluation and avoidance.

With respect to coping questionnaires in general, there is a problem in classifying “typical techniques” used, due to the dynamic nature of the use of varying techniques. It could be that such questionnaires are too broad in their approach. As coping is specific to certain situations, a more effective approach maybe to specify types of situations (e.g. in a work setting, family/ relationship problems) and ask questions referring to those circumstances. Research by Regan and Fazio (1977) found that responses on a questionnaire were only validly related to behaviour when the items drew upon direct experience of the employee. Thus, by tying up the questions to specific situations or occasions, the validity of the responses is likely to be higher (in terms of being ‘behaviourally referenced’). Furthermore, it would allow the researcher to focus upon exactly when certain coping techniques are effective or ineffective, in addition to identifying the capacity to and circumstances of changing the use of certain coping techniques.

Thus, coping behaviour, on the whole, tends to be situation-specific and also susceptible to change over the duration of a situation, due to continual feedback mechanisms (Folkman & Lazarus 1985). It has been suggested that an attempt to focus purely on stable coping behaviours is largely inadequate and ignores the fundamental evolving nature of the coping reaction (Krohne & Roger 1982, Folkman & Lazarus 1985). If one follows this argument, cross-sectional studies which identify coping behaviours therefore fail to adequately assess the coping process, as any generalisations concluded may be largely inaccurate. The use of longitudinal research involving repeated measures design, appears therefore to be an essential methodology for the measurement of coping (Dewe 1991, Folkman & Lazarus 1985). It could also be argued that to attempt to measure coping behaviours within a predictive analysis could be somewhat pointless since they may change.

This argument would explain the failure to identify a consistent coping behaviour adopted by respondents within Study 2. Study 2 was also unable to identify any coping characteristics that were predictive of GHQ12 levels, in either the longitudinal or cross-sectional analyses. Furthermore, numerous relationships between the coping sub-scales and well-being variables were identified, replicating previous findings that coping is

indeed a situation specific behaviour (Billings & Moos 1984; McCrae & Costa 1986; Carver & Scheier 1994).

11.2.7 Individual differences

The individual differences examined by this study, with respect to mental health, psychological variables and coping techniques, were rank, age, Arm or Corps, marital status, the occurrence of a significant life event within one year prior to deployment and whether an individual had received some education concerning stress. This section discusses the variables of age, marital status, significant life event occurrence and stress education, thereby concentrating upon the more theoretical and less military specific aspects.

11.2.7.1 Age

With regard to age, there was found to be a significant difference in terms of mental health levels, with respect to the occurrence in the problem group, GHQ12 and IES, in Study 1. The relationship is not linear. There is a peak of problems (17.3%) occurring between the ages of 22 and 25, with the remaining age groups displaying between 7.1% and 10.4% of personnel within the problem group.

The age grouping used was obtained in an intuitive manner, based on various lifecycle stages. These were based upon Deiner's (1984) work, where he believed that lifecycle differences in terms of well-being or job satisfaction may yield more convincing results when studying the effects of age. For example, between 17 and 21 individuals still tend to be comparatively immature, with a short term outlook on life. Between 22 to 25 personnel may be deciding if they want to remain in the Army; between 26 to 30 one is generally concentrating on one's career and (potentially) family, whilst between 31 to 40 is a consolidation phase. As Levinson (1978) found, younger men tended to devote themselves to their career, while in their thirties they widen their commitments to other roles and their family. Thus, it could be argued that between 22 to 25 there may be a greater number of personnel wanting to establish stable relationships and maybe feeling constrained by

competing pressures from partners and work/ Army lifestyle. As Levinson stated, it may be the early emphasis on their job which creates frustrations while the individual is coming to terms with reality.

Neuroticism was significantly and negatively influenced by age. Thus, younger personnel reported higher neuroticism levels, even when controlling for rank and marital status, while older personnel reported more emotional stability. Looking at previous research it appears that intrinsic job characteristics tend to have more impact upon young workers (Lowther, Coppard, Gill & Tank 1982, Rabinowitz & Hall 1981). In addition, Warr (1990) reported a positive linear trend between age and well-being and Sevastos, Smith and Cordery (1992) found that younger employees (18 to 34) reported lower levels of well-being. The greater positive effect of older employees maybe due to the 'ageing stability hypothesis' (Glenn 1980), whereby individuals become more emotionally stable as they mature. What is apparent is that the relationship between age and job satisfaction or mental health is not clear cut, and as Clark, Oswald and Warr (1996) believe, it may be non-linear. However, it could be that the less neurotic personality is attracted to remain in the Army for a career, or a longer period of time. The Army lifestyle tends to foster orderly and stable characteristics, as opposed to a 'highly strung' personality.

Looking at the analyses regarding age and mental health levels in Study 2, it can be seen that there are no significant differences within each age group, between T1 and T2. There was a slight increase in GHQ12 levels (i.e. poorer reported mental health) at T2, within the 26 to 30 age group (38.7% to 45.2%). This, may in part, be due to a greater number of personnel within this age bracket having young families, thus causing separation difficulties.

11.2.7.2 Marital Status

With respect to marital status, there was no significant difference in terms of the proportion of personnel within the 'problem group' in Study 1. However, there does appear to be a trend towards single soldiers displaying higher rates of mental health problems, particularly with regard to trait anxiety and lower levels of self esteem (which

are statistically significant). The findings concerning anxiety become non-significant when controlling for age and rank, suggesting that these factors have a moderating influence upon anxiety. The significant differences with respect to self esteem remain significant even when statistically controlling for the effects of gender. Within the Army, having a spouse significantly changes a soldier's domestic situation (in terms of living in married quarters as opposed to 'messes' or barracks), financial situation (in terms of allowances) and indeed their social situation. Thus, not only is a soldier likely to experience greater emotional stability, but also physical stability and improved life circumstances. The greater inclination for single personnel to use avoidance as a coping technique and utilise changing the situation less suggests a greater reliance upon less effective mechanisms for coping. However, when the effects of age are statistically controlled for, the effects of marital status itself becomes insignificant.

In Study 2, there were no differences between T1 and T2 with respect to mental health levels dependent upon marital status. Despite apparent differences when looking at the impact on those in a close relationship and those not, there is no statistical interaction. Thus, those personnel not in a close relationship generally reported a decrease in mental health problems, while those who were in a close relationship tended to report an increase in mental health problems. This would be expected due to separation difficulties that may have occurred, or problems with relationships at home, illustrating the 'burden of care' concept by Rooke et al (1991). As a major stated in Study 1:

As a practising Families Officer I know that soldiers/ officers worry more about families back home than themselves during difficult times, consequently good quartering and communications are very important.

Married personnel also used social support as a coping mechanism to a lesser degree post-deployment. This emphasises the support that a partner can provide and its potential impact upon mental health (Figley & Sprenkle 1978), and that separation during a deployment tends to cut down the range of coping strategies which can be employed.

11.2.7.3 Significant life event

Significant life events will vary in their importance across individuals; what one individual perceives as significant or stressful, another may find such an event totally enjoyable or not be at all concerned. Thus it is the perception of an event as significant which is likely to impact on mental health. It was therefore decided not to present respondents with a list of potentially significant events from which to 'tick off' what they had experienced, but to ask individuals to write down what they considered to be important to them. The results were then dichotomised into personnel who stated they had experienced an event and those who had not. This kept the associated analyses simple, but also accounted for individuals' perceptions.

Respondents were asked if there were any significant events which had had a major effect upon them over the last year, and if so, to describe them. When separating those respondents who stated they had experienced a significant event and those who had not there were significant differences in Study 1 with regard to GHQ12 scores, the IES and the number of problem cases, in addition to neuroticism, trait anxiety, mastery and self esteem. It is therefore rather convincing that the occurrence of a significant life event impacts considerably upon an individual's well-being. This supports earlier research by Gentry & Kobasa (1984) and Dohrenwend & Dohrenwend (1974). With regard to coping strategies, there was only one significant difference in Study 1, where those who had experienced a significant life event were more likely to use symptom reduction. This suggests that these personnel are perhaps not dealing with any problems, attempting to forget or perhaps ignore their difficulties. This is an important finding as it illustrates the importance of displacement activities when an individual may have a significant issue to deal with.

Looking at Study 2, there were some interesting results. At T1 those who had experienced a significant event reported significantly higher levels of neuroticism, trait anxiety and lower levels of mastery, while at T2 these failed to show any significant differences. Respondents were asked about events that had occurred over the past year, hence six months on (post deployment) some individuals may have accepted the events they had

described previously, which may have increased feelings of mental well-being. With regard to differences between T1 and T2, there was a significant interaction effect. Pre-deployment, at T1, 28% of personnel who did not report experiencing an event were above the GHQ12 cut off criteria, compared to 54% of those who did report experiencing an event. At T2 there ceased to be such a contrast, with the results from both groups of respondents moving towards the centre (35% and 45% respectively).

However, these findings would suggest that prior to a deployment, a soldier who has experienced a significant life event may feel that he needs time to sort things out prior to departure. These soldiers should be identified through their chain of command and informal interviews could be conducted either by their commander, Medical Officer, padre or Families Officer. These interviews would be used to establish the individual's motivation to deploy, to establish the effect of the event on the individual and the requirement for time off to sort things out. It could then be upto the Commanding Officer to decide whether the individual should deploy or form part of the Rear Party.

11.2.7.4 Stress Education

As can be seen from the results in Study 1, the findings appear quite convincing in supporting the notion that some degree of stress education impacts upon the mental health of personnel. Those personnel who had received some degree of stress education reported significantly lower values on the GHQ12 and trait anxiety, with higher values on mastery. It is interesting to note that there are no significant differences with regard to the IES scores. This is perhaps not surprising, as it suggests that stress education is effective with the general health problems, which can be more controllable by the individual, as opposed to the more traumatic symptomology, which would require greater intervention. Individuals who had been educated on stress were also more likely to use social support and changing the situation as techniques for coping, which could be argued to constitute more effective coping techniques. Perhaps an increase in awareness of stress encourages personnel not to hide difficulties, but to address their problems by discussing them and working out how to deal with them.

In Study 2 there were no differences in mental health between T1 and T2, although there were differences in self esteem. Those individuals who had been educated about stress reported significantly higher levels of self esteem, in addition to utilising Avoidance as a coping strategy to a lesser extent. Conversely, those individuals who had not been educated on stress were less likely to utilise social support as a coping strategy at T2. These are similar findings to Study 1, if not consistent. Maybe having exposure to stress as a topic for discussion may increase the confidence of individuals to discuss any difficulties, in addition to an increase in awareness re-inforcing the concept that stress is a normal reaction to an abnormal event.

It is acknowledged that the measure used (received any education on stress) is gross and unfocussed, potentially incorporating a wide range of educational levels and styles. However, it does provide an understanding of a degree of awareness concerning stress related issues, which can be used as a basis for analysis. A controlled study on the impact of stress education would be useful, particularly if one were to suggest that education on stress was to be mandatory for all soldiers.

However, these findings do suggest that stress education to soldiers is going to be effective, in some way, supporting elements of the findings of Inzana et al (1996). Education may not directly impact upon mental health (despite the findings in Study 1), but some effects are likely to be moderated through coping strategies used or feelings of self esteem or mastery. At present, the Army do have lectures on stress conducted by a Community Psychiatric Nurse (CPN) or psychiatrist prior to a deployment in the FRY; there is also provision for stress lectures prior to a tour in NI. However, it is important to note that, at present, these are conducted to 'commanders' (those personnel in the chain of command) and not every individual. Upon completion of a deployment to FRY, a CPN or psychiatrist will give a talk to every unit on readjustment issues and where to seek help when they return home. Attendance at these talks is not mandatory, so personnel can 'slip through the net', particularly if they deploy home early, are on training courses or are on duties. A sergeant stated in Study 1:

I feel that stress management in the Army is important and ALL command levels (especially teeth arms) should be trained in recognition and low level

treatment of stress related problems. If the correct treatment is given (even if it's just a chat) fewer problems with divorce, mental exhaustion and other stress related illnesses within the Army would occur, making the Armed forces a much more efficient force.

11.3 Expectations, Evaluations and Understanding of the Deployment

This section focuses on Study 2, considering the effects, if any, of prior expectations, evaluations and understanding of the deployment, on GHQ12 values. It is a commonly held belief within the stress literature that the appraisal process (Lazarus 1966) is the central mechanism for experiencing stress. However, this concept, as applied to appraisal of the wider situation, often fails to be included within stress research, where individuals are rarely asked what they think of or feel about situations (other than the 'stressor' itself). These factors have not generally been researched with respect to operational stress, yet are particularly important during this era of peacekeeping missions.

11.3.1 Understanding of the local situation

Some knowledge or understanding of a 'host' nation's problems or conflict is important for peacekeeping/ enforcing troops. The soldier is often brought into an alien environment and is required to perform an impartial role, while often observing appalling local conditions, fighting or experiencing a direct threat to themselves (for example, Rwanda, FRY). Some, even limited knowledge, can provide the individual with confidence: confidence in the requirement and legitimacy of their presence in theatre and confidence in dealing with situations involving the local population. Furthermore, the soldier is then better able to understand where and how he fits in within the unstructured, dynamic and often highly publicised environment. Although NI is not an unknown environment, the period during the cease-fire was unclear, particularly as the cease-fire ended towards the end of the tour to NI.

Understanding of the situation in NI at T1 significantly influenced reported mental health levels at both T1 and T2, as did T2 understanding of the situation influence T2 levels of

mental health. Those individuals who felt they understood the situation in NI, reported fewer mental health difficulties. It could be argued that the cease-fire/ post cease-fire period was uncertain and unclear, hence, for those soldiers who were unsure of the situation, their environment was less clearly defined. Ambiguous situations and a lack of environmental clarity have been argued to cause stress (Warr 1987), particularly over long periods of time, due to the inability to mentally plan for or predict what might happen. Findings from Study 2 support this tenet, and are closely related to the issue of role clarity.

11.3.2 Belief in the deployment

Whether a soldier believes he should be involved in a deployment may well impact upon mental health levels. It could be argued that soldiers will be more motivated if they believe that they should be deployed in the theatre of operation and can identify with the purpose of the deployment. As motivation forms a component of morale, and morale has been argued to be a perception of group related mental health, it follows that belief in their deployment may well be indicative of mental health levels.

Belief in whether UK troops should be deployed to NI significantly influenced reported mental health levels at T1 only. Those respondents who believed that UK troops should definitely not be deployed to NI, reported a significantly greater number of mental health problems than those who were unsure or believed troops should be deployed. This could highlight the need for individuals to believe in what they are doing, particularly in the context of internal security, where soldiers are placed in a position of dealing with a local population who they can identify with. However, it could also be that those individuals who are feeling low or have significant concerns at home, may generally be feeling negative and therefore not agree that they should spend six months away from their home in comparatively uncomfortable conditions. Thus, morale may be low, which will have an overall effect on the thoughts and perceptions of the individual.

11.3.3 Anticipation of the deployment

Stress is associated with the perception of threat and the capacity of an individual to cope effectively with incidents and experiences. Much research has focused on the importance of perceiving events as a challenge, which mediates against mental health difficulties (Kobasa, Maddi & Pucetti (1982). Indeed, Lazarus (1966) maintained that an environmental demand will induce stress only if the individual expects that he will be incapable of dealing with it. Hence, if individuals are looking forward to the deployment and perceive that positive things can be gained out of the experience (leadership skills, helping the local population return to peace etc.), then it may follow that they will experience fewer mental health problems.

Those respondents who were not looking forward to the deployment reported a significantly greater number of mental health problems than those personnel who felt positive. Again, this is re-inforced by the finding that those individuals who thought they would enjoy the deployment reported fewer mental health problems at T1. These findings highlight the importance of perceiving experiences as a challenge and an opportunity for something positive. It could also be that poor mental health makes individuals perceive situations in a more negative light. However, 'looking forward to the deployment' also influenced reported mental health at T2, which could perhaps illustrate a self fulfilling prophecy. That is, if one perceives an event to be negative, then it is more likely one will not enjoy it, perceive difficulties and therefore reinforce this view.

11.3.4 Preparation

Pre-deployment preparation not only includes physical and tactical preparation, but also mental preparation as well. To manage uncertainty is a key leadership skill prior to a deployment. Fundamentally, pre-deployment training attempts to provide soldiers with the skills and information to perform their required roles. This in turn, can bolster individual confidence and belief that they have the skills and ability to cope effectively with potential situations on the operation. This would be expected to impact upon self esteem and anxiety prior to deploying, with subsequent effects upon motivation, hence impacting

upon mental health. However, it is the provision of realistic information and preparation which is of benefit to the soldiers, as this will influence evaluations of the operation and not create false aspirations or fears.

At T1, perceptions of mental preparation and preparation provided by the training, significantly impacted on T1 mental health levels. The causality is not known in this instance. Maybe individuals with mental health difficulties are underconfident with regard to their capabilities in theatre, or with a fear of the unknown and unexpected. Conversely, it could be that perceptions of poor personal or military preparation prior to a deployment produces strain and anxiety, resulting in mental health problems.

When considering reported mental health levels at T2, T1 perceptions of the adequacy of training produced a significant impact on GHQ12 levels, while mental preparation did not. This illustrates that perceived training adequacy prior to a deployment influences mental health levels. This significant relationship still stands, even when controlling for rank, the occurrence of a significant life event or previous NI experience. These findings support those that have found that providing realistic information concerning the job and organisation decreased environmental and role ambiguity (Gruneberg 1979). Furthermore, the research by Inzana et al (1996) on providing preparatory information to military personnel also supports the findings from this study.

11.3.5 Perceptions of achievement

Peacekeeping, enforcing or humanitarian deployments may be difficult to deal with and incorporate many stressors. If, however, an individual can feel he has achieved something by being there and has made a positive difference in some way, then he may feel it was worthwhile. This focusing on achievement and any positive aspects may mediate against feelings of anxiety, mental ill health and unpleasant perceptions of the tour. Goals are closely linked to the issue of success and achievement, which emphasises the importance of the command setting realistic goals, which are visible to all the soldiers.

Feeling that they had achieved their role as an individual resulted in significantly fewer mental health problems at T2, although perceptions of achievement as a unit did not show any relationship with reported mental health levels. If an individual can feel that he has achieved his role, and accomplished his goal, then one can obtain something positive from the experience. Perceptions of group achievement and mental health levels may be more related in novel one-off deployments, as opposed to the cyclical and routine, when goals can be more difficult to clarify and establish. Those who enjoyed the operation reported fewer mental health problems at T2. This could relate to the perception of threat, which is generally a precursor to stress: if an individual enjoys the experience he is unlikely to have perceived it as a threat, but rather as a learning experience.

Thus, it would appear that an individual's expectations, evaluations and beliefs concerning an operational deployment do have a significant influencing capacity on reported mental health levels. Within this era of multi-national peacekeeping/ enforcing operations, when there is no requirement to defend the sovereign territory of the United Kingdom, a soldier's motivation to deploy on an operation may be complex. His expectations, understanding and beliefs concerning the deployment may take on an increasing importance, particularly if casualties occur. Commanders must address these beliefs and expectations within the training and preparation phases prior to deployment, ensuring that personnel have adequate, realistic information, in addition to feeling that they are tactically, physically and mentally prepared for the deployment.

11.4 Predictions of mental health problems and turnover

11.4.1 Overview

The model proposed in Chapter 7, figure 7-1, illustrated the relationship between mental health, organisational outcomes and the influencing factors such as biographical, psychological and coping variables, beliefs and the home/ work situation. In order to look at the relationships in a more simplified manner, Figure 9-1 was proposed, where individual pathways could be identified and visualised. As mentioned in Chapters 9 and 10, the multiple regression analyses were used in an exploratory manner, to provide a

largely qualitative set of results in terms of establishing some of the most important outcome predictors.

Study 1, as a cross sectional study with a comparatively large and representative data set, can provide 'baseline' findings, to establish the underlying relationships between the variables. Study 2, provides a more complex set of analyses, focusing on the temporal aspects of predicting the outcome variables, considering prediction of mental ill health at various stages of a deployment. This section will discuss findings from Study 1, followed by those from Study 2, considering the impact of these in terms of the proposed models.

11.4.2 Study 1

The organisational outcome variable was designated as a desire to leave the Army. Morale and GHQ12 levels accounted for 23% of the variance of this organisational outcome. On closer inspection it can be seen that own morale is the more powerful predictor, with higher Beta values (0.436 compared to 0.079 for GHQ12) and a greater significance level. Infact, GHQ12 is not a strong predictor of organisational outcome. Morale could be argued to be a component of group mental health, so one could surmise that the team/ group aspect of Army life is that which influences a desire to leave or remain in the Service. The Army is team oriented, in the working environment, social environment and its emphasis on team sports and adventure training. Thus, a desire to leave the Army is more dependent upon a feeling of well-being directly related to the working environment, rather than an individual sense of well-being. These findings are not surprising.

However, Beehr's (1995) model of the core relationship of occupational stress identifies a direct relationship between 'human consequences' and organisational outcomes, as does Cooper and Marshalls (1976) model. Their findings assume that individual stress outcomes are the important factor in determining organisational outcomes. The findings of this study, that morale is significantly more able to be predicted than GHQ12 levels, maybe due to the study of a military population. Morale is a common concept within a military organisation, while for civilian companies the concept may be more difficult to ascertain and for individuals to measure. Furthermore, morale is likely to be more

important within the Army than their civilian counterparts, because of the 'whole life' aspect of their occupation.

With regard to the influence of the psychological variables and coping strategies on morale and mental health, 23% and 42% of the variances were accounted for, respectively. The variables which appeared to be strongest in predicting own morale were a sense of mastery and not using devaluation as a coping strategy. Thus, those individuals who felt they had more control in the environment and felt able to confront any problems, felt happier within the organisation. The hierarchical nature of the military environment ensures that the vast majority of personnel have very limited control over their environment; indeed, an individual is unlikely to be able to physically 'escape' or avoid any difficulty due to the constrained environment. Hence, those who can deal with issues, without devaluing them and perceive a level of mastery within their environment are more likely to feel happier at work. Certainly, control in the working environment is considered to be a fundamental factor in influencing mental health levels in individuals, as ascertained by Marmot (1996) in a large study on Whitehall civil servants.

The psychological variables and coping strategies were able to account for a large amount of variance when predicting GHQ12 levels. Looking at the high interrelation between the psychological variables and GHQ12 in terms of the Pearson correlation coefficients, this level of variance accounted for is not surprising. As discussed previously, the co-existence of high levels of neuroticism and trait anxiety and low levels of self esteem and mastery with mental health is to be expected. Indeed, Hart et al (1995) found personality characteristics to be the strongest determinants of psychological distress and well-being in a study on police officers.

Biographical variables were not capable of predicting much variance at all, with less than 1% of variance accounted for with GHQ12 as the dependent variable and 6% with own morale as the dependent variable. In fact, only rank and the number of years left to serve were significant predictors of own morale. Rank was negatively related, suggesting that the higher the rank the lower was own morale. This is quite surprising as it is generally the lower ranks who state they are more dissatisfied (James, Weston, Hampson & Jarman

1997), with the higher ranks generally possessing more power and also higher levels of morale. The finding from this study could be connected to the continual changes which have been occurring within the military, primarily based upon financial cuts. Posts have been gapped, establishments have decreased, contractorisation and 'agencification' has occurred in numerous areas of the military, while commitments have increased. Maybe the higher ranks are more aware of these changes and the negative impact that they have on the Army.

The number of years left to serve also negatively influenced levels of own morale, with lower levels of morale reported by those personnel with longer left to serve. At first thought, this could be seen as contrasting to Warr's Vitamin Model, where security of tenure is considered to be important in influencing levels of mental well-being. However, with the continual reviews within the Armed Services, personnel do not assume that their job is for the period they signed up for anymore. Two factors could be influencing this finding: feeling tied into a career without the same degree of flexibility as with a civilian job, or identifying with a long Service career, but disliking the organisational changes and constant reviews which are changing the nature of the British Army.

Thus, it appears that there is some support for the model proposed in Figure 9-1, although emphasis should be placed on the psychological/ personality variables pathway to own morale and GHQ12, and from own morale to the organisational outcome (desire to leave the Army).

11.4.3 Study 2

As mentioned, Study 2 undertook a more complex set of MRAs, based upon a primitive hierarchical methodology, evaluating the predictive capability of each set of dependent variables group by group on GHQ12. The final stage involved combining those predictive variables, in a final stepwise analysis to establish those most able to predict GHQ12 levels. Attempts were made to focus the applicability of the analyses to a military context, with particular emphases on an operational deployment. As such, the model in Figure 7-2 was

proposed, in an attempt to account for the different factors influencing the onset of stress in an operational context.

The analyses conducted breaks down the process illustrated at Figure 7-2, first looking at the impact of factors on the left hand side on mental health, the impact of these on T2 mental health, and finally the impact of deployment experiences on T2 mental health. This approach has a practical application, as it can illuminate the discussion regarding the ability to predict psychological problems prior to a deployment of an operational tour of duty. It should be stated, however, that as so few individuals reported traumatic stress reactions, these predictions focus upon well-being. This state of mind, although representing some problems, is not likely to be severe enough to warrant screening an individual out of deploying, whereas a traumatic stress reactions is. Thus, these findings will provide an indication of the factors which may cause problems or influence the onset of mental health difficulties.

Time 1 prediction of Time 1 GHQ

Looking at pre-deployment (T1), five variables were able to account for 53% of the variance for T1 GHQ12 levels. This percentage is high, illustrating that these variables are good predictors of mental health. It could also be that neuroticism, which was the strongest predictor, coexists with poor mental health, therefore may not be a causal factor, but an aspect of low GHQ12 levels. This finding, with respect to neuroticism and indeed mastery, reinforces that found in Study 1. The occurrence of a significant life event was a predictor of poorer mental health prior to deployment, perhaps illustrating that these personnel may not feel emotionally capable of deploying on a six month tour, when they still have issues to resolve or be part of at home.

Finally, belief in whether the UK should deploy troops in NI and whether the individual feels they would enjoy the situation, were also predictive of GHQ12 levels at T1. This illustrates the importance of beliefs and expectations prior to deploying on an operation. If an individual does not believe in their presence in theatre, this lack of belief in (or disagreement with) their purpose may well induce problems with sleep, and with general

feelings of happiness and enjoyment of day to day activities. Indeed, if the individual feels that they will not enjoy themselves for the next six months, they are more likely to be negative in their evaluation of work. This is particularly the case since the individual has no choice, has been anticipating the situation for at least one year prior to deployment and is likely to feel that six months is a long period of time.

Thus, this section of the analysis has produced no surprises based upon the literature; that is, re-inforcing the role of the influence of personality variables, the occurrence of a significant life event and beliefs and expectations, on mental health. This analysis provides cross sectional findings, being unable to establish causal factors and the prediction of 'future' mental health difficulties. There is similarity between the results observed for Study 1 with regard to the importance of personality/ psychological variables and their influence on mental health. There were also other factors found to be significant which were identified in the cross sectional T1 analysis of Study 2, further to those identified in Study 1; this was because the analysis was not restricted to ascertaining the importance of certain pathways, but was exploratory in nature.

T1 prediction of T2 GHQ12

The prediction of Time 2 GHQ12 levels from T1 information allows causality to be explored, providing information on precursors to mental health problems. Fewer variables were capable of predicting poor reported mental health post deployment (T2), with only 13% of the variance accounted for. These findings suggest that predicting post deployment mental health, prior to deployment, is particularly difficult with the information obtained. The implications could be that screening personnel out of an operation prior to the deployment is unlikely to be effective.

Again, neuroticism is a strong predictor of GHQ12 levels, which based upon previous findings is to be expected. The occurrence of a significant life event prior to deployment, also significantly influenced poorer levels of mental health upon completion of the deployment. This illustrates the requirement for an individual to deal with such an event, which a six month posting away from home, with limited available contact, is unlikely to

achieve. This may also exemplify that the boredom and routine experienced on the deployment was conducive to individuals dwelling on their problems.

Finally, feeling that their work was pointless also significantly affected reported GHQ12 levels. If soldiers are required to spend a significant period of their life, in adverse conditions and away from their loved ones, then many individuals need to feel there is a valid point to it. This appraisal of the situation, or indeed, evaluation of the usefulness of their role/job, does not fit into either Warr's Vitamin Model or Cooper and Marshall's Occupational Stress Model. It could be argued that when a job requests an abnormally large amount of an individual's time, or adversely impacts upon life outside of work, then some reward must be visible. Certainly within the public sector, that reward is not financial, but when extra effort is required, it is likely to take the form of intrinsic job satisfaction or aspirations of career advancement, or for the purpose and aim of the work. Warr does talk about availability of money within his model; however, this is not inclusive enough to incorporate rewards in general, or indeed acknowledge that rewards can be non-financial.

T2 prediction of T2 GHQ12

It was decided that the final MRA should concentrate on the deployment itself, focusing on coping techniques, beliefs and evaluations, organisational issues, training and preparation, social support and the described stressors. Demographic details were included, as this was felt to be useful to commanders in theatre. Psychological variables were not included, primarily as these could not be easily identified in theatre and therefore of little use to commanders. Furthermore, based upon the previous findings, it was thought likely that the influence of the psychological variables would mask the influence of other variables on reported GHQ12 levels.

Four variables were found to significantly influence T2 GHQ12 levels, with an emphasis on social support. 23% of the variance was accounted for, allowing for some feeling of confidence in the results. Feeling that there was no-one to talk to about personal difficulties within the Army and feeling unable to rely upon friends in a difficult situation

were both indicative of higher GHQ12 levels. This illustrates the mediating influence that social support can have upon perception of stress. The social support that an individual may have in his 'normal' life, that is, external to those he is deploying with, is likely to be different from that he may use while in theatre. Many soldiers may rely on their family, partners or friends outside the Army for social support. The unavailability of these people (with the exception of phone calls and letter writing) is therefore likely to reduce the number of coping strategies available and indeed potentially reduce the coping undertaken.

Enjoyment of the operation was also indicative of reported mental health levels, as was feeling under pressure to 'get things right'. Pressure not to make mistakes, or anxiety over supervisory control, particularly over a long period with little respite, is unsurprising in its influence on mental health. In a normal work context, supervisory pressure can cause anxiety, inability to concentrate or sleeplessness. Thus, in a more extreme work situation, where there is close control over individuals, constant supervision and the fact that, ultimately, mistakes could cost lives, the pressure and influence on individuals can only be greater.

It was expected that the described stressors would influence mental health levels in some way. There could be a number of reasons for their inability to predict GHQ12 values in this study. One factor could be that there were few particularly stressful, or traumatic incidents that occurred during the deployment, which on their own could account for a significant influence on GHQ12. Another explanation could be the comparatively large number of categories that were used to classify the stressors described (43). Thus, statistically each category, which was dichotomously coded for each respondent, may not have been powerful enough to predict the dependent variable.

The findings from these exploratory MRAs can provide a useful insight into which factors influence deployment mental health. With respect to Figure 7-2, these results have confirmed that an individual's make up (neuroticism and mastery) and home/ work situation (significant life event) influence pre-deployment mental health (or 'state of mind'). Beliefs and attitudes concerning the deployment, are also influenced by these factors, but also impact upon pre-deployment mental health. Factors capable of predicting

mental health post-deployment, from pre-deployment information again consisted of an individual's make-up (neuroticism) and home/ work situation (significant life event), in addition to the existence of a firm aim or goal in their work (briefing). Finally, during the deployment, the existence of social support, enjoyment of the operation and not feeling under particular pressure (leadership) were indicative of higher levels of well-being.

11.5 Contributions to the Development of the Theory of Stress and Coping

11.5.1 Occupational Theory

This section considers the previously discussed occupational stress models (discussed in Chapters 2 and 7) and the influence and contribution of this research. Warr's (1987) Vitamin model is multi-faceted and incorporates a large number of organisational stressors, many of which were identified as important in this research. Both Warr and Cooper (1983) acknowledge that certain occupations have specific stressors peculiar to them, particularly those with potentially life threatening situations associated with criterion A of the definition of PTSD (DSM IV 1995). Thus, in addition to those incidents specific to the military occupation identified by this research (separation from family/ partners, death of fellow Army personnel), there were also a number of 'general' organisational stressors not included within either Warr's or Beehr's models. This refers to factors such as poor leadership/ management, physical hardships, obtaining a sense of purpose from one's job, career pressure (although it could be argued to be loosely incorporated within goals and task demands) or expectations. Warr also does not consider the home/work interface and the effects of spill-over or cross-over of stress and strain. Beehr's (1995) model is arguably more all-encompassing. Although, this is largely due to the wider terms and nature of the descriptors used, in addition to the fact that the model does not break the stressors down to the same degree as Warr.

There was support for the simplified general model, proposed at Figure 7-1. The evidence suggested that the strongest pathways were between the psychological and personality variables to own morale and GHQ12, and from own morale to organisational outcome (desire to leave the Army). With respect to Figure 7-2, the deployment model, the results

have confirmed the premise of the model. An individual's make-up and home/ work situation influence pre-deployment mental health; beliefs and attitudes are also influenced by these factors, in addition to impacting on pre-deployment mental health themselves. Although the present study has demonstrated some tentative support for this model within the longitudinal multiple regression analyses, further research on larger cohorts over a longer period of time would be needed to provide further support for the model.

Coping is integral to the stress process and as discussed in Chapter 7, neither of these models acknowledge coping. This research has reinforced earlier studies which show various coping behaviours to be significantly linked to context free mental health (Pearlin & Schooler 1978), in addition to the variability and situation specific nature of coping (Menaghan 1982). This research has considered coping as a direct influence, but its impact on primary and secondary appraisal (Dewe 1991) could also be investigated. To assess the overall impact of coping, it may be necessary for future research to examine coping in relation to other aspects of the stress appraisal process.

The influence of individual differences upon mental health levels and psychological variables was also identified, although focus was directed towards those variables most relevant to a military environment. Thus, the importance of individual differences, home-work carry-over effects and other work characteristics have been shown to influence the soldier's well-being, as much as the experience of specific occupational demands. The importance of these subsidiary factors has been reflected in the influences observed in research conducted on other occupations (police: Brough 1998; prison officers: Buunk & Peeters 1994).

Thus, it does appear that the current research does support elements of both Warr's (1986) and Beehr's (1995) occupational stress models. The general premise being that certain features within the working environment affect individual well-being measures. This confirms earlier research by numerous authors (Parkes 1994; Buunk & Peeters 1994; Guppy & Gutteridge 1991). With regard to general theoretical models of occupational stress and coping, this research supports that of the transactional approach (Cox 1978; Lazarus 1966), in that individual characteristics will influence the impact of work demands, either positively or negatively, and in turn influence the perception of individual

well-being. Although support for a linear process was obtained in part in this research, it is recognised that many transactional models place an emphasis upon continual feedback mechanisms which exist between the individual and the environment (Lazarus 1986).

Indeed, as both Cox (1978) and Lazarus (1986) suggest, stress models may be more realistically viewed in the form of a circular or spiral construction. It could be expected that a spiral relationship could exist between individual characteristics which influence their coping reactions, and, via feedback mechanisms, will influence both the individual characteristics and well-being. Although a 'spiral' model may not be pertinent for the more stable, trait characteristics such as neuroticism, it is argued that state characteristics such as anxiety or control, may be more relevant (Watson & Walker 1996; Horowitz 1990). Indeed, aspects such as perceived likely enjoyment of the deployment will almost certainly have a spiral effect upon mental health. While the issue of circularity was not studied in this research, it is suggested that despite the research measurement difficulties that will be incurred future research should address this issue.

With regard to the issue of integrating both organisational and traumatic stress within the same questionnaire, this research has illustrated that these stresses cannot be considered in isolation from each other. As expected, traumatic stressors were cited within the normal working day environment of Army personnel as were organisational stressors cited within the deployment field. Indeed the IES included responses involving separation problems from partners and issues such as workload and failures in work. It could be argued that respondents had difficulties completing the IES, or it could be that the nature of 'trauma' itself is not clear cut. Certainly, in order to attempt to reduce the impact of stressors or intervene in any way within an organisation, one needs to consider the whole situational context. As Cooper (1986) suggested, in order to provide effective organisational intervention practices, the identification of workplace stressors was the primary, initial requirement.

Finally, the research does counter the paucity of research on both organisational and traumatic stress within the British Army, providing baseline data on mental health levels and a valuable contribution to the descriptive information on frequent stressors. It also

appears to be the first consideration on evaluations and expectations of an operational deployment on soldiers' mental health levels and organisational outcome.

11.5.2 Methodological Issues

Further to the adoption of a specific methodology other researchers have identified a number of issues that need to be considered when researching the stress and appraisal process. Four common difficulties were suggested by Lazarus (1992) which were experienced by researchers trying to identify relationships between psycho-social factors and individual well-being. The first problem concerns the degree of confounding variance which influences individual well-being, without the researcher having any control over. These include factors such as genetics and lifestyle choices, such as drinking or smoking. He believes that the variance left which can be explained by factors such as stress, may be very small. Secondly, the establishment of longitudinal causality presents difficulties, due to the inability to account for the unknown influences occurring between the sampling points. It is therefore suggested by a number of researchers that micro-research (by daily measurement of stressors) is perhaps more valid than repeated measures longitudinal research (Stone & Neal 1984; Dewe 1991). The practical implications may, however, be too great in an applied occupational setting.

Thirdly, individual health outcomes tend to be relatively stable. In order to identify any causal influence of psycho-social factors, significant changes in health outcomes must be observed. Thus, Lazarus believes that the estimation of change may be confounded by the typically stable nature of the measures themselves. Finally, he believes that a more precise definition of the outcome variable is required. Thus, a greater specification of what high levels of well-being or job satisfaction entails is needed prior to attempting to evaluate changes against it. Lazarus believes that research considering these four principles is likely to lead to improvements to well-being research. As can be seen by the current research, many of these difficulties are apparent within this study, illustrating the difficulty to control for these factors.

The methodology used for this research incorporates both a cross-sectional and a longitudinal approach. This was proved to be an effective methodology with which to identify causes and contributions to mental health problems, in addition to ascertaining the causality and importance of various factors in the onset of the experience of stress.

A cross sectional approach was able to ascertain prevalence levels of mental health problems across the Army, identifying areas or groups of personnel with particular difficulties. Furthermore, this approach was able to identify frequent causes of stress, providing valuable feedback to the Army, in order to inform policy making decisions. Although a cross sectional study was appropriate in this instance, the major weakness behind cross sectional designs is that they are unable to take into account an individual's baseline level of mental health, job satisfaction and susceptible personality characteristics, which strongly influence the outcome variables (Nelson, Cooper & Jackson 1995). This has the potential to identify spurious relationships between certain events and affective reactions, due to the capacity for individuals with a consistently negative response bias to inflate the correlations between the variables (Brief et al 1988). Longitudinal data collection with two or more sampling points is thus considered the effective method in identifying causal factors in the study of mental health and well-being.

The numerous methods of analysing longitudinal data have been discussed within the recent literature (Parkes 1994; Zapf et al 1996; Moyle 1997), and it is clear that one specific method has not become the accepted way of treating such data. One approach entails that a hierarchical multiple regression analysis incorporates the earlier outcome variable as a form of control (Daniels 1992; Parkes 1994). In this instance, a regression analysis conducted on a GHQ outcome variable, requires that the T1 outcome variable is entered into the analysis at the first step, then followed by the T2 predictor variables. By controlling for the T1 outcome measure, one can be sure that any significance achieved by the analysis is due to changes in the T2 outcome variable. The disadvantage of this is the large proportion of variance which can be automatically explained within the T2 dependent variable, thus perhaps not reflecting a realistic picture.

An alternative approach would be to adopt Zapf et al's (1996) recommendation that all variables should be measured at all sampling stages. Thus, difference scores between all

the variables in the first and second sampling stages would be calculated, and a multiple regression analysis conducted with these difference results. Thus, changes that occur in the outcome variables are identified by examining the changes that occur within all the variables. This approach has not been widely used within the literature, and in addition it contains a number of disadvantages. This approach was therefore not used in this research.

The methodology used in this research drew certain similarities to that used by Nelson, Cooper and Jackson (1995), where the T1 predictor variables were entered into a regression analysis with the T2 outcome variable. Nelson et al decided that on the basis of the well supported relationships between factors such as job satisfaction, neuroticism and Type A behaviour, and mental health, a regression analysis involving forced entry of these variables should be used in order to establish their predictive capabilities. The analysis also included the entry of prior measures of well-being to predict subsequent scores on the same measure, in order to assess the relevant change over time.

Although the T1 outcome measure could have been forced in the analysis for this research, thus replicating Nelson et al's approach, it was considered that this was not the aim of the research. It was felt that the capability for current well-being to predict future well-being was relevant and important, but not integral to the aims of this research study. For the military, it is important to identify if there are any particular traits or characteristics of personnel which may predict likely mental health difficulties following a particular deployment. Hence, this was considered to be the most pertinent method regarding the applied aim of the research: to identify any factors at T1 (prior to deployment) that would be predictive of T2 (post deployment) mental health. With such an approach, it is possible to establish if there are any factors or characteristics which commanders can identify and screen individuals out from a deployment.

SUMMARY

Chapter 11 presented the general discussion of the results produced by the current research. Army specific results were first discussed, with particular reference to the descriptive responses of stressful experiences. The relationships between the various

psychological variables and coping behaviours were examined as were the associated methodological and theoretical issues. The influence of individual differences and deployment expectations and evaluations were then highlighted and discussed with reference to the military. The capability of the measures to predict mental health and organisational outcomes was then assessed. Finally, the implications of these findings for the existing theoretical occupational stress models and the methodological issues associated with longitudinal research were discussed.

CONCLUSIONS

1. There was support for the simplified model, proposed at figure 7-1. The evidence suggested that the strongest pathways were between the psychological and personality variables to own morale and GHQ12, and from own morale to organisational outcome (desire to leave the Army).
2. Differences in psychological health were noted between various categories within the Army system. Most notable to this research were differences in age, marital status, whether an individual had experienced a recent significant life event, and whether s(he) had experienced any stress education. It was found that most mental health problems were apparent in the 22 to 25 age group; suggestions for this were that within this group there may have been a greater number of personnel wanting to establish stable relationships who felt constrained by competing pressures from partners and work/ Army lifestyle. There was a trend towards single soldiers displaying higher rates of mental health problems, particularly with respect to anxiety and self esteem. Those personnel who had experienced a recent significant life event reported higher levels of mental health problems, neuroticism and anxiety, in addition to lower levels of self esteem and mastery. Those personnel who had been educated about stress reported lower levels of mental health problems and anxiety, in addition to higher levels of mastery.
3. The interrelationships between neuroticism, anxiety, emotion focused coping, adverse life events and psychological distress correlated with each other, and were independent of mastery, self esteem, problem focused coping and well-being. These findings supported those of the previous literature (Warr et al 1983, Hart et al 1995).
4. There was no significant difference in mental health over time in Study 2, between T1 and T2, although personnel were less likely to use avoidance and social support as coping techniques at T2. Using symptom reduction as a strategy was indicative of mental health problems at T1, but failed to be at T2. These findings illustrate the dynamic nature of coping technique utilisation.

5. With respect to Figure 7-2, the results have confirmed the premise of the model. An individual's make-up and home/ work situation influence pre-deployment mental health; beliefs and attitudes are also influenced by these factors, in addition to impacting on pre-deployment mental health themselves. Factors capable of predicting mental health post-deployment from pre-deployment information also consisted of an individual's make-up, the home/work situation and leadership (having a firm aim in their work). Finally, during the deployment, the existence of social support, enjoyment of the operation and leadership (not feeling under pressure) were indicative of higher levels of well-being.

6. There were notable differences in psychological health between various categories of Army personnel. Personnel within the 26 to 30 age bracket reported an increase in mental health problems at T2; this may in part, be due to a greater number of personnel in this age bracket having young families, thus causing separation difficulties. With regard to relationships, those personnel not in a close relationship generally reported a decrease in mental health problems, while those who were in a close relationship tended to report an increase in mental health problems. Those who had experienced a recent significant life event ceased to report the higher levels of neuroticism, anxiety and lower levels of mastery they had at T1, at T2. Although stress education did not directly impact upon mental health levels, effects were noted through increases in self esteem, mastery and utilisation of problem solving and social support as coping techniques.

FURTHER CONCLUSIONS

7. Thirty-three percent of respondents reported a value above the cut-off criteria on the GHQ12 in Study 1. This finding was comparable to other large scale studies on the police and civil servants. Six percent of personnel reported experiencing difficulties characteristic of PTSD, at the time of the survey. Similar results were found in two large scale Norwegian studies.

8. Thirty-nine percent of respondents reported a value above the cut-off criteria on the GHQ12 in Study 2. This percentage was comparatively high and it was suggested that this

could be due to the manning difficulties experienced by the Regiment at the time of the study.

9. There were no overall significant changes in reported mental health between Times 1 and 2 in Study 2. This finding suggests that there were few significant stress problems arising directly from the tour.

10. There is a high level of organisational stress in the Army. A large proportion identified uncertainty, pressure to achieve, poor man management, workload and dealing with welfare problems, as their major stressors.

11. The primary operational stressor identified in Study 1, was separation from partners or family; the frequency of experiencing this stressor varies according to the type of operation.

12. Particular difficulties identified in Study 2 were connected to the routine nature of the job, long working hours, inadequate sleep and the lack of privacy available.

13. Home and social stressors are frequently exacerbated by a lack of unit flexibility (often due to the external pressures placed on the unit) in allowing the individual to resolve them.

14. The availability of social support within theatre was an important predictor of mental health of personnel post deployment.

RECOMMENDATIONS

PRACTICE RECOMMENDATIONS

1. The Army Training Directive on Battleshock should be rewritten and expanded, to include stress management, organisational stress and such concepts as psychological debriefing and PTSD. It should be addressed as a command issue, that effective management of psychological and welfare difficulties will lead to increased performance and motivation from their soldiers.
2. More detailed education on stress management is needed at various stages of a soldier and officer's Army career. This should be achieved through All Arms career courses.
3. Formalised briefings on stress should be given to both officers and soldiers approximately two to three weeks prior to an operational deployment. This should be a mandatory requirement and emphasis should be placed upon ensuring that all attached personnel receive the same briefing.
4. A controlled study on the impact of stress education, both in peacetime and operational scenarios, could be conducted, in order to establish whether the findings from this study could be supported.
5. All efforts should be made to allow individuals time prior to a deployment to sort out any personal issues or problems. Soldiers who have experienced a recent significant life event should be identified and informal interviews should be conducted either by their commander, MO or padre. These interviews should be used to establish the impact of the events on the individuals and their motivation to deploy, informing the Commanding Officer or the Adjutant, who can then decide whether the individual deploys or is placed in the Rear Party.

6. Commanders must address the soldiers' beliefs and expectations within the training and preparation phases prior to deployment. They must ensure that all personnel have adequate, realistic information, and that, as far as is reasonably possible, that they are tactically, physically and mentally prepared for the operation.

7. Operations often engender unrealistic expectations, either in terms of achievement or level of operational activity or hostility. Briefing should be realistic and encompass potential issues such as boredom, lack of privacy, long working hours and bureaucratic difficulties, in addition to factors such as dealing with the local population.

8. Goals should be provided that are tangible and achievable; unit achievement should not be globally focused, but aimed at specific improvements that can be made.

9. It is advised not to base a selection or 'screening out' system for mainstream Army deployments upon the personality characteristics of neuroticism, anxiety, self esteem or mastery. These were not found to be consistent enough predictors of poor mental health within the longitudinal Study 2.

RESEARCH RECOMMENDATIONS

10. Future research could concentrate upon using the higher threshold of four on the GHQ12, in order to establish whether a stricter criterion for establishing low well-being would alter these findings.

11. This particular research found the IES to be difficult and confusing for respondents. It is also perhaps not peculiar to traumatic stress incidents to re-experience and try to avoid memories of the incident, which the IES relies upon. Thus, it is suggested that the traumatic aspect of this research could benefit from using an alternative scale to the IES.

12. Coping strategies need to be investigated in more detail, by focusing the coping techniques used on certain types of situation (e.g. relationship connected, in a work setting). This should ensure less variability in the techniques identified, allowing the researcher to establish coping effectiveness in differing circumstances.

13. Attempts should also be made to 'behaviourally reference' future coping strategy questionnaires, to ensure a greater validity of responses. The respondent would be required to think of a particular difficulty they had and to complete standardised descriptive responses detailing the techniques used to cope with the event.

14. The effect of cumulative stress is little researched. There would be merit in researching the effect of cumulative deployments, particularly within a short time period, on the mental health of Army personnel.

REFERENCES

Agho AO, Price JL & Mueller CW (1992)

Discriminant validity of measures of job satisfaction, positive affectivity and negative affectivity.

Journal of Occupational and Organisational Psychology 65 185-196

Alexander DA & Wells A (1991)

Reactions of police officers to body handling after a major disaster: a before and after comparison.

British Journal of Psychiatry 159 547-555

Allred K & Smith T (1989)

The hardy personality: cognitive and physiological responses to evaluative threat.

Journal of Personality and Social Psychology 56 257-66

American Psychiatric Association (1988)

Diagnostic and Statistical Manual, Vol III

Washington DC APA

Amirkhan JH (1990)

A factor analytically derived measure of coping: The coping strategy indicator.

Journal of Personality & Social Psychology 59 5 1066-1074

Appel JW & Beebe GW (1946)

Preventative Psychiatry: an epidemiological approach.

Journal of American Medical Association 131 1469-1475

Appel JW, Beebe GW & Hilger DW (1947)

Comparative incidence of neuro-psychiatric casualties in WWI and WWII.

American Journal of Psychiatry 1946-47

Archibald HC and Tuddenham RD (1965)

Persistent stress reactions after combat.

Archives of General Psychiatry 12:475-81

Arthur R & Gundersen E (1965)

Promotion and mental illness in the Navy.

Journal of Occupational Medicine 7 35- 43

Ayalon O (1978)

Face to face with terrorists.

Int. Conference of Psychological Stress and Adjustment in Time of War and Peace,
University of Haifa, Israel.

Bache M & Hommelgaard B (1994)

Danish UN soldiers experiences and stress reactions.

ISSN 0901-3881

Baddeley AD (1972)

Selective attention and performance in dangerous environments.

British Journal of Psychology 63 537-546

Baldamus W (1961)

Efficiency and Effort.

Tavistock Publications, London

Band SR & Manuelle CA (1987)

Stress and police officers' performance: An examination of effective coping behaviour.

Police Studies 10 122-131

Bandura A (1977)

Self efficacy: Toward a unifying theory of behavioural change.

Psychological Review 84 191-215

Banks MH, Clegg CW, Jackson PR & Kemp NJ (1980)

The use of the General Health Questionnaire as an indicator of mental health in occupational studies.

Occupational Psychology 53 187-194

Bartone PT, Ursano RJ, Wright KM & Ingraham LH (1989)

The impact of a military air disaster on the health of assistance workers.

Journal of Nervous & Mental Disease 177 317-328

Baum A, Fleming R & Singer JE (1983)

Coping with victimisation by technological disaster.

Journal of Social Issues 39 117-138

Baum A & Grunberg N (1991)

Gender, stress and health.

Health Psychology 10 80-85

Beck A (1967)

Depression: clinical, experimental and theoretical aspects.

New York: Harper & Row

Beebe GW & Appel JW (1958)

Variation in psychological tolerance to ground combat in WWII.

National Academy of Sciences, National Research Council, Final Rpt Contract DA-49-007-MD172

Beebe GW & Appel JW (1952)

Variation in psychological tolerance to ground combat in WWII.

Final report Washington, DC: National Academy of Sciences, Follow-up Agency.

Beehr TA (1995)

Psychological Stress in the Workplace.

Routledge, London

Beehr TA & Bhagat RS (1985a)

Human Stress and Cognitions in Organisations.

New York, Wiley

Beehr TA & Bhagat RS (1985b)

Introduction to human stress and cognitions in organisations.

In TA Beehr & RS Bhagat (Eds) 'Human Stress and Cognitions in Organisations'

New York, Wiley

Beehr TA and Newman JE (1978)

Job stress, employee health and organisational effectiveness: a facet analysis, model and a literature review.

Personnel Psychology 31 665-699

Beehr TA, Walsh JT & Taber TD (1976)

Relationships of stress to individually and organisationally valued states: Higher order needs as a moderator.

Journal of Applied Psychology 61 35-40

Billings AG & Moos RH (1984)

Coping, stress and social resources among adults with unipolar depression.

Journal of Personality and Social Psychology 46 877-891

Billings AG & Moos RH (1982)

Work stress and the work buffering roles of work and family resources.

Journal of Occupational Behaviour 38 215-32

Blake R & Mouton J (1964)

The Managerial Grid.

Gulf

Bliese PD & Halverson RR (1996)

Individual and nomothetic models of job stress: An examination of work hours, cohesion and well-being.

Journal of Applied Social Psychology 26 1171-1189

Block M & Zautra A (1981)

Satisfaction and distress in a community: a test of the effects of life events.

Community Psychology 9 165-180

Bolger N (1990)

Coping as a personality process: a prospective study

Journal of Personality and Social Psychology 59 525-537

Bolger N DeLongis A, Kessler R & Wetherington E (1989b)

The contagion of stress across multiple roles.

Journal of Marriage and Family 63 149-160

Boman B (1982)

Review: the Vietnam Veteran ten years on.

Australian and New Zealand Journal of Psychiatry 16 107-127

Borg MG (1990)

Occupational stress in British educational settings: A review.

Educational Psychology 59 525-537

Bowen G (1986)

Spouse support and the retention intentions of airforce members.

Evaluation and Programme Planning 9 (3) 209-220

Bowlby J (1969)

Attachment and loss (Vol 1) Attachment.

London: Howgarth

Breslau N & Davis GC (1987)

Post-traumatic Stress Disorder: The etiologic specificity of wartime stressors.

American Journal of Psychiatry 4 561-571

Brief AP, Burke MJ, George JM, Robinson BS & Webster J (1988)

Should negative affectivity remain an unmeasured variable in the study of job stress?

Journal of Applied Psychology 73 193-199

Brill NQ & Beebe GW (1952)

Some applications of a follow-up study to psychiatric standards for mobilisation.

American Journal of Psychiatry 109: 401, Dec

Brook A (1973)

Mental stress at work.

Practitioner, 210 500-506

Brousseau K (1978)

Personality and job experience.

Organisational Behaviour and Human Performance 22 235-52

Brown JD & Siegal JM (1988)

Exercise as a buffer of life stress: a prospective study of adolescent health.

Health Psychology 7 341-353

Bryman A & Cramer D (1994)

Quantitative Data Analysis for Social Sciences.

Routledge, London

Bulman R & Wortman C (1977)

Attributions of blame and coping. In a 'real' world: severe accident victims react to their lot.

Journal Personality & Social Psychology 35 351-363

Bunce D (1997)

What factors are associated with the outcome of individual-focused worksite stress management interventions?

Journal of Occupational and Organisational Psychology 70 1-17

Bunce D & West MA (1996)

Stress management and innovation interventions at work.

Human Relations 49 209-232

Burke MJ, Brief AP and George JM (1993)

The role of negative affectivity in understanding relations between self reports of stressors and strains: a comment on the applied psychology literature.

Journal of Applied Psychology 78 402-412

Buunk BP & Peeters MC (1994)

Stress at work, social support and companionship: towards an event contingent recording approach.

Work & Stress 8 2 177-190

Campbell EA & Brown JM (1992)

Sexual harassment: Experience and impact.

Women in Psychology Conference, University of Lancaster, July 10-12

Caplan RD, Cobb S, French JRP, van Harrison R and Pinneau SR (1975)

Job demands and worker health, Education and Welfare Publication no: NIOSH 75-160, US Government Printing Office, Washington DC

Card J (1987)

Epidemiology of PTSD in a national cohort of Vietnam veterans.

Journal of Clinical Psychology Jan 43(1) 6-17

Carpenter BN (Ed) (1992)

Personal Coping: Theory, research and Application.

Westport, CT: Praeger

Carver CS (1989)

How should multi-faceted personality constructs be tested? Issues illustrated by self monitoring, attributional style and hardiness.

Journal of Personality and Social Psychology 56 577-585

Carver CS, Scheier ME and Weintraub JK (1989)

Assessing coping strategies: a theoretically based approach.

Journal of Personality and Social Psychology 56 267-383

Chen J & Amsel A (1977)

Prolonged, unsignalled inescapable shocks increase persistence in subsequent appetitive instrumental learning.

Animal Learning Behaviour 5 377-385

Chodoff P (1976)

The German concentration camp as a psychological stress.

In 'Human Adaptation: Coping with life crises'. R Moos (Ed) Lexington, Mass: DC Heath & Co.

Clark A, Oswald A & Warr P (1996)

Is job satisfaction U shaped in age?

Journal of Occupational and Organisational Psychology 69 March 57-82

Cobb S (1976)

Social support as a moderator for life stress.

Psychosomatic Medicine 38 300-314

Cobb S & Rose RH (1973)

Hypertension, peptic ulcer and diabetics in air traffic controllers.

Journal Australian Medical Association 224 489-492

Cohen F, Evans GW, Stokols D & Krantz DS (1986)

Behaviour, health and environmental stress.

New York, Plenum Press.

Cohen, F. & Lazarus, R.S. (1979).

Coping with the stresses of illness.

In Stone, G.C., Cohen, F. And Alder, N.E. (Eds). Health Psychology: A Handbook. Jossey-Bass, San Francisco, 217-254.

Cohen F & Lazarus RS (1973)

Active coping processes, coping dispositions and recovery from surgery.

Psychosomatic Medicine 35 375-389

Cohen S & Willis T (1985)

Stress, social support and the buffering hypothesis.

Psychological Bulletin 98 310-357

Colligan MJ, Smith MJ & Hurrell JJ (1977)

Occupational incidence rates of mental health disorders.

Journal of Human Stress 3, 310-357

Collins DL, Baum A & Singer JE (1983)

Coping with chronic stress at Three Mile Island: Psychological and biochemical evidence.

Health Psychology 2 149-166

Cooper CL (1986)

Job distress: Recent research and the emerging role of the clinical occupational psychologist.

Bulletin of the British Psychological Society 39 325-331

Cooper CL (1983)

Stress research : Issues for the eighties.

New York: John Wiley

Cooper CL & Cartwright S (1994)

Stress management and counselling: Stress management interventions in the workplace:
Stress counselling and stress audits.

British Journal of Guidance and Counselling 22:1 65-73

Cooper CL & Marshall J (1976)

Occupational sources of stress: A review of the literature relating to coronary heart disease
and mental ill-health.

Journal of Occupational Psychology 40 11-28

Cooper CL & Marshall J (1981)

Coping with stress at work.

Gower Publishing

Cooper CL & Marshall J (1976)

Occupational sources of stress: a review of literature relating to coronary heart disease and
mental ill health.

Journal of Occupational Psychology Mar 49(1) 11-28

Cooper CL and Payne RL (1992)

International perspectives on research into work, well-being & stress management.

In Quick JC, Murphy LR & Hurrell JJ (1992) Stress and Well-being at Work. American
Psychological Association, Washington, DC 348-367

Cooper C, Sadri G, Allison T & Reynolds P (1990)

Stress counselling in the Post Office.

Counselling Psychology Quarterly 3 1 3-11

Cooperman H (1973)

Adjustment to the military, technical report.
Dept. Behavioural Sciences, Israel Defence Forces.

Corey DM and Wolf GD (1992)
An integrated approach to reducing stress injuries.
In JC Quick, LR Murphy and JJ Hurrell (Eds)

Costa PT & McCrae RR (1987)
Neuroticism, somatic complaints and disease: is the bark worse than the bite?
Journal of Personality 55 299-316

Costa PT & McCrae RR (1980)
Influence of extraversion and neuroticism on subjective well-being.
Journal of Personality and Social Psychology 38 668-678

Cota A, Evans CR, Dion KL, Kilil L & Longman RS (1995)
The structure of group cohesion.
Personality and Social Psychology Bulletin 21 572-580

Cox T (1993)
Stress research and stress management: putting theory to work.
HSE Contract Research Report No. 61/1993, HMSO, Norwich, UK

Cox T (1990)
The recognition and measurement of stress: conceptual and methodological issues.
In E Corlett & J Wilson (eds) 'Evaluation of Human Work' Taylor & Francis, London

Cox T (1987)
Stress, coping and problem solving.
Work & Stress 1 15-14

Cox T (1978)

Stress.

Macmillan, London

Cox T & Ferguson E (1991)

Individual differences, stress and coping.

In Cooper CL & Payne R Personality and Stress: Individual differences in the stress process. John Wiley & Sons, Chichester

Cox T, Leather P and Cox S (1990)

Stress, health and organisations.

Occupational Health Review 23 13-18

Cox T & MacKay C (1981)

A transactional approach to stress.

In Gale A & Edwards A (Eds) Psychological Correlates of Human Behaviour: Basic Issues. John Wiley and Sons: London

Croan G, Katz R, Fischer N & Smith-Osbourne A (1980)

Roadmap for Navy Family Research.

Office of Naval Research, Arlington, VA

Crump JH, Cooper CL & Maxwell VB (1981)

Stress among air traffic controllers: Occupational sources of contrary heart disease risk.

Journal Occupational Behaviour 2 293-303

Cronkite, RC and Moos RH (1984)

The role of predisposing and moderating factors in the stress-illness relationship.

Journal Health and Social Behaviour 25 372-393

Cutrona CE (1990)

Stress and social support: In search of optimal matching.

Journal of Social and Clinical Psychology 9(1) 3-14

Daniels K (1992)

Occupational stress and control: Implications for employee well-being.

Unpublished PhD thesis. Cranfield University.

Davis N & Teasdale P (1996)

Cost to the British economy of work accidents and work related ill health.

HSE Rep 1996

Deahl MP, Gillham AB, Searle M & Srinivasen M (1994)

Psychological sequelae following the Gulf War: factors associated with subsequent morbidity and the effectiveness of psychological debriefing.

British Journal of Psychiatry 265 60-65

DeFrank RS & Cooper CL (1987)

Worksite stress management interventions: Their effectiveness and conceptualisation.

In CL Cooper (Ed), 'Stress Management Interventions at Work' Manchester, UK: MCB University Press

Deiner E (1984)

Subjective well-being.

Psychological Bulletin 95 542-575

Deiner E & Emmons RA (1984)

The independence of positive and negative affect.

Journal of Personality and Social Psychology 47 1105-1117

DeSwart H, Willenburg T & Van Alkemade N (1995)

A study of the after effects of a UN peacekeeping mission.

Paper at the 4th European Conference on Traumatic Stress, Paris May 1995

Dewe P and Guest DE (1990)

Methods of coping with stress at work: a conceptual analysis and empirical study of measurement issues.

Journal of Organisational Behaviour 11 135-150

Dimsdale JE (1973)

The coping behaviour of nazi concentration camp survivors.

In 'Human Adaptation: Coping with life crises'. R Moos (Ed) Lexington, Mass: DC Heath & Co.

Dirkzwager A, Bramsen I & van der Ploeg (1997)

Peacekeeping stressors and the physical and psychological health of Dutch veterans.

European Society of Traumatic Stress, Maastricht, June

Dohrenwend B and Dohrenwend B (1974)

Stressful life events: their nature and effects.

New York: John Wiley & Sons

Duckett J & Broll T (1982)

Personality factors as moderators of the psychological impact of life stress.

South African Journal of Psychology 12 76-80

Duckworth DH (1990)

The nature and effects of incidents which induce trauma in police officers.

The Home Office, London.

Durham TW, McCammon SL & Allison EJ (1985)

The psychological impact of disaster on rescue personnel.

Annals of Emergency Medicine 14 664-668

Dyregrov A (1989)

Caring for helpers in disaster situations: psychological debriefing.

Disaster Management 2 25-30

Eden D (1982)

Critical job events, acute stress and strain: a multiple interrupted time series.

Organisational Behaviour and Human Performance 30 312-29

Edwards JR (1988)

The determinants and consequences of coping with stress. In CL Cooper and R Payne (Eds), Causes, Coping and Consequences of Stress at Work. (Wiley, Chichester)

Edwards JR & Baglioni AJ (1993)

The measurement of coping with stress: Construct validity of the Ways of Coping Checklist & the Cybernetic Coping Scale.

Work & Stress 7, 1 17-31

Edwards JR & Cooper CL (1990)

The person-environment fit approach to stress: recurring problems and some suggested solutions.

Journal of Organisational Behaviour 11 293-307

Egan JR et al (1951)

A study of neuropsychiatric rejectees.

JAMA 145: 466, Feb 17

Ellery R (1945)

Psychiatric aspects of modern warfare.

Berkley, California Circolo Distributions.

Endler NS, Hunt J and Rosenstein A (1962)

An S-R inventory of anxiousness.

Psychological Monographs 76 1-33

Endler NS & Shedletsky R (1973)

Trait versus state anxiety, authoritarianism, and ego threat versus physical threat.'
Canadian Journal of Behavioural Science 5 347-61

Epstein S (1983)

Natural healing processes of the mind: graded stress inoculation as an inherent coping mechanism.

In 'Stress Reduction and Prevention', Meichenbaum D & Yarenko M (Eds), Plenum Press, New York.

Epstein S (1973)

The self-concept revisited, or a theory of a theory.

American Psychologist 28 404-416

Etzion D (1984)

The moderating effect of social support on the relationship of stress and burnout.

Journal of Applied Psychology 69 615-622

Evans GW, Palsane MN & Carrere S (1987)

Type A behaviour and occupational stress: a cross cultural study of blue collar workers.

Journal Personality & Social Psychology 52 1002-1007

Fairbank JA and Nicholson RA (1987)

Theoretical issues in the treatment of PTSD in Vietnam Vets.

Journal of Clinical Psychology 43, 1 44-53

Farrell D & Rusbalt C (1981)

Exchange variables as predictors of job satisfaction, job commitment and turnover: The impact of rewards, costs, alternatives and investments.

Organisational Behaviour and Human Performance 27 79-95

Fiedler F (1967)

A theory of leadership effectiveness.

New York: McGraw-Hill

Figley CD (Ed) (1978)

Stress Disorders Among Vietnam Veterans: Theory, Research and Development.
Brunner/Mazel New York

Figley C and Sprenkle (1978)

Delayed stress response syndrome: Family therapy implications
Journal of Marriage and Family Counselling 4 175-184 (1978)

Fiske ST & Taylor SE (1984)

Social cognition.

Reading MA: Addison-Wesley.

Fleishman JA (1984)

Personality characteristics and coping patterns.

Journal of Health and Social Behaviour 25 229-244

Florian V, Mikulincer M & Taubman O (1995)

Does hardiness contribute to mental health during a stressful real life situation? The roles of appraisal and coping.

Journal of Personality & Social Psychology 68 4, 687-695

Foa E, Steketee G & Rothbaum B (1989)

Behavioural/cognitive conceptualisations of post-traumatic stress disorder.

Behavioural Therapy 20 155-176

Folkman S and Lazarus RS (1981)

Reply to Shinn and Krantz.

Journal of Health & Social Behaviour 22 451-459

Folkman S and Lazarus RS (1980)

An analysis of coping in a middleaged community sample.

Journal of Health and Social Behaviour 21 219-239

Folkman S and Lazarus RS (1982)

An approach to the measurement of coping.

Journal of Occupational Behaviour 3 95-108

Folkman S and Lazarus RS (1985)

If it changes it must be a process: a study of emotion and coping during three stages of a college examination.

Journal of Personality and Social Psychology 48 150-170

Folkman S and Lazarus RS (1986)

Appraisal, coping, health status and psychological symptoms.

Journal of Personality and Social Psychology 50 No. 3 571-579

Folkman S, Lazarus RS, Dunkell-Schetter C, DeLongis A & Gruen RJ (1986)

Dynamics of a stressful encounter: cognitive appraisal, coping and encounter outcomes.

Journal of Personality & Social Psychology 50 992-1003

Fontaine KR, Manstead ASR and Wagner H (1993)

Optimism, perceived control over stress and coping.

European Journal of Personality 7 267-281

Forsythe CJ and Compas B (1987)

Interaction of cognitive appraisals of stressful events and coping.

Cognitive Behaviour Therapy 11 473-485

Foy D A and Card J S (1987)

Combat related PTSD aetiology: replicated findings in a national sample of Vietnam era men.

Journal of Clinical Psychology 43 28-32

Frankenhauser M (1981)

Coping with job stress: A psychobiological approach.

In Gardell B & Johansson G (Eds) Working Life: A Social Science Contribution to Work Reform. Wiley, New York 213-233

Frankenhauser M & Gardell B (1976)

Underload and overload in working life: an outline of a multi-disciplinary approach.

Journal of Human Stress 2 35-46

French JR and Caplan R (1973)

Organisational stress and individual strain.

In Marrow AJ (ed) 'The Failure of Success'. New York, AMACOM, pp 30-66

French JR and Caplan R (1972)

In Marrow AJ (ed) The Failure of Success.

New York: Amacon Press.

French JR and Caplan R (1970)

Psychosocial factors in coronary heart disease.

Industrial Medicine 39 383-397

French JR , Caplan RD and Harrison RV (1982)

The mechanisms of job stress and strain.

Wiley, London

French JR Rogers W and Cobb S (1974)

A model of Person-Environment Fit.

In Coelho GV, Hamburg DA & Adams JE (Eds) Coping and Adaptation. New York: Basic Books.

Freud S & Breuer J (1895)

Studies on Hysteria.

Strachey J (trans 1955), Hogarth Press, London

Freudenberger HT (1975)

The staff burnout syndrome in alternative institutions.

Psychotherapy, Research and Practice. 12 72-83

Friedman MD & Rosenman RH (1974)

Type A Behaviour and your Heart.

Knopf: New York

Funk SC and Houston BK (1987)

A critical analysis of the Hardiness scale's validity and utility.

Journal of Personality and Social Behaviour 53 572-578

Ganster D, Fusilier M & Mayes B (1986)

Role of social support in the experience of stress at work.

Journal of Applied Psychology 71 102-110

Garner HH (1945)

Psychiatric casualties in combat.

War Medicine 8 343-357

Gentry WD and Kobasa S (1984)

Social and psychological resources mediating stress-illness relationships in humans.

In Gentry WD (ed) Handbook of Behavioural Medicine. New York, Guildford Press.

Gibbs M (1989)

Factors in the victim that mediate between disaster and psychopathology.

Journal of Traumatic Stress 2 489-514

Glass AJ (1957)

Observations upon the epidemiology of mental illness in troops during warfare.

Symposium on preventative and social psychiatry. Washington, DC: Walter Reed Army Institute of Research.

Glass AJ (1953)

The problem of stress in the combat zone.

Symposium on Stress. Walter Reed Army Medical Centre, Washington DC

Glass DC, Singer JE & Friedman LN (1969)

Psychic cost of adaptation to an environmental stressor.

Journal of Personality & Social Psychology 12 200-210

Glenn N (1980)

Values, attitudes and beliefs.

In O'Brim & Kagan J (Eds) 'Constancy and Change in Human Development.'

Cambridge MA: Harvard University Press

Glowinkowski SP & Cooper C (1985)

Current issues in organisational stress research.

Bulletin of the British Psychological Society 38 212-216

Goldberg D (1978)

Manual of the GHQ.

NFER Nelson. Windsor, England.

Goldberg D & Hillies V (1979)

A scaled version of the GHQ.

Psychological Medicine 9 139-45

Goldberg D & Williams P (1988)

A users guide to the General Health Questionnaire.

NFER Nelson, Windsor England.

Gove WR (1972)

The relationship between sex roles, marital status and mental illness.

Social Forces 51 34-44

Grady DA, Woolfolk RL and Budney MS (1989)

Dimensions of war zone stress. An empirical analysis.

Journal of Nervous and Mental Disease 177, 6 347-350

Gray J, Davis N, Owen S, Feldon J & Boarder M (1981)

Stress tolerance: possible neural mechanisms.

In M Christie & P Millet (Eds) 'Psychosomatics' New York, Wiley & Sons

Green B, Grace M, Lindy J, Gleser G & Leonard A (1990)

Risk factors for PTSD and other diagnoses in a general sample of Vietnam veterans.

American Journal of Psychiatry 147 729-733

Griffith J (1997)

Test of a model incorporating stress, strain and disintegration in the cohesion-performance relation.

Journal of Applied Social Psychology 27 17 1489-1526

Grinker RR, Spiegel JP (1945)

Men under stress.

Philadelphia: Blakston.

Gross N & Martin WE (1995)

On group cohesiveness.

American Journal of Sociology 52 546-554

Gross T & Mastenbrook M (1980)

Examination of the effects on state anxiety under problem solving efficiency under high and low memory conditions.

Gruneberg (1979)

Understanding Job Satisfaction.

Macmillan Press

Guppy A & Gutteridge T (1991)

Job satisfaction and occupational stress in UK general hospital nursing staff.

Work & Stress 5 4 315-323

Guppy A & Rick J (1996)

The influence of sex and grade on perceived work stress and job satisfaction in white collar public sector employees.

Work & Stress 10 154-164

Gutek B, Nakamura C & Nieva V (1981)

The interdependence of work and family roles.

Journal of Occupational Behaviour 2 1-16

Hall D (1976)

Careers in Organizations.

Pacific Palisades CA

Hart PM (1994)

Teacher quality of work life: Integrating work experiences, psychological distress and morale.

Journal of Occupational and Organisational Psychology 67 109-132

Hart PM, Wearing A & Headey B (1995)

Police stress and well-being: Integrating personality, coping and daily work experiences.

Journal of Occupational and Organisational Psychology 68 133-156

Hart PM, Wearing AJ & Headey B (1993)

Assessing police work experiences: Development of the Police Daily Hassles and Uplifts Scale.

Journal of Criminal Justice and Behaviour 21 283-311

Harvey JS (1997)

Operational stress in the British Army.

DERA/CHS/HS3/CR97080/1.0 Farnborough, UK

Harvey JS (1996)

Stress: Attitudes and experience of British Army personnel.

DRA/LS3/CR96103/1.0 Farnborough, UK

Harvey JS (1993)

Job satisfaction in Army personnel.

MSc thesis, Cranfield University, Beds, UK

Haslam DR (1982)

Sleep loss, recovery sleep and military performance.

Ergonomics 25 163-170

Headey B & Wearing AJ (1992)

Understanding happiness: A theory of subjective well-being.

Melbourne: Longman Cheshire

Hendin & Haas-Pollinger (1981)

Wounds of War: The psychological Aftermath of Combat in Vietnam.

Basic Books, New York

Herzberg F (1966)

Work, motivation and the nature of man.

Staples Press, London.

Hetherington A (1994)

Stress and traumatic stress in accident and emergency personnel and road traffic patrol officers.

PhD thesis, Cranfield University, Beds., UK

Highley JC & Cooper CL (1994b)

Evaluating EAPs.

Personnel Review 23, 7 46-59

Hingley P & Cooper C (1986)

Stress and the Nurse Manager.

Wiley & Son, Chichester

Hobfoll SE (1989)

Conservation of resources: a new attempt at conceptualising stress.

American Psychologist 44 513-525

Holmes TH & Rahe RH (1967)

The social re-adjustment rating scale: a measurement of subjective stress.

Psychosomatic Research 11 213-218

Horowitz MJ (1990)

Stress, states and personal schemas.

Psychological Inquiry 1 25-26

Horowitz MJ (1986)

Stress response syndromes: a review of post traumatic and adjustment disorders.

Hospital and Community Psychiatry 37, 3 241-249)

Horowitz MJ (1982)

Psychological processes induced by illness, injury and loss.

In T Millon, C Green & R Meagher (Eds) 'Handbook of Clinical Health Psychology'
New York, Plenum Press

Horowitz MJ (1980)

Psychological response to serious life events.

In V Hamilton & D Warburton (Eds) 'Human Stress and Cognition' New York, Wiley.

Horowitz MJ, Wilner N & Alvarez W (1979)

Impact of Events Scale : a measure of subjective stress.

Psychosomatic Medicine 41 209-218

House RJ & Rizzo JR (1972)

Role conflict and ambiguity as critical variables in a model of organisational behaviour.

Organisational Behaviour and Human Performance 7, 467-505

Hull JG, van Treuren RR, Vernelli S (1987)

Hardiness and health: a critique and alternative approach.

Journal of Personality and Social Psychology 53 518-530

Howarth E (1978)

An index for differentiation of state and trait scales.

Psychological Reports Oct 43(2) 474

Hunter E (1982)

Families under the flag.

New York: Praeger

Hunter E and Nice D (Eds) (1978)

Family role structure and family adjustment following prolonged separation.

Military family adaption to change.

New York: Praeger (1978)

Inzana C, Driskell J, Salas E & Johnston J (1996)

Effects of preparatory information enhancing performance under stress.

Journal of Applied Psychology 81 No. 4 429-435

Ivancevich JM and Matteson MT (1986)

Organisational level stress management interventions: review and recommendations.

Journal of Organisational Behaviour and Management 8 229-248

Ivancevich JM, Matteson MT, Freedman SM and Phillips JS (1990)

Worksite stress management interventions.

American Psychologist 45 252-261

Jackson S (1984)

Burnout in organisational settings.

Applied Social Psychology 5 133-153

Jackson S (1983)

Participation in decision-making as a strategy for reducing job related strain.

Journal of Applied Psychology 68 3-19

Jackson SE, Schwab RL & Schuler RS (1986)

Toward an understanding of the burnout phenomenon.

Journal of Applied Psychology 71 630-640

Jackson SE and Maslach C (1982).

After-effects of job related stress: families as victims.

Journal of Occupational Behaviour 3 63-77

James LR & Tetrick LE (1986)

Confirmatory analytic tests of three causal models relating job perceptions to job satisfaction.

Journal of Applied Psychology 71 77-82

James M, Weston K, Hampson A & Jarman J (1997)
The Army Continuous Attitude Survey: Report Two.
DERA/CHS/HS3/CR97255/1.0, DERA, Farnborough, UK

Janis IL (1971)
Stress and frustration.
Harcourt Brace Jovanovich: New York

Janoff-Bulman R (1989)
Assumptive worlds and the stress of traumatic events: applications of the schema construct.
Social Cognition 7 No. 2 113-136

Janoff-Bulman R & Timko C (1987)
Coping with traumatic life events: the role of denial in light of peoples' assumptive worlds.
In Snyder CR & Ford C (Eds) 'Coping with negative life events: clinical and social psychological perspectives.' New York, Plenum

Jex S & Beehr T (1991)
Emerging theoretical and methodological issues in the study of work related stress.
Research in Personnel and Human Resources Management 9 311-365

Johansson G, Aronsson G & Lindstrom B (1978)
Social psychology and neuroendocrine stress reactions in highly mechanised work.
Ergonomics 21 583-99

The Joint Medical Service (1991-92)
The UNIFIL Study (1991-92)
HQ Defence Command, Norway

Jenkins (1991)

Demographic aspects of stress.

In Cooper CL & Payne R (Eds) Personality and Stress: Individual Differences in the Stress Process.

Wiley: Chichester

Kadushin and Boulanger (1981)

Legacies of Vietnam: Comparative adjustment of veterans and their peers. Vol IV

Centre for Policy Research: New York

Kahn RL, Wolfe DM, Quinn RP, Snoek JD and Rosenthal RA (1964)

Organisational stress: studies in role conflict and ambiguity.

Wiley & Sons, New York

Kaplan SV & Saddock BJ (1989)

Comprehensive textbook of Psychiatry.

Baltimore: Williams & Wilkins Medicine 15 506-515

Karasek R (1979)

Job demands, job decision latitude and mental strain: Implications for job redesign.

Administrative Science Quarterly 24 285-306

Karasek RA, Baker D, Marxer F, Ahlbom A and Theorell T (1981)

Job decision latitude, job demands and cardiovascular disease.

American Journal of Public Health 71 694-705

Karasek RA, Schwartz J and Theorell T (1982)

Job characteristics, occupation and coronary heart disease.

Final report on Grant no. R-01-OH00906, National Inst for Occupational Safety and Health.

Karasek R & Theorell T (1990)

Healthy work: Stress, productivity and the Reconstruction of Working Life.

New York: Basic Books

Kasl SV (1973)

Mental health & work environment. An examination of the evidence.

Journal of Occupational Medicine 15 506-515

Kasl SV (1989)

An epidemiological perspective on the role of control in health.

In S L Sauter, JJ Hurrell & CL Cooper (Eds) "Job Control and Worker Health"

Chichester: UK Wiley

Kasl SV (1992)

Surveillance of psychological disorders in the workplace.

In GP Keita and SL Sauter (Eds) 'Work and wellbeing: An agenda for the 1990s'

American Psychological Association, Washington DC

Kasl SV and Cobb S (1982)

Variability of stress effects among men experiencing job loss.

In L Goldberger and S Breznitz (Eds) 'Handbook of Stress: Theoretical and Clinical Aspects. Free Press, New York

Kasl SV and Cobb S (1970)

Blood pressure changes in men undergoing job loss: a preliminary report.

Psychosomatic Medicine 32 19038

Kasl SV & Cooper CL (Eds) (1987)

Stress and Health: Issues in Research Methodology.

Wiley, Chichester.

Katz D & Kahn RL (1978)

The Social Psychology of Organisations.

2nd Edition, New York: Wiley

Kaufman GM & Beehr TA (1989)

Occupational stressors, individual strains and social supports among police officers.
Human Relations 42 185-97

Keane TM, Scott WO, Chavoya GA, Lamparski DM and Fairbank JA (1985)
Social support in Vietnam Vets with PTSD: a comparative analysis.
Journal of Consulting and Clinical Psychology 53, 1: 95-102

Keinan G (1986)
Confidence expectancy as a predictor of military performance under stress.
In 'Stress and coping in the time of war' N Milgram (ed) Brunner/Mazel Inc. New York

Kellett A (1982)
Combat Motivation.
Kluwer, Boston The Hague, London

Kelly M & Cooper CL (1986)
Stress among blue collar workers.
Employee Relations 3 6-9

Kennardy J (1996)
Stress debriefing and patterns of recovery in emergency workers.
European Conference on Traumatic Stress in Emergency Services & Humanitarian Aid
Organisations, Sheffield, UK.

Kern R (1966)
A conceptual model of behaviour under stress with implications for combat training.
Tech. Rpt. 66-12 Washington DC: HumRO

Kettner B (1972)
Combat strain and subsequent mental health.
Psychiatrica Scandinavia, Supplement 230, Copenhagen: Munsgaard

King MG, Burrows GD & Stanley GV (1983)

Measurement of stress and arousal: validation of the stress/arousal adjective checklist.
British Journal of Psychology 74 473-479

Kirmeyer SL & Dougherty TW (1988)

Workload, tension and coping: moderating effects of supervisor support.
Personnel Psychology 41 125-139

Kobasa SC (1979)

Stressful life events, personality and health: an inquiry into hardiness.
Journal of Personality and Social Psychology 37 1-11

Kobasa SC, Maddi SR & Courington S (1981)

Personality and constitution as mediators in the stress - illness relationship.
Journal of Health & Social Behaviour 22 368-378

Kobasa SC, Maddi SR and Kahn S (1982)

Hardiness and health: A prospective study.
Journal Personality and Social Psychology 42 168-177

Kobasa SC, Maddi SR and Pucetti MC (1982)

Personality and exercise as buffers in the stress-illness relationship.
Behavioural Medicine 5 391-404

Kobasa SC & Pucetti M (1983)

Personality and social resources in stress resistance.
Personality and Social Psychology 45 839-850

Kohn ML & Schooler C (1982)

Job conditions and personality: A longitudinal assessment of their reciprocal effects.
American Journal of Sociology 87 6 1257-1286

Kornhauser A (1965)

Mental health of the industrial worker: A Detroit study.

New York: Wiley

Krantz DS & Manuck SB (1984)

Acute psychophysiological reactivity and risk of cardiovascular disease: A review and methodological critique.

Psychological Bulletin 96 3 435-464

Kroes WH (1982)

Job stress in policewomen: An empirical study.

Police Stress Winter 10-11

Krohne HW & Rogner J (1982)

Repression sensitisation as a central construct in coping research.

In Krohne HW & Laux L (Eds) "Achievement, Stress and Anxiety."

Kuch K & Cox B (1992)

Symptoms of PTSD in 124 survivors of the Holocaust.

American Journal of Psychiatry 149 337-340

Kulka RA, Schlenger WE, Fairbank JA, Hough RL, Jordan KB, Marmar CR & Weiss DS (1988)

Contractual Report findings from National Vietnam Veterans Readjustment Study, Veteran Administration of the USA. Research Triangle Park, North Carolina

Kushnir T & Melamed S (1992)

The Gulf War and its impact on burnout and well-being of working civilians.

Psychological Medicine 22 987-995

Landsbergis PA (1988)

Occupational stress amongst health care workers: A test of the job demands-control model.

Journal of Organizational Behaviour 9 217-240

Landy FJ (1989)

The Psychology of Work Behaviour.

Brooks/Cole, Monterey, California

Latack JC (1986)

Coping with job stress.

Journal of Applied Psychology 71 377-385

Laufer RS,

The serial self: war trauma, identity and adult development.

In Wilson JP, Harel Z and Kahana B Human Adaption to Extreme Stress: from Holocaust to Vietnam, Plenum Press New York

Lawrenson GW (1994)

A study to compare non-specific psychiatric morbidity before and after unaccompanied Northern Ireland Service using the General Health Questionnaire.

MSc Thesis, University of London

Lazarus R (1966)

Psychological stress and the coping process.

New York: McGraw-Hill

Lazarus R (1981)

The stress and coping paradigm.

In Eisdofe D et al (Eds) Models for Clinical Psychopathology. Spectrum, Sutcliffe & Medical Books: New York

Lazarus R (1991)

Psychological stress in the workplace.

Journal of Social Behaviour and Personality 6, 7 1-13

Lazarus R (1992)

Four reasons why it is difficult to demonstrate psychosocial influences on health.

ADVANCES, The Journal of Mind-Body Health 8, 3 6-7

Lazarus R & DeLongis A (1983)

Psychological stress and coping in aging.

American Psychologist 38 245-254

Lazarus S and Folkman S (1984)

Stress, appraisal and coping.

Springer, New York

Lazarus RS & Launier R (1978)

Stress related transactions between person and environment.

In Pervin LA & Lewis M (Eds) "Perspectives in Interactional Psychology", New York, Plenum.

Lefcourt HM (1976)

Locus of control: Current trends in theory & research.

Hillsdale, NJ Erlbaum.

Leiter M (1991)

Coping patterns as predictors of burnout: the function of control and escapist coping patterns.

Journal of Organisational Behaviour 9 297-308

Levi L (1984)

Work, Stress and Health.

Scandinavian Journal of Work, Environment and Health Dec 10(6) 495-500

Lin N, Simoene RS, Ensel WM & Kuo W (1979)

Social support, stressful life events and illness: a model and an empirical test.

Journal of Health & Social Behaviour 20 108-109

Linden W, Paulhus D & Dobson K (1986)

Effects of response styles on the report of psychological and somatic distress.

Journal of Consulting and Clinical Psychology 54 309-313

Lipton MA (1976)

Behavioural effects of hypothalamic polypeptide hormones in animals and man.

In EJ Sacher (Ed) 'Hormones, Behaviour and Psychopathology', Raven, New York

Lisander B (1979)

Somato-autonomic reactions and their higher control.

In C Brooks, K Koizumi and A Sato (Eds) 'Integrative Functions of the Autonomic Nervous System' Elsevier, New York

Lopata H & Pleck J (1983)

Research in the interweave of social roles: Work and family.

Greenwich CT, JAI

Lowther M, Coppard C, Gill S & Tank R (1982)

The mid-career malaise of teachers: an examination of job attitudes and factors influencing job satisfaction in the middle years.

Final Report, Instit. Of Gerontology Ann Arbor Michigan.

Lyons JA (1991)

Strategies for assessing the potential for positive adjustment following trauma.

Journal of Traumatic Stress 4 93-111

MacKay C, Cox T, Burrows G & Lazzarini T (1978)

An inventory for the measurement of self reported stress and arousal.

British Journal of Social and Clinical Psychology 17 283-284

MacLennan BW (1992)

Stressor reduction: an organisational alternative to individual stress management.

In J Quick, LR Murphy, JJ Hurrell (Eds) 'Stress and well-being at work: Assessments and interventions for occupational mental health.'

American Psychological Association, Washington DC.

Maier SF & Seligman MEP (1976)

Learned helplessness: theory and evidence.

Journal of Experimental Psychology: General 105 3-46

Manning F & Fullerton T (1988)

Health and well-being in highly cohesive units of the US Army.

Journal of Applied Social Psychology 186 503-519

Mareth TR & Brooker AE (1985)

Combat stress reaction: a concept in evolution.

Military Medicine 150 186-190

Margolis BL & Kroes WH (1974)

Work and the health of man.

In O'Toole J (Ed) 'Work and the Quality of life.' Cambridge, Mass. MIT Press

Margolis BL, Kroes WH & Quinn RP (1974)

Job stress: an unlisted occupational hazard.

Journal Occupational Medicine 16 654-661

Marlowe DH (1979)

Cohesion, anticipated breakdown and endurance in battle: considerations for severe and high intensity combat.

Unpub. WRAIR, Dept of Military Psychiatry, Washington DC

Marmot M (1994)

Work and other factors influencing coronary health and sickness absence.

Work & Stress 8 2 191-201

Marshall J (1977)

Job pressures and satisfaction at managerial levels.

Unpub PhD thesis Univ Manchester Institute for Science and Technology, Manchester

Marshall R (1987)

Recovery from trauma: a Vietnam Veterans Counselling Service perspective.

Paper for the Australian War Memorial History Conference 9th July 1987

Marshall J & Cooper C (1981)

Coping with stress at work.

London, Gower Publishing

Mason JW (1971)

A re-evaluation of the concept of 'non-specificity' in stress theory.

Journal of Psychiatric Research 8 323-333

Mattlin JA, Wethington E and Kessler RC (1990)

Situational determinants of coping effectiveness.

Journal of Health and Social Behaviour 31 103-122

Matthews K& Haynes S (1986)

Type A behaviour pattern and coronary disease risk.

American Journal of Epidemiology 123 923-960

McCrae RR and Costa PT (1986)

Personality, coping and coping effectiveness in an adult sample.

Journal of Personality 54 385-405

McCrae & Costa (1987)

Validation of the five-factor model of personality across instruments and observers.

Journal of Personality and Social Psychology 52 81-90

McCrae RR (1990)

Controlling neuroticism in the measurement of stress.

Stress Medicine 6 237-241

McCranne S, Lambert VA & Lambert CE (1987)

Work Stress hardiness and burnout among hospital staff nurses.

Nursing Research 36 374-378

McFarlane AC (1988a)

The phenomenology of post-traumatic stress disorders following a natural disaster.

Journal of Nervous and Mental Diseases 176 22-29

McGrath JE (1976)

Stress and behaviour in organisations.

In Kasl SV & Cooper CL (1987) Stress and Health: Issues in Research Methodology. John Wiley & Sons: Chichester.

McGrath JE (ed) (1972)

Social and psychological factors in stress.

New York: Holt, Rinehart & Winston

McPherson RK (1974)

Thermal stress and thermal comfort.

In Telford AT (Ed) "Man under Stress", Taylor and Francis, London 45-56

Mehlum L (1995)

Norwegian UN peacekeepers 6 years after. A follow up study.

Paper presented at the 4th European Conference on Traumatic Stress, Paris May 1995

Meichenbaum D (1985)

Stress Inoculation Training.

New York, Pergammon

Menaghan E (1982)

Measuring coping effectiveness: A panel analysis of marital problems and coping efforts.
Journal of Health and Social Behaviour Sep 23(3) 220-234

Menninger WC (1948)

Psychiatry in a troubled world: Yesterday's war and today's challenge.
McMillan, New York

Meyer BC & Taylor SE (1986)

Adjustment to rape.
Journal of Personality & Social Psychology 50 1226-1234.

Michenbaum DH (1973)

Cognitive factors in behaviour modification: Modifying what clients say to themselves.
In CM Franks & GT Wilson (Eds) 'Annual Review of Behaviour Therapy Practice', New York: Halstead Press

Miller S & Kirsh N (1987)

Sex differences in cognitive coping with stress.
In Gender and Stress, Barnett R, Beiner L & Baruch G. The Free Press, New York

Mitchell J (1983)

When disaster strikes.... the critical incident stress debriefing process.
Journal of Emergency medical Services 8 36-39

Moran C (1985)

The Anatomy of Courage.
Avery.

Moyle P (1995)

The role of negative affectivity in the stress process: tests of alternative models.
Journal of Organisational Behaviour 16 647-668

Mullen B & Cooper C (1994)

The relation between group cohesion and performance: An integration.
Psychological Bulletin 115 210-227

Mullins WS & Glass AJ (Eds) (1973)

Neuropsychiatry in WWII. Vol 2. Overseas theatres.
Washington, DC: Medical Dept. US Army

Murphy LR (1983)

A comparison of relaxation methods for reducing stress in nursing personnel.
Human Factors 25 431-40

Murphy LR (1984a)

Occupational stress management: A review and appraisal.
Journal of Occupational Psychology 57 1-15

Murphy LR (1988)

Workplace interventions for stress reduction and prevention.
In Cooper CL & Payne R (Eds) Causes, Coping and Consequences of Stress at Work. New
York: Wiley.

Murphy LR, Hurrell JJ & Quick JC (1992)

Work & Well-being: Where do we go from here:.
In Quick JC, Murphy LR & Hurrell JJ (1992) Stress & Well-being at Work. American
Psychological Association, Washington DC p 331-347

Myers J, Lindenthal JJ & Pepper MP (1974)

Social class, life events and psychiatric symptoms: A longitudinal study.
In Dohrenwend & Dohrenwend (Eds) Stressful life events: their nature and effects.

New York: John Wiley.

National Institute of Mental Health

Marital status and mental disorders: An analytical review

Washington DC: (Series D, No. 3) (1975)

Nelson DL, Cooper CL & Jackson (1995)

Uncertainty amidst change: the impact of privatisation on employee job satisfaction and well-being.

Journal of Occupational and Organisational Psychology 68 57-72

Nelson DL & Quick JC (1985)

Professional women: Are distress and disease inevitable?

Academy of Management Review 10 2, 206-219

Neufeld R & Paterson R (1989)

Issues concerning control and its implementation.

In R Neufeld (ed) 'Advances in the Investigation of Psychological Stress.' Wiley & Sons, New York

Nevison C, Flower J & Naish P (1996)

The Post Traumatic Stress Management Course at RN Hospital, Haslar.

Journal of Naval Medical Services 82 9-14

Newman JE & Beehr TA (1979)

Personal and organisational strategies for handling job stress: a review of research and opinion.

Personnel Psychology 32 1-43

Novaco RW (1975)

Anger Control.

Lexington, MA: Lexington Books

Nowack K (1991)

Psychological predictors of health status.

Work & Stress 5 117-131

Noy S (1982)

Division based psychiatry in intensive war situations: suggestions for improvement.

Journal of the Royal Army Medical Corps 128 105-116

O'Brien LS & Huges SJ (1991)

Symptoms of Post Traumatic Stress Disorder in Falkland War veterans five years after the conflict.

British Journal of Psychiatry 59 135-141

O'Grady KE (1982)

Measures of explained variance: Cautions and limitations.

Psychological Bulletin 92 766-777

Oldham GR & Brass DJ (1979)

Employee reactions to the open plan office: A naturally occurring quasi-experiment.

Administrative Science Quarterly 24 267-284

Ormer R, Lynch T and Seed P (1993)

Long term traumatic stress reactions in British Falklands War veterans.

Journal of Clinical Psychology 32 457-459

Orthner D and Pittman J. (1986)

Family contributions to work commitment

Journal of Marriage and the Family 48 (3) 573-81

Pagana KD (1990)

The relationship of hardiness and social support to student appraisal of stress in an initial clinical nursing situation.

Nursing Education 29 255-261

Pahl JM and Pahl RE (1971)

Managers and their wives.

London: Allen Lane

Palmer S & Dryden W (1994)

Stress management and counselling. Stress management: Approaches and interventions.

Journal of Guidance and Counselling 22:1 5-12

Parasuraman S & Cleek MA (1984)

Coping behaviours and manager's affective reactions to role stressors.

Journal of Vocational Behaviour 24 179-193

Parker JDA and Endler NS (1992)

Coping with coping assessment: a critical review.

European Journal of Personality 6 321-344

Parkes K (1994)

Personality and coping as moderators of work stress processes: models, methods and measures.

Work & Stress 8 No. 2 110-129

Parkes KR (1990)

Coping, negative affectivity and the work environment: additive and interactive predictors of mental health.

Journal of Applied Psychology 75 399-409

Parkes KR (1984)

Locus of control, cognitive appraisal and coping in stressful episodes.

Journal of Personality and Social Psychology Mar 46(3) 655-688

Parkes K (1982)

Occupational stress among student nurses: A natural experiment.

Journal of Applied Psychology 67 784-796

Parkes CM (1971)

Psycho-social transitions: A field of study.

Social Science and Medicine 5 101-115.

Parsons ER (1988)

Post traumatic self disorders: theoretical and practical considerations in psychotherapy of Vietnam Vets. In Wilson JP, Harel Z and Kahana B Human Adaption to Extreme Stress: from Holocaust to Vietnam, Plenum Press New York

Paton D (1989)

Disasters and helpers: psychological dynamics and implications for counselling.

Counselling Psychology Quarterly 2 303-321

Patterson T, Smith W, Grant I, Clopton P, Josepho S & Yager J (1990)

Internal versus external determinants of coping responses to stressful life events in the elderly.

British Journal of Medical Psychology 63 149-160

Paulhus D (1983)

Sphere-specific measures of perceived control.

Journal of Personality & Social Psychology 44 1253-1265

Pearlin LI, Menaghan EG, Lieberman MA & Mullan JT (1981)

The stress process.

Journal of Health & Social Behaviour 22 337-356

Pearlin L and Schooler C (1978)

The structure of coping.

Journal of Health and Social Behaviour 19 2 -21

Perrier DC & Toner R (1984)

Police Stress: The hidden foe.

Canadian Police College Journal 8(1) 15-26

Pincherle G (1972)

Fitness for work.

Proceedings of the Royal Society of Medicine 65 4 321-324

Powell LH (1987)

Issues in the measurement of the Type A behaviour pattern.

In V Kasl & CL Cooper (Eds) 'Stress and Health: Issues in Research Methodology'.

Wiley & Sons, Chichester

Price HH (1984)

The Falklands: Rate of British psychiatric combat casualties compared to recent American wars.

Journal of the Royal Army Medical Corps, 130 109-113

Quick JC, Murphy LR & Hurrell JJ (Eds) (1992)

Stress and well-being at work, Assessments and Interventions for Occupational Mental Health.

Washington DC: American Psychological Association.

Rabinowitz S & Hall D (1981)

Changing correlates of job involvement in three career stages.

Journal of Vocational Behaviour 18 138-144

Rabkin JG & Streuning EL (1976)

Life events, stress and illness.

Science 194 1013-1020

Rahe R (1988)

Recent life changes and coronary heart disease: 10 years of research.

In Fisher S & Reason J Handbook of Life Stress, Cognition and Health. Chichester, Wiley.

Raphael B, Meldrum L & McFarlane A (1995)

Does debriefing after psychological trauma work?

British Journal of Medicine 310 1479-1480

Raphael B & Middleton W (1988)

Personal disaster.

In Howells JC (Ed) 'Modern Perspectives in Psychosocial Pathology.'

Brunner Mazel New York

Rappaport H & Katkin E (1972)

Relationships among manifest anxiety, response to stress, and the perception of autonomic activity.

Journal of Consulting and Clinical Psychology 38 219-24

Rhodewalt F and Zone JB (1989)

On the relationship of hardiness to the Type A behaviour pattern: perception of life change, depression and illness in hardy and non-hardy women.

Journal of Personality and Social Psychology 56 81-88

Rice R, Near J & Hunt R (1980)

The job satisfaction - life satisfaction relationship: A review of empirical research.

Basic and Applied Social Psychology 1 37-64

Rick J and Guppy A (1994)

Coping strategies and mental health in white collar public sector employees

European Work and Organisational Psychology 4(2) 121-137

Rick J, Hillage J, Honey S & Perryman S (1997)

Stress: Big issue, but what are the problems?

Inst. of Employment Studies, Brighton, UK

Riley D and Eckenrode J (1986)

Social ties: costs and benefits within different subgroups.

Journal of Personality and Social Psychology 51 770-778

Robertson IT and Cooper CL (1983)

Human Behaviour in Organisations.

MacDonald and Evans Ltd, London

Rooke K, Dooley, D and Catalano R (1991)

Stress transmission: the effects of husbands' job stressors on the emotional health of their wives.

Journal of Marriage and Family 53 165-177

Rosenfield S (1980)

Sex differences in depression: do women always have higher rates?

Journal of Health and Social Behaviour Mar 21(1) 33-42

Rosenburg M (1965)

Society and the adolescent self image.

Princeton, NJ Princeton University Press

Roth D, Weibe D, Fillingham R& Shay K (1989)

Life events, fitness, hardiness and health: simultaneous analysis of proposed stress-resistance effects.

Journal of Personality & Social Psychology 57 136-142

Rotter JB (1966)

Generalised expectancies for internal versus external control of reinforcement.

Psychological Monographs: Whole & Applied 80 1, whole (1-27)

Rouch LO, Chandler SM & Harter RA (1980)

Life change and rape impact.

Journal of Health and Social Behaviour 21 248-260

Salmon TW (1919)

The war neuroses and their lesson.

New York State J of Medicine 59 993-994

Salter CA (1989)

Dietary tyrosine as an aid to stress resistance among troops.

Military Medicine 154, 1: 144-146

Sandstrom E, Burt R & Kamp D (1980)

Privacy at work: architectural correlates of job satisfaction and job performance.

Academy of Management Journal 23 101-117

Sauter SL, Murphy LR and Hurrell JJ (1992)

Prevention of work related psychological disorders: a national strategy proposed by the National Institute for Occupational Safety and Health (NIOSH).

In GP Keita and SL Sauter (eds) Work and well-being: an agenda for the 1990s. American Psychological Assoc.

Scheier ME and Carver CS (YEAR)

Optimism, coping and health: Assessment and implications of generalised outcome expectancies.

Health Psychology 4 219-247

Schmied LA & Lawler K (1986)

Hardiness, Type A behaviour and the stress-illness relationship in working women.

Journal of Health & Social Behaviour 22 456-457

Schuler RS

Definition and conceptualisation of stress in organisations

Organisational Behaviour and Human Performance 25 184-215 (1980)

Schwarzwald J, Solomon Z, Weisenberg M and Mikulincer M (1987)

Validation of the Impact of Events Scale for psychological sequelae of combat.

Journal of Consulting and Clinical Psychology 55 No 2 251-256

Scott R (1972)

Job expectancy - an important fact in labour turnover.

Personnel Journal May 360-3

Segal D & Senaiko H (1986)

Life in the Rank and File.

Pergammon Brasseys, London

Semmer N, Zapf D & Greif S (1996)

'Shared job strain': A new approach for assessing the validity of job stress measurements.

Journal of Occupational and Organizational Psychology 69 293-310

Sevastos P, Smith L & Cordery JL (1992)

Evidence in the reliability and construct validity of Warr's 1990 measures of well-being and mental health measures.

Journal of Occupational Psychology 61 335-340

Selye H (1976)

The stress of life.

New York : McGraw-Hill

Selye H (1975)

Implications of the stress concept.

New York State J of Medicine 75 2139-2145

Selye H (1956)

Stress and psychobiology.

Journal of Clinical and Experimental Psychopathology 17 370-375

Selye H (1950)

The physiology and pathology of exposure to stress.

Acta. Montreal

Shalit B, Carlstedt L, Stahlberg B & Taljedal Shalit I (1986)

Coherence of cognitive appraisal and coping in a stressful military task: parachute jumping.

In Milgram 'Stress and Coping in Times of War.' Brunner/Mazel Psychosocial Stress Series

Shatan CF (1973)

The grief of soldiers: Vietnam combat veterans' self help movement

American Journal of Orthopedic Psychiatry 43 640-653

Shepherd M (1989)

The impact of disaster support work: A study of helpers offering psychological support in the aftermath of two major disasters.

Unpub. research dissertation. British Psychological Society.

Shepherd M & Hodgkinson P (1990)

The hidden victims of disaster: helper stress.

Stress Medicine 6 29-35

Shinn M, Rosario M, Morch H & Chestnut D (1984)

Coping with job stress and burnout in the human services.

Journal of Personality and Social Psychology Apr 46(4) 864-876

Siebold G (1993)

The case for unit cohesion.

Paper presented at the 101st Convention of the American Psychological Association,
Toronto, Canada

Smith A (1981)

Boredom: a review.

Human Factors 23 329-340

Smith RE, Johnson JH & Sarason IJ (1978)

Life change, the sensation seeking motive & psychological distress.

Journal of Consulting & Clinical Psychology 46 348-349

Smith RE, Smoll FL, and Ptack JT (1990)

Conjunctive moderator variables in vulnerability and resiliency research: life stress, social support and coping skills, and adolescent sport injuries.

Journal of Personality and Social Psychology 58 360-369

Solomon Z, Margalit C, Waysman M & Bleich A (1991)

In the shadow of the Gulf War: Psychological distress, social support and coping among soldiers in a high risk area.

Israeli Journal of Medical Science Vol 27 No. 11-12 687-695

Solomon Z, Mikulincer M & Hobfoll S (1987)

Objective versus subjective measurement of stress and social support: the cause of combat related reactions.

Journal of Consulting Clinical Psychology 55 577-583

Solomon Z, Mikulincer M & Hobfoll S (1986)

Effects of social and battle intensity on loneliness and breakdown during combat.

Journal of Personality and Social Psychology 51 1269-1276

Solomon Z, Mikulincer M & Jakob B (1987)

Exposure to recurrent combat stress: combat stress reactions amongst Israeli soldiers in the Lebanon War.

Psychological Medicine 17 433-440

Solomon Z, Mikulincer M, Fried B and Wosner Y DATE

Family characteristics and PTSD: a follow up of Israeli combat stress reaction casualties.

Family Process 26: 383-395 1087

Solomon Z, Noy S & Bar-On R (1986)

Risk factors in combat stress reaction - A study of Israeli soldiers in the 1982 Lebanon war.

Israeli Journal of Psychiatry 23 No. 1 3-8

Spector PE (1986)

Perceived control by employees: a meta-analysis of studies concerning autonomy and participation in decision making.

Human Relations 39 1005-1016

Spector PE (1987)

Method variance as an artefact in self reported affect and perceptions at work: myth or significant problem?

Journal of Applied Psychology 72 438- 443

Spielberger CD (1976)

The nature and measurement of anxiety.

In CD Spielberger & R Diaz-Guerrero (eds) 'Cross-cultural Anxiety'. Hemisphere, Washington DC

Spielberger C, Gorsuch R & Lushene R (1970, 1983)

Manual for the State-Trait Anxiety Inventory.

Consulting Psychologists Press, Palo Alto, California

Spiller RJ (1988)

Isen's run: human dimensions of warfare in the 20th Century.

Military Review 17-31

Stampi C (1989)

Polyphasic sleep strategies improve prolonged sustained performance: a field study on 99 sailors.

Work and Stress 3 41-55

Staw BM, Bell NE & Clausen JA (1986)

The dispositional approach to job attitudes: A lifetime longitudinal test.

Administrative Science Quarterly 31 57-77

Stein M, Keller S and Schleifer S (1981)

The hypothalamus and the immune response.

In H Weiner, M Hofer and A Stunkard (eds) Catecholamines and Behaviour, Vol 2
Plenum New York

Steiner N and Neumann M (1982)

Traumatic neurosis and social support in Yom Kippur war returnees.

Military Medicine 143 866-868

Steiner D & Truxillo D (1989)

An improved test of the disaggregation hypothesis of job and life satisfaction.

Journal of Occupational Psychology 62 33-39

Stephoe A & Appels A (1989)

Stress, Personal Control and Health.

Chichester: Wiley.

Stokes A & Kites K (1994)

Stress, fatigue and performance in aviation.

Ashgate Publishing Ltd. USA

Stone E, Stone D & Geutal H (1990)

Influence of cognitive ability on responses to questionnaire measures: Measurement precision and missing response problems.

Journal of Applied Psychology 75 No 4 418-427

Stone JA & Neale JM (1984)

New measure of daily coping: Development and preliminary results.

Journal of Personality and Social Psychology 46 892-906

Suls J & Sanders G (1988)

Type A behaviour as a general risk factor for physical disorder.

Journal of Behavioural Medicine 11 201-226

Sundstrom E, Burt R & Kamp D (1980)

Privacy at work: Architectural correlates of job satisfaction and job performance.

Academy of Management Journal 23 101-117

Sutker P, Uddo M, Brailey K, Allain A & Errera P (1994)

Psychological symptoms and psychiatric diagnosis in Operation Desert Storm troops serving in Graves Registration Duty.

Journal of Traumatic Stress 7 No. 2 150-171

Tabachnik BG & Fidell LS (1996)

Using Multivariate Statistics.

Harper Collins, New York

Tache J & Seyle H (1978)

On stress and coping mechanisms.

In Spielberger G & Sarason I (Eds) 'Stress and Anxiety' Vol 5 New York, Wiley.

Taylor AJ (1983)

Hidden victims and the human side of disasters.

Undro News 6-12

Taylor JA (1953)

A personality scale of manifest anxiety.

Journal of Abnormal and Social Psychology 48 285-90

Thoits PA (1987)

Gender and marital status differences in control and distress. Common stress vs unique stress explanations.

Journal of Health and Social Behaviour 28 7-22

Tomb DA (1994)

The phenomenology of Post Traumatic Stress Disorder.

The Psychiatric Clinics of North America 17 237-250

Ursin H, Baade E & Levine S (1978)

Psychobiology of stress: A study of coping men.

London, Academic Press.

Valliant GE (1976)

Natural history of male psychological health: the relation of choice of ego mechanisms of defence to adult adjustment.

Archives of General Psychiatry 33 535-545

Van Harrison R (1978)

Person-environment fit and job stress.

In Cooper Cl & Payne R (Eds) Stress at Work. John Wiley & Sons, Chichester.

Vitaliano P, Russo J, Carr J, Maiuro R and Becker J (1990)

Appraised changeability of a stressor as a modifier of the relationship between coping and depression : a test of the hypothesis of fit.

Journal of Personality and Social Psychology 59 582-592

Vinokur A & Selzer M (1975)

Desirable versus undesirable life events: their relationship to stress and mental distress.

Journal of Personality and Social Psychology 32 329-337

Wall TD & Clegg CW (1981)

A longitudinal study of group work redesign.

Journal of Occupational Behaviour 2 31-49

Wall T, Jackson P, Mullarkey S and Parker S (1996)

The demands-control model of job strain: A more specific test.

Journal Occupational and Organisational Psychology 69 153-166

Warr P (1994)

A conceptual framework for the study of work and mental health.

Work & Stress 8 2, 84-97

Warr P (1992)

Job features and excessive stress.

In R Jenkins and N Coney (eds) Prevention of Mental Ill Health at Work. HMSO, London

Warr P (1990)

The measurement of well-being and other aspects of mental health.

Journal of Occupational Psychology 63 193-210

Warr P (1990a)

Decision latitude, job demands and employee well-being.

Work and Stress 4 285-294

Warr P (1990b)

Decision latitude, job demands and employee well-being.

Work & Stress 4 285-294

Warr P (1987)

Psychology at Work.

Penguin, London.

Warr P (1983)

Work, jobs and unemployment.

Bulletin of the British Psychological Society Sep 36 305-311

Warr PB, Barter J & Brownbridge G (1983)

On the independence of positive and negative effect.

Journal of Personality and Social Psychology 44 644-651

Waters V (1990)

The effects of stress and the benefits of stress counselling for police officers.

Police Requirements & Support Unit, Home Office, London.

Watson D and Clarke LA (1984)

Negative affectivity: the disposition to experience aversive emotional states.

Psychological Bulletin 96 465-490

Weber LP (1990)

Combat stress reaction and PTSD

1st Psychological Research Unit AR-006-389 PSRU-RR-1-90 Canberra Australia

Weiss J & Glazer H (1975)

Effects of acute exposure to stressors on subsequent escape-avoidance behaviour.

Psychosomatic Medicine 37 523-34

Weitzman ED, Boyar RM, Kapen S and Hellman L (1975)

The relationship of sleep and sleep stages to neuroendocrine secretion and biological rhythms in man.

Recent Progress Hormone Research 31 399-446

Westman M, Etzion D (1995)

Crossover of stress, strain and resources from one spouse to another.

Journal of Organisational Behaviour 16 169-181

Wheaton B (1983)

Stress, personal coping resources, and psychiatric symptoms: an investigation of interactive models.

Journal of Health and Social Behaviour 24 208-229

Wiebe D, Williams P & Smith T (1990)

Hardiness and neuroticism: Overlapping constructs?

Poster session presented at the 11th Annual meeting of the Society of Behavioural Medicine, Chicago, IL

Wilkinson CB (1983)

Aftermath of a disaster: The collapse of the Hyatt Regency hotel skywalks.

American Journal of Psychiatry 140 1134-1139

Williams PG, Weibe DJ and Smith TW (1992)

Coping processes as mediators of the relationship between hardiness and health

Journal of Behavioural Medicine 15 237-255

Wills T (1985)

Supportive functions of interpersonal relationships.

In Cohen S & Syme S (eds) 'Social Support and Health.', Orlando: Academic Press

Winkelpack JM (1984)

Directions EAPs move: evolvment towards organisational methods.

EAP Digest: The voice of Employee Assistance Programmes 4 (July/August) 18-21

Wolfe J, Brown P & Kelley J (1993)

Reassessing war stress: Exposure and the Persian Gulf.

Journal of Social Issues 49 No.4 15-32

Wong PTP and Kaloupek DG (1986)

Coping with dental treatment: the potential impact of situational demands.

Journal of Behavioural Medicine 9 579-597

Wortman C, Biernat M and lang E (1991)

Coping with role overload.

In M Frankenhauser, U Lundberg and M Chesney (Eds) "Women, Work and Health."

Plenum Press.

Yerkes R & Dodson J (1908)

The relation of strength of stimulus to rapidity of habit formation.

Journal of Comparative and Neurological Psychology 18 459-82

Yinon Y, Bizman A & Goldberg M (1976)

Effect of relative magnitude of reward and type of need on satisfaction.

Journal of Applied Psychology 61 3225-328

Zapf D, Dormann C & Frese M (1996)

Longitudinal studies in organisational stress research: A review of the literature with reference to methodological issues.

Journal of Occupational Health Psychology 1 No.2 145-169

Zegans LS (1982)

Stress and the development of somatic disorders.

In L Goldberger and S Breznitz (eds) Handbook of stress: Theoretical and Clinical Aspects. Free Press New York.

Zeiss RA and Dickman HR (1989)

PTSD 40 years later: incidence and person-situation correlates in former POWs.

Journal of Clinical Psychology 45 1: 80-87

APPENDICES

APPENDIX 1: Categories of Units Included in Sample

Categories of Arms/ Corps

Infantry (G3): Infantry units

Other teeth arms:
(G3(non Inf)) Army Air Corps, Household Cavalry, Royal Armoured Corps, Royal Artillery, Royal Engineers, Royal Signals, Intelligence Corps, School Arms School Corps

G1 Corps: Adjutant General Corps, Royal Army Medical Corps, Queen Alexandra Royal Army Nursing Corps, Royal Army Chaplaincy Department, Royal Army Dental Corps, Royal Veterinary Corps, Army Physical Training Corps

G4 Corps: Quarter Master General, Royal Electrical and Mechanical Engineers, Royal Logistic Corps

APPENDIX 2: Interview Structure

The interviews were conducted with soldiers based at Warminster, Chertsey, Episkopi (Cyprus) and on Salisbury Plain Training Area. Interviews lasted between 40 minutes and 2 hours. The interviews were flexible and semi-structured, and this structure was used solely as a guideline.

A1 Biographical

- Rank
- Regiment
- How long have you been in the Army?
- Can you give me a brief history of your Army career, particularly any periods which you have spent on active duty?

A2 Attitudes

- What do you think about trauma related stress and other kinds of stress experienced in the Army?
- What do you think other members of the Army think about stress?
- Do you think soldiers generally admit to finding certain things stressful?

A3 Stress Training

- Have you been taught about stress/ battleshock in the Army? If yes, how did you find it?

A4 Experiences

- Can you describe in greater detail what you did during your periods in active duty (pick up on any incidents described in A1).
- Are there any things that you would look back on with unease, or anything which made you feel uncomfortable at the time? (look at feelings, effects on behaviour, sleep disturbance, relationship effects etc)

A5 Organisational Stress

- Could you tell me about any non-trauma related problems that you've experienced in the Army.
 - Transition in duties
 - Effects on family life
 - Supervisory factors and leadership
 - Lack of privacy and 'total involvement' in Army life
 - Options for Change
 - Current tour plot and frequency of deployment

A6 Coping

- How do you generally cope with difficult things (e.g. exercise, alcohol, talking to people)?
- Have you ever felt that you have needed any assistance from people at work, due to difficulties you may have experienced?
- Have you ever sought help from anyone connected to work? If so, who? How helpful did you find it?
- Do you think the Army should be responsible for providing any help. What do you think the Army should do about stress, if anything?
- What kind of help/ support do you think is needed in the Army? What do you think personnel would take seriously and use?
- How do you think the concept of stress should be approached by the Army? What kind of training is needed?
- What do you think is the best way to get/ give soldiers help with any stress they may experience?
- - soldiers themselves, training a number of soldiers in each unit to act as points of contact?
- Psychological debriefing sessions following incidents - what do you think about this; who would you want to lead the group and who would you want to be in it? (uniformed personnel, professionally qualified etc)

A7 UN involvement

- Do you think that Britain should be providing a substantial amount of troops to work with the UN?
- Before you deploy, do you try and understand the situation in theatre, or are you not particularly concerned?
- On deployments, do you ever think 'Why am I here? What do I have to do with any of this?'

Appendix 3

GENERAL STRESS QUESTIONNAIRE (In Confidence when completed)

1 Rank: 2 D.O.B. / /

3 Sex: MALE / FEMALE

4 Cap Badge/Unit: /

5 How long have you been in the Army?

6 How many years do you have left to serve?

7 Normal employment:

8 Are you married / single / divorced? *(Please delete as necessary)*

8 a If married, are you accompanied? YES / NO

8 b If married, how much separation, through work, have you had over the last 4 years?

9 Do you have any children? YES / NO

9 a If yes, how many?

9 b What are their ages (to the nearest year)?

9 c If at school, are they at a local/boarding/service school? *(Please delete as necessary)*

Military Experience

10 Have you served in Northern Ireland? YES / NO

10 a If YES, how many NI tours have you done?

11 Did you serve in the Gulf during the Gulf War? YES / NO

12 Did you serve in the Falklands during the Falklands Conflict? YES / NO

13 Have you served in the former Yugoslavia? YES / NO

13 b If YES, on which Op Grapple?

14 Have you served on any other operational tour? YES / NO

14 a If so, how many?

14 b Where were they?

General Statements

Listed below are some general statements about your life in the Army and your beliefs. Please rate these according to the scale below and answer them honestly for what is true of you.

Please try not to respond to the middle answer (3) unless absolutely necessary.

Response Alternatives:

1 = Strongly agree

2 = Agree

3 = Neither agree nor disagree

4 = Disagree

5 = Strongly disagree

- 15 People that experience stress related problems are weak1 2 3 4 5
- 16 Anyone can experience stress related problems if they experience something horrible enough1 2 3 4 5
- 17 I would try and hide it if I felt I was having difficulties at work ..1 2 3 4 5
- 18 I would never experience any difficulties related to 'traumatic' incidents1 2 3 4 5
- 19 On the whole I enjoy my job in the Army 1 2 3 4 5
- 20 I like the Army way of life 1 2 3 4 5
- 21 I do not feel that I have many friends in the unit. 1 2 3 4 5
- 22 I would leave the Army now if I could. 1 2 3 4 5
- 23 I feel that the leadership does not support me enough. 1 2 3 4 5
- 24 I trust my superiors to make the right decisions..... 1 2 3 4 5
- 25 There is no-one that I feel that I could talk to about personal difficulties with in the Army. 1 2 3 4 5
- 26 Trauma related stress should not exist within the British Army... 1 2 3 4 5
- 27 The Army is placing too much emphasis on stress..... 1 2 3 4 5
- 28 I like it when things are uncertain or unpredictable 1 2 3 4 5
- 29 I believe that it is acceptable to suffer from stress related problems in 'war situations'. 1 2 3 4 5

Response Alternatives:

- 1 = Strongly agree
- 2 = Agree
- 3 = Neither agree nor disagree
- 4 = Disagree
- 5 = Strongly disagree

- 30 I believe that it is acceptable to suffer from stress related problems on humanitarian missions. 1 2 3 4 5
- 31 My morale is high at the moment. 1 2 3 4 5
- 32 The morale of the people I work closely with is high. 1 2 3 4 5
- 33 The morale of the unit as a whole is high. 1 2 3 4 5
- 34 I can always rely on my friends to support me in a difficult situation. 1 2 3 4 5
- 35 I do not get on with the kind of people who join the Army 1 2 3 4 5
- 36 I believe the Army is a worthwhile job..... 1 2 3 4 5
- 37 I feel that there is a lot of pressure on me to get things right 1 2 3 4 5
- 38 I feel under pressure to get promotion 1 2 3 4 5
- 39 I like to be in dangerous situations 1 2 3 4 5
- 40 There is always someone I can speak to about personal problems who is outside the Army system. 1 2 3 4 5
- 41 I am confident that my military training provides me with a good basis for any jobs that I may do during my career 1 2 3 4 5
- 42 I feel frustrated by a lack of resources 1 2 3 4 5
- 43 I feel that things in the Army are very uncertain at the moment .. 1 2 3 4 5
- 44 I know soldiers who have experienced stress related difficulties during my time in the Army. YES / NO

45 Have you suffered any 'problems' from:- *(Please ring your answers)*

45 a - general work stress Not at all Rarely Sometimes A lot

45 b - specific incident stress related to active duty ... Not at all Rarely Sometimes A lot

45 c- stress from problems at home or barracks Not at Rarely Sometimes A lot
all

46 Have you been taught about stress in the Army? YES / NO

46a If yes, *who* did this?

46 b How did they teach you? (*eg. a lecture, handouts...*)

46 c Did you pay much attention?Not at Not Sometimes A lot
all really

46 d Did you think it was useful?Not at Not Quite Very
all really useful

46 e Can you remember much?Nothing Hardly A bit A lot
anything

The following types of personnel are all currently engaged, to some extent, in 'teaching' soldiers about stress related problems. Who do you feel would be the best personnel to teach *you* about military stress? (*Please circle your answers*)

47 An Army doctor..... Not at Not Possibly Definitely
All really

48 A padre Not at Not Possibly Definitely
All really

49 An Army psychiatrist Not at Not Possibly Definitely
All really

50 An Army (psychiatric) nurse Not at Not Possibly Definitely
All really

51 An MOD psychologist / psychiatrist Not at Not Possibly Definitely
All really

52 Your OC Not at Not Possibly Definitely
All really

These personnel could be used to teach you about stress in the Army. Who do you feel would be the best personnel to teach you about military stress and who would you pay attention to? (*Please circle your answers*)

53 A senior NCO Not at Not Possibly Definitely
All really

54 An officer from your unit..... Not at Not Possibly Definitely
All really

55	A SSAFA worker	Not at All	Not really	Possibly	Definitely
56	A civilian expert	Not at All	Not really	Possibly	Definitely
57	A stress trained soldier of equal rank within each battalion	Not at All	Not really	Possibly	Definitely
58	A serving NCO who has experienced stress from active duty	Not at All	Not really	Possibly	Definitely
59	A serving officer who has experienced stress from active duty	Not at All	Not really	Possibly	Definitely

60 Who would you go to if you needed to see someone about stress related problems?
(Ring any that apply to you)

friend in unit	an NCO	an officer	MO	padre	SSAFA /WRVS
your partner	a member of family	a friend outside the Army		a doctor/clinician outside the Army	No-one

61 In my opinion there is enough support for stress
related problems in the Army..... 1 2 3 4 5

62 If I sought medical in-Service help, I think it
would affect my career? 1 2 3 4 5

63 If I sought in-Service help through my chain
of command, I think it would affect my career?.....1 2 3 4 5

64 I would trust the in-Service support to be confidential1 2 3 4 5

65 Have you ever sought help outside the Army? YES / NO

65 a If so, why did you go outside of the Army?

65 b Who did you see? (eg a doctor or psychologist)

66. Have there been any significant events which have had a major effect on you, in or outside of work, over the last 12 months? If so, what were they?

67 What were the 3 most difficult things that you have had to deal with during your Army career?

(Please state where and when these occurred and on what operation)

(1)

(2)

(3)

68 Why did you find them difficult?

(1)

(2)

(3)

69 What effects did it have on you? *(You can refer to one of the above events)*

70 Did you receive a psychological debriefing? YES / NO

70a If NO, would you have liked to have received a psychological debriefing? Not at all Not Quite Definitely really

70b If YES, did you think it was useful? Not at all Not Quite Definitely really

SECTION B - ALL RESPONDENTS TO ANSWER

71 Is there anything you would like to add concerning stress you may have experienced whilst in the Army, or about how you think the Army should be dealing with potential stress in the Army? This information will be strictly confidential

SECTION B: Well-being

This section is concerned with your general state of health OVER THE LAST FEW WEEKS. Please draw a circle around the statement which best matches your answer. Remember that you are assured of complete anonymity, so please give your honest answer to each item.

HAVE YOU RECENTLY:

- | | | | | |
|--|---------------------------|----------------------------|-------------------------------|-----------------------------|
| 1. Been able to concentrate on whatever you're doing? | <i>Better than usual</i> | <i>Same as usual</i> | <i>Less than usual</i> | <i>Much less than usual</i> |
| 2. Lost much sleep over worry? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 3. Felt constantly under strain? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 4. Felt you couldn't overcome your difficulties? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 5. Been feeling unhappy and depressed? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 6. been losing confidence in yourself? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 7. been thinking of yourself as a worthless person? | <i>Not at all</i> | <i>No more than usual</i> | <i>Rather more than usual</i> | <i>Much more than usual</i> |
| 8. felt that you are playing a useful part of things? | <i>More so than usual</i> | <i>Same as usual</i> | <i>Less useful than usual</i> | <i>Much less useful</i> |
| 9. felt capable of making decisions about things? | <i>More so than usual</i> | <i>Same as usual</i> | <i>Less so than usual</i> | <i>Much less capable</i> |
| 10. Been able to face up to your problems? | <i>More so than usual</i> | <i>Same as usual</i> | <i>Less able than usual</i> | <i>Much less able</i> |
| 11. Been able to enjoy your normal day-to-day activities? | <i>More so than usual</i> | <i>Same as usual</i> | <i>Less so than usual</i> | <i>Much less than usual</i> |
| 12. Been feeling reasonably happy, all things considered? | <i>More so than usual</i> | <i>About same as usual</i> | <i>Less so than usual</i> | <i>Much less than usual</i> |
| 13. Over the last 12 months have you felt that you could not overcome your difficulties? | <i>More so than usual</i> | <i>About same as usual</i> | <i>Less so than usual</i> | <i>Much less than usual</i> |
| 14. Over the last 12 months have you been feeling unhappy and depressed? | <i>More so than usual</i> | <i>About same as usual</i> | <i>Less so than usual</i> | <i>Much less than usual</i> |

SECTION C: Opinion of Self

The questions in this section refer to the views people hold about themselves and the world. Please read the following questions and then circle the alternative of your choice on the scale provided alongside each of the statements.

Response Alternatives:

- 1 = Strongly agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly disagree

1. I have little control over the things that happen to me 1 2 3 4
2. There is really no way that I can solve some of the problems that I have 1 2 3 4
3. There is little I can do to change many of the important things in my life 1 2 3 4
4. I often feel helpless in dealing with the problems of life 1 2 3 4
5. I feel that I do not have much to be proud of 1 2 3 4
6. Sometimes I feel that I am being pushed around in life 1 2 3 4
7. What happens to me in the future mostly depends on me 1 2 3 4
8. I can do just about anything that I really set my mind to do 1 2 3 4
9. I certainly feel useless at times 1 2 3 4
10. At times I think I am no good at all 1 2 3 4
11. I feel that I'm a person of worth, at least on an equal basis with others 1 2 3 4
12. On the whole I am satisfied with myself 1 2 3 4

SECTION D: General Feelings.

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you GENERALLY feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

Answer using the following format:

Response Alternatives:

- 1 = Almost never
- 2 = Sometimes
- 3 = Often
- 4 = Almost always

1. I feel nervous and restless..... 1 2 3 4
2. I feel like a failure..... 1 2 3 4
3. I am "calm, cool, and collected"..... 1 2 3 4
4. I make decisions easily..... 1 2 3 4
5. I feel inadequate..... 1 2 3 4
6. I am content..... 1 2 3 4

SECTION E: How you generally feel and behave

Below are some questions regarding the way you feel and behave. Try to decide which response option represents your usual way of acting or feeling. There are no right or wrong answers to any of the questions: your immediate reaction is what we want. Please check that you have answered all the questions.

Response Alternatives:

- 1 = Almost Never
- 2 = Quite Seldom
- 3 = Quite Often
- 4 = Almost Always

1. Does your mood go up and down1 2 3 4
2. Do you feel 'just miserable' for no good reason.....1 2 3 4
3. When you get annoyed do you need someone friendly to talk to.....1 2 3 4
4. Are you troubled by feelings of guilt1 2 3 4
5. Would you call yourself tense or 'highly strung'.....1 2 3 4
6. Do you suffer from sleeplessness1 2 3 4

SECTION F: Coping Techniques

People use a variety of different coping techniques to manage the many different situations in which they feel under stress. Listed below are a number of techniques that people have said they use to help them in these stressful situations. Please respond to each of the following statements in order to describe the way you GENERALLY handle stressful situations. Please circle the response alternative of your choice on the scale provided alongside each item.

Answer using the following format:

- 1 = I do not use this technique
- 2 = I seldom use this technique
- 3 = I sometimes use this technique
- 4 = I frequently use this technique
- 5 = I always use this technique

- 1) I make an effort to change my expectations.....1 2 3 4 5
- 2) I try to convince myself that the problem was not very important after all.....1 2 3 4 5
- 3) I try to let off steam.....1 2 3 4 5
- 4) I focus my efforts on changing the situation.....1 2 3 4 5
- 5) I drink more alcohol1 2 3 4 5
- 6) I accept sympathy and understanding from someone.....1 2 3 4 5
- 7) I work on changing the situation to get what I want.....1 2 3 4 5
- 8) I try to adjust my expectations to meet the situation.....1 2 3 4 5
- 9) I tell myself the problem wasn't so serious after all.....1 2 3 4 5
- 10) I try to relieve my tension somehow1 2 3 4 5
- 11) I ask a relative or friend I respect for advice.....1 2 3 4 5
- 12) I try to fix what was wrong with the situation.....1 2 3 4 5
- 13) I try to adjust my own standards.....1 2 3 4 5
- 14) I tell myself the problem wasn't such a big deal after all.....1 2 3 4 5
- 15) I try to avoid thinking about the problem.....1 2 3 4 5
- 16) I try to relax.....1 2 3 4 5
- 17) I talk to someone about how I was feeling.....1 2 3 4 5
- 18) I make light of it; I refuse to get too serious about it1 2 3 4 5
- 19) I try to forget the whole thing1 2 3 4 5

SECTION G: IMPACT OF EVENTS SCALE

This part of the questionnaire asks specific questions about your perception of what traumatic events are. It has been suggested that some situations occur more frequently and with more intensity in some individuals and not others. Attempts are being made to find out what makes them particularly traumatic or stressful.

THINKING ABOUT YOUR EXPERIENCES DURING YOUR TIME ON OPERATION BANNER, WRITE DOWN ANY PARTICULAR EVENT WHICH HAS MADE A TRAUMATIC IMPACT ON YOU.

Describe:

Are you still experiencing this problem? *(Tick one box only)*

NO SOMETIMES OFTEN

When did this problem first occur? *(Write your answer in number form)*

YEARS MONTHS

Below are a list of statements which are designed to assess how YOU feel about the particular event that you mentioned above. Please look at the items carefully and circle the appropriate number ON BOTH SCALES that mostly applies to you.

Firstly, circle either 0,1,2 or 3 for frequency of occurrence of the statement and secondly circle either 0,1,2, or 3 for intensity of occurrence for the same statement.

FREQUENCY OF OCCURRENCE

- 0 = Does not apply
- 1 = Rarely applies
- 2 = Sometimes applies
- 3 = Often applies

INTENSITY OF OCCURRENCE

- 0 = Does not occur
- 1 = Mildly occurred
- 2 = Moderately occurred
- 3 = Severely occurred

CIRCLE YOUR CHOICE

FREQUENCY

INTENSITY

I had waves of strong feelings about the event

0 1 2 3

0 1 2 3

Things I saw or heard suddenly reminded me of the event

0 1 2 3

0 1 2 3

CIRCLE YOUR CHOICE
FREQUENCY INTENSITY

I thought about the event when I did not mean to	0 1 2 3	0 1 2 3
Images related to the event popped into my mind	0 1 2 3	0 1 2 3
Any reminder brought back emotions related to the event	0 1 2 3	0 1 2 3
I have difficulty falling asleep because of images or thoughts related to the event	0 1 2 3	0 1 2 3
I had bad dreams related to the event	0 1 2 3	0 1 2 3
I knew that a lot of unresolved feelings were still there but I kept them to myself	0 1 2 3	0 1 2 3
I avoided letting myself get emotional when I thought about it or was reminded of the event	0 1 2 3	0 1 2 3
I wished to banish the event from my store of memories	0 1 2 3	0 1 2 3
I made an effort to avoid talking about the event	0 1 2 3	0 1 2 3
I felt unrealistic about the event as if it had not happened or as if it was not real	0 1 2 3	0 1 2 3
I stayed away from things or situations that might remind me of the event	0 1 2 3	0 1 2 3
My emotions related to the event were kind of numb	0 1 2 3	0 1 2 3
I did not let myself have thoughts related to the event	0 1 2 3	0 1 2 3

Thank-you for your time answers assistance in helping the Army to develop its support for its personnel and their dependants. Completed questionnaires should be handed in for despatch to: *Miss J Harvey, LSF1, DRA Chertsey, Surrey, KT16 OEE.*

If you do consider that you are having stress problems, of any nature, approach you medical officer as s/he will be able to give you help and advice.

From: Major General M D Regan OBE



CHIEF OF STAFF

**HEADQUARTERS
ADJUTANT GENERAL (PERSONNEL & TRAINING COMMAND)**

EVALUATION OF THE ARMY'S STRESS MANAGEMENT PROGRAMME

1. The Adjutant General exercises overall responsibility for welfare and personnel matters within the Army and it is his intention to ensure that the highest standard of support is provided to Army personnel. One such area is the management of operational stress and our training for such stresses. The Adjutant General is currently sponsoring research into this area by Miss Joanna Harvey, a psychologist from the Defence Research Agency.
2. One of the methods employed in this survey is the completion of a questionnaire by selected troops deploying on operations. Such surveys have already been undertaken by units deploying on Operations GRAPPLE, GABRIEL and CHANTRESS. However, in order to put the results into context, it is necessary to assess the background situation across the Army; that is the purpose of the questionnaire enclosed with this letter.
3. The questionnaire contains a number of standard psychological assessments, measuring stress and personal reactions to it. It is appreciated that the questionnaire is long. However, if completed accurately, the information collected would be extremely valuable in identifying improvements to our current systems.
4. Personnel receiving this letter were chosen at random from the Army's data bases and no record has been kept of the list. The replies will be seen by Miss Harvey only. Strict procedures are in force to ensure that the identity of individuals will not be revealed and there is no intention to do so.
5. I would ask that you support this study by giving up the time to fill in the questionnaire, thereby making a contribution to the support that we are able to give to our men and women on future operations.

Michael Regan

APPENDIX 5 : Time 1 Questionnaire

PRE-OPERATIONAL QUESTIONNAIRE - OP BANNER

This survey forms part of a study into the Army's management of stress connected with operational deployments. The aim of this review is to identify the problems causing stress, how they are currently dealt with and where improvements can be made.

For this operation, the survey will consist of three stages: this questionnaire at the beginning of the deployment, a second questionnaire on return, and finally, a further questionnaire 12 months after the operation has finished. In addition, it is appreciated that those left behind are often able to give a different perspective on the problems, so a small number of wives/husbands will be asked to volunteer to complete a questionnaire themselves.

The contents of this questionnaire will be treated in strictest confidence. The data will be used by Miss J Harvey, a DRA psychologist, who is undertaking the research on behalf of the Adjutant General. You are asked to give your service number so that Miss Harvey is able to tie up your answers with those of the post deployment questionnaire. Personal details will not be released to units, or any other military authority and all responses will be retained by Miss Harvey, and destroyed by her at the end of the study.

Your efforts, in completing this form, will help to contribute to the future well-being and support provided to personnel deploying on operations, and their families remaining behind. Thank you for your assistance. Please try and complete all questions as accurately as possible. On the sections asking for your reactions put your first answer down, there is no requirement to deliberate a long time over your responses.

1 Rank: 2 Number:

3 D.O.B. / / 4 Sex: MALE / FEMALE

5 Regiment:

6 How long have you been in the Army?

7 How many years do you have left to serve?

8 Normal employment:

9 Are you married / single / divorced? *(Please delete as necessary)*

9 a If married, are you UN / ACCOMPANIED *(Please delete as necessary)*

9 b If married, how much separation through work, have you had over the last 4 years?

10 Do you have any children? YES / NO

10 a If yes, how many?

10 b What are their ages (to the nearest year)?

10 c If at school, are they at a local /boarding /service school? *(Please delete as necessary)*

Military Experience

11 Have you served in Northern Ireland?YES / NO
11 a If YES, how many NI tours have you done?

12 Did you serve in the Gulf during the Gulf War?YES / NO

13 Did you serve in the Falklands during the Falklands Conflict?YES / NO

14 Have you served in the former Yugoslavia?YES/ NO
14 a If YES, on which Op Grapple?

15 Have you served on any other operational tour?YES / NO
15 a If so, how many?
15 b Where were they?

16 In your opinion, what do you think the main purpose of your unit's role is for Operation Banner?

17 Please describe your understanding of the political situation in Northern Ireland.

18 Do you understand the situation in Northern Ireland?

Not at all well	Not very well	Fairly well	Very well
--------------------	------------------	----------------	--------------

19 Do you believe that the UK should have troops deployed in Northern Ireland?

Not at all	Unsure	Definitely
------------	--------	------------

Listed below are some statements about your expectations of Operation Banner. Please rate these according to the scale below and answer them honestly.

Response Alternatives:
1 = Definitely
2 = Possibly
3 = Not really
4 = Not at all

20 Do you believe that your unit can improve the situation? 1 2 3 4

21 Are you looking forward to the deployment?1 2 3 4

22 Considering all the training that you have done, how ready, as an individual, do you feel for the Operation?1 2 3 4

23 Do you feel mentally prepared for the Operation?1 2 3 4

24 Do you think you will enjoy it? 1 2 3 4

General Statements

Listed below are some general statements about your life in the Army and your beliefs. Please rate these according to the scale below and answer them honestly for what is true of you . Please try not to respond to the middle answer (3) unless absolutely necessary.

Response Alternatives:

5 = Strongly agree

4 = Agree

3 = Neither agree nor disagree

2 = Disagree

1 = Strongly disagree

25 People that experience stress related problems are weak1 2 3 4 5

26 Anyone can experience stress related problems if they experience something horrible enough1 2 3 4 5

27 I would try and hide it if I felt I was having difficulties at work1 2 3 4 5

28 I would never experience any difficulties related to 'traumatic' incidents1 2 3 4 5

29 On the whole I enjoy my job in the Army 1 2 3 4 5

30 I like the Army way of life 1 2 3 4 5

31 I do not feel that I have many friends in the unit. 1 2 3 4 5

32 I would leave the Army now if I could. 1 2 3 4 5

33 I feel that the leadership does not support me enough. 1 2 3 4 5

34 I trust my superiors to make the right decisions..... 1 2 3 4 5

35 There is no-one that I feel that I could talk to about personal difficulties with in the Army. 1 2 3 4 5

36 Professional soldiers should be able to cope with..... 1 2 3 4 5
trauma related stress

37 The Army is placing too much emphasis on stress..... 1 2 3 4 5

38 I like it when things are uncertain or unpredictable 1 2 3 4 5

- 39 Currently I feel that my work seems to be pointless 1 2 3 4 5
- 40 I believe that it is acceptable to suffer from stress related problems in 'war situations'. 1 2 3 4 5
- 41 I believe that it is acceptable to suffer from stress related problems on humanitarian missions. 1 2 3 4 5
- 42 My morale is high at the moment. 1 2 3 4 5
- 43 The morale of the people I work closely with is high. 1 2 3 4 5
- 44 The morale of the unit as a whole is high. 1 2 3 4 5
- 45 I can always rely on my friends to support me in a difficult situation. 1 2 3 4 5
- 46 I do not get on with the kind of people who join the Army 1 2 3 4 5
- 47 I believe the Army is a worthwhile job..... 1 2 3 4 5
- 48 I feel that there is a lot of pressure on me to get things right 1 2 3 4 5
- 49 I feel under pressure to get promotion1 2 3 4 5
- 50 I like to be in dangerous situations 1 2 3 4 5
- 51 There is always someone I can speak to about personal problems who is outside the Army system. 1 2 3 4 5
- 52 I am confident that my military training provides me with a good basis for any jobs that I may do during my career1 2 3 4 5
- 53 I feel frustrated by a lack of resources 1 2 3 4 5
- 54 I feel that things in the Army are very uncertain at the moment 1 2 3 4 5
- 55 I spend alot of my time at work feeling bored 1 2 3 4 5
- 56 Currently I feel that I do not have enough time to myself 1 2 3 4 5
- 57 I know soldiers who have experienced stress related difficulties during my time in the Army. YES / NO
- 58 Have you experienced any 'problems' from:- *(Please ring your answers)*
- 59 a - general work stress Not at all Rarely Sometimes A lot
- 59 b - specific incident stress related to active duty Not at all Rarely Sometimes A lot

59 c - stress from problems at home or barracksNot at Rarely Sometimes A lot
all

60 Have you been taught about stress for this specific operation? YES / NO

60 a If yes, *who* did this?

60 b How did they teach you? (*eg. a lecture, handouts...*)

60 c Did you pay much attention? Not at Hardly A bit A lot
all at all

60 d Do you think it will be useful?Not at Hardly A bit A lot
all at all

60 e Can you remember much?Nothing Hardly A bit A lot
at all

60 f What would have been useful to you?

61 Apart from preparations for this deployment, have you been
taught about stress before? YES / NO

61a If YES, who did this?

61b How did they teach you?

61c Did you pay much attention? Not at Hardly A bit A lot
all at all

61d Do you think it will be useful? Not at Hardly A bit A lot
all at all

61e Can you remember much? Nothing Hardly A bit A lot
all at all

62 Who would you go to if you needed to see someone about stress related problems?
(*Ring any that apply to you*)

friend an NCO an officer MO padre SSAFA
in unit /WRVS

your a member a friend a doctor/clinician No-one
partner of family outside the Army outside the Army

63 In your opinion is there enough support for stress
related problems in the Army? Not at Not Quite Definitely
all really

64 If you sought medical in-Service help, do you think it
would affect your career? Not at Not Quite Definitely
all really

65 If you sought in-Service help through your chain of command, do you think it would affect your career? Not at all Not really Quite Definitely

66 Could you trust the in-Service support to be confidential? Not at all Not really Quite Definitely

67 Have you ever sought help outside the Army? YES / NO

67a If so, why did you go outside of the Army?

67b Who did you see? (eg a doctor, psychologist)

68. Have there been any significant events which have had a major effect on you, in or outside of work, over the last 12 months? If so, what were they? (*Examples include death of a family member or friend, illness, birth of a child, marriage, end of a relationship; however, this includes ANYTHING which is important to you.*)

69. Is there anything you would like to add concerning stress you may have experienced whilst in the Army, or about how you think the Army should be dealing with potential stress?

APPENDIX 6: Time 2 Questionnaire

**POST-OPERATIONAL QUESTIONNAIRE
OP BANNER**

This survey forms part of a study into the Army's management of stress connected with operational deployments. The aim of the review is to identify the problems causing stress, how they are currently dealt with and where improvements can be made.

For this operation the survey will consist of 3 stages: the questionnaire prior to deployment, this questionnaire on completion of the deployment and a further questionnaire 12 months later. Thank you for completing the previous questionnaire. You are asked to complete a questionnaire post deployment as it is important to understand your experiences on the deployment and to try and assess exactly what the difficulties are.

The contents of this questionnaire will be treated in the strictest of confidence. The data will be used by Miss J Harvey, a DRA psychologist, who is undertaking the research on behalf of the Adjutant General. You are asked to give your service number so that Miss Harvey can tie up your answers with the pre-deployment questionnaire. Personal details will not be released to units, or any other military authority and all responses will be retained by Miss Harvey and destroyed by her at the end of the study.

Your efforts, in completing this form, will contribute to the future wellbeing and support provided to personnel deploying on operations and the families remaining behind. Thank you for your assistance. Please try and complete all questions as accurately as possible. On the sections asking for your reactions, put your first answer down, there is no requirement to deliberate a long time over your responses.

1 Rank: 2 Number:

3 Age 4 Sex: MALE / FEMALE

5 Cap Badge/Unit:/.....

6 Were you temporarily attached to the unit just for Operation Banner?: YES/ NO

7 In your opinion, what do you think was the main purpose of your role for Operation Banner?

8 Please briefly describe your understanding of the current political situation in Northern Ireland.

9 Do you understand the political situation in Northern Ireland?

Very well Fairly well Not very well Not at all well

10 How well do you feel that you achieved your role as a *unit*?

Very well Fairly well Not very well Not at all well

11 How well do you feel that you achieved your role as an *individual*?

Very well Fairly well Not very well Not at all well

12 Do you believe that Britain should have troops deployed in Northern Ireland?

Definitely Unsure Not at all

Listed below are some statements about your expectations of Operation Banner. Please rate these according to the scale below and answer them honestly.

Response Alternatives:

- 1 = Definitely
- 2 = Possibly
- 3 = Not really
- 4 = Not at all

13 Do you believe that your unit improved the situation? 1 2 3 4

14 Considering all the training that you had done, were you ready, as an individual, were you for the Operation? 1 2 3 4

15 Were you mentally prepared for the Operation? 1 2 3 4

16 Did you enjoy the operation? 1 2 3 4

17 Are you in a relationship with someone 'at home'? YES/ NO

17 a If YES, did you feel that you were able to maintain contact with them?

Definitely Possibly Not really Not at all

18 Did you feel that you were in close contact with family and/or friends at home?

Not at all Not really Possibly Definitely

General Statements

Listed below are some general statements about your life in the Army and your beliefs. Please rate these according to the scale below and answer them honestly for what is true of you.

Please try not to respond to the middle answer (3) unless absolutely necessary.

Response Alternatives:

1 = Strongly agree

2 = Agree

3 = Neither agree nor disagree

4 = Disagree

5 = Strongly disagree

- 19 People that experience stress related problems are weak1 2 3 4 5
- 20 Anyone can experience stress related problems if they experience something horrible enough1 2 3 4 5
- 21 I would try and hide it if I felt I was having difficulties at work1 2 3 4 5
- 22 I would never experience any difficulties related to 'traumatic' incidents1 2 3 4 5
- 23 On the whole I enjoy my job in the Army 1 2 3 4 5
- 24 I like the Army way of life 1 2 3 4 5
- 25 I do not feel that I have many friends in the unit. 1 2 3 4 5
- 26 I would leave the Army now if I could. 1 2 3 4 5
- 27 I feel that the leadership does not support me enough. 1 2 3 4 5
- 28 I trust my superiors to make the right decisions..... 1 2 3 4 5
- 29 I do not feel that I could talk about personal difficulties with anyone in the Army. 1 2 3 4 5
- 30 Professional soldiers should be able to cope with..... 1 2 3 4 5
trauma related stress
- 31 The Army is placing too much emphasis on stress..... 1 2 3 4 5
- 32 I like it when things are uncertain or unpredictable 1 2 3 4 5
- 33 Currently I feel that my work seems to be pointless 1 2 3 4 5
- 34 I believe that it is acceptable to suffer from stress related problems in 'war situations'. 1 2 3 4 5

- 35 I believe that it is acceptable to suffer from stress related problems on humanitarian missions. 1 2 3 4 5
- 36 My morale is high at the moment. 1 2 3 4 5
- 37 The morale of the people I work closely with is high..... 1 2 3 4 5
- 38 The morale of the unit as a whole is high. 1 2 3 4 5
- 39 I can always rely on my friends to support me in a difficult situation. 1 2 3 4 5
- 40 I do not get on with the kind of people who join the Army 1 2 3 4 5
- 41 I believe the Army is a worthwhile job..... 1 2 3 4 5
- 42 I feel that there is a lot of pressure on me to get things right 1 2 3 4 5
- 43 I feel under pressure to get promotion 1 2 3 4 5
- 44 I like to be in dangerous situations 1 2 3 4 5
- 45 There is always someone I can speak to about personal problems who is outside the Army system. 1 2 3 4 5
- 46 I am confident that my military training provides me with a good basis for any jobs that I may do during my career1 2 3 4 5
- 47 I feel frustrated by a lack of resources 1 2 3 4 5
- 48 I feel that things in the Army are very uncertain at the moment 1 2 3 4 5
- 49 I spend a lot of my time at work feeling bored 1 2 3 4 5
- 50 Currently I feel that I do not have enough time to myself 1 2 3 4 5
- 51 I know soldiers who have experienced stress related difficulties during our deployment on Operation Banner..... YES / NO
- 52 Pre-deployment, did you receive any training on stress related problems? YES / NO

52 a If YES, was this useful?

Definitely Possibly Not really Not at all

52 b If NO, would you have like to have received some stress related training?

Definitely Possibly Not really Not at all

53 Have you received any stress related training throughout the deployment? YES / NO

53 a If YES, please describe.

54 What were the three most difficult things that you experienced while on Operation Banner?

(1)

(2)

(3)

55 Why did you find them difficult?

(1)

(2)

(3)

56 What effects did they have on you?

(1)

(2)

(3)

57 What did you do to try and deal with them?

58 Would you have liked to have received some form of psychological debriefing after any of these incidents or stressors?

Definitely

Possibly

Not
really

Not at
all

59 If you had wanted to talk to someone about any stress related problems experienced on Operation Banner, who would you have spoken to?

60 Do you think it would have been useful to have had a 'professional' (psychiatrist, community psychiatric nurse, psychologist) to visit your unit and provide some education on stress in theatre?

Definitely

Possibly

Not
really

Not at
all

61 When you return to your normal employment, who would you speak to if you needed to see someone about stress related problems? (*Ring any that apply to you*)

friend
in unit

an NCO

an officer

MO

an RMA

padre

SSAFA
/WRVS

your
partner

a member
of family

a friend
outside the Army

a civilian doctor/clinician
outside the Army

No-one

61a. Are there any of the above that you would definitely not go to? If so, why?

- | | | | | |
|--|------------|-------|------------|------------|
| 62 In your opinion is there enough support for stress related problems in the Army? | Definitely | Quite | Not really | Not at all |
| 63 In your opinion is there enough support for <i>operational</i> stress related problems in the Army? | Definitely | Quite | Not really | Not at all |
| 64 If you sought medical in service help, do you think it would affect your career? | Definitely | Quite | Not really | Not at all |
| 64a Do you trust your Medical Centre staff to be confidential? | Definitely | Quite | Not really | Not at all |
| 65 If you sought in service help through your chain of command, do you think it would affect your career? | Definitely | Quite | Not really | Not at all |
| 66 Could you trust the in service support to be confidential? | Definitely | Quite | Not really | Not at all |

67 Have you received any end of tour briefings? YES / NO
67a If YES, what topics did they cover?

68 How soon after the deployment will you go on leave?

69 What do you think are the major stresses of working in the British Army? How can you suggest that they are improved?

70 Have there been any significant events which have had a major effect on you over the last 6 months, if so, what were they? (*Examples include death of a family member, or friend, illness, birth of a child, marriage, end of a relationship, or anything that is significantly important to you.*)

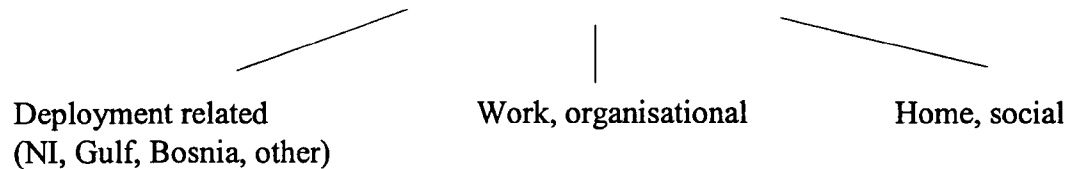
71 Is there anything you would like to add concerning stress you may have experienced whilst in the Army, or about how you think the Army should be dealing with any potential stress?

APPENDIX 7:

Categories of Stressor

Descriptions are coded twice - initial coding is broad, categorising the spheres that the stressor relates to. The second more detailed categorisation can then be used to supplement this (e.g., it may be deployment related, but the problem is separation from wife).

1. Stressor Sphere



2. Stress Categories

Death Related

Death of immediate family
Death in extended family
Death of a friend
Death of fellow Army personnel
Deaths of innocent bystanders or civilians
Deaths of enemy personnel
Suicides

Family Related

Separation problems (and other negative impact Army has upon family)
Relationship break up
Family events ('positive' e.g. birth)
Family events ('negative' e.g. illness)
Debt
Housing problems
Friends - illnesses, accidents etc.

Organisational Stress

Poor man management
Workload
Career issues (training courses, interviews etc.)

Pressure and/or responsibility
Change and/or uncertainty
Lack of resources
Lack of support
Failure in work, promotion, disappointments
Disliking work
Waste of time tasks
Not taking part with 'team' (e.g. not involved in Op GRANBY)
Bullying or not integrated in team
Personality problems at work

Welfare/ Discipline

Under discipline
Having to 'discipline' soldiers
Responsibility of bad news, or dealing with welfare difficulties (soldiers and families)

Traumatic Events

Road traffic accidents (witnessed, involved, helped)
Seeing devastation and awfulness
Under attack (bomb or under fire)
Potentially life threatening situations (other)
Killing enemy personnel
Fear of or killing civilians (by mistake)
Horrible event under their responsibility (e.g. accident, attempting to save life)
Hostility of civilians
Enemy dictating rules (e.g. hostage, can't leave)
Situations involving fear and anxiety (i.e. unspecific)
Situations involving children

Living conditions (military environment)

Own illness, accident

APPENDIX 8**Frequencies of Described Stressors**Table A8-1: Most frequently cited NI stressors, Study 1

Stressors	Freq (%)
Life threatening situation	17 (8.3)
Death of Army personnel	16 (7.9)
Death of friend	15 (7.5)
Under attack	14 (7.1)
Separation	14 (7.0)
Own illness, accident	10 (4.9)

Stressors by rank, Study 2Table A8-2: Most frequently cited stressors of Junior Rank personnel

Junior Ranks stressors	Freq (%)
Separation, communication problems	57 (20)
Routine job, monotony	29 (10)
Lack of sleep	25 (8.9)
Lack of own time	19 (6.8)
Poor man management	17 (6.1)
Living conditions	16 (5.7)

Table A8-3: Most frequently cited stressors of SNCOs

SNCO stressors	Freq (%)
Routine job, monotony	3 (21)
Separation, communication problems	2 (14)
Poor man management	2 (14)
Integration issues	2 (14)

Table A8-4: Frequently endorsed stressors within the deployment sphere

Officer stressors	Freq (%)
Separation, communication problems	3 (14)
Poor man management	3 (14)
Routine job, monotony	2 (10)
Motivating soldiers	2 (10)
Making command decisions	2 (10)
Disciplining others	2 (10)

Stressors categorised by Unit or attachment

Table A8-5: Frequently cited stressors for 1 RS personnel

1 RS stressors	Freq (%)
Separation, communication problems	54 (20)
Routine job, monotony	27 (10)
Lack of sleep	20 (8)
Poor man management	16 (6)
Lack of own time	16 (6)
Living conditions	16 (6)
Close living together	13 (6)

Table A8-6: Frequently cited stressors for Temporarily Attached personnel

Temporarily attached stressors	Freq (%)
Routine job, monotony	5 (17)
Integration issues	4 (13)
Separation, communication problems	3 (10)
Lack of own time	3 (10)

Table A8-7: Stressors cited by Permanently Attached and TA respondents

Unit type	Stressor	Freq (> 2)
Permanently Attached	Poor man management, lack of communication	4
	Separation, communication problems	3
TA/ Regular Reserves	Separation, communication problems	2
	Integration issues	2

APPENDIX 9 Grouping of variables for MRAs, Study 2

Due to the large number of variables within the analyses, separate stepwise MRAs was conducted on a modular basis, with the variables grouped into theoretical groups described below.

1. Demographics

Age group

Children (Y/N)

Marital status

Unit

Rank (4 groupings)

Significant life event

Op GRANBY

NI experience

Number of operations

2. Beliefs about the deployment and stress

Time 1: Questions 19, 20, 21, 24, 25, 26, 40, 41

Time 2: Questions 10, 11, 12, 13, 16, 19, 20, 34, 35

3. Training and preparation

Educated about stress (Y/N)

Time 1: Questions 18, 22, 23, 52

Time 2: Questions 9, 14, 15, 46

4. Social support

Time 1: Questions 31, 35, 45, 46, 51

Time 2: Questions 17a, 18, 25, 29, 39, 40, 45

5. Organisational variables

Time 1: Questions 27, 29, 30, 32, 33, 34, 38, 39, 47, 48, 49, 50, 53, 55, 56

Time 2: Questions 21, 23, 24, 26, 27, 28, 32, 33, 41, 42, 43, 44, 47, 49, 50

6. Psychological variables

Mastery

Neuroticism

Self Esteem

Anxiety

Accommodation

Avoidance

Devaluation

Symptom Reduction

Change the situation

Social support

7. Stressors

Categories identified in appendix 8.

APPENDIX 10 Factor Analysis of Coping Variables

The factor components of the coping variables used for Study 1 were analysed using a principal components factor analysis with varimax rotation. This appendix details the Kaiser-Meyer-Olkin measure of sampling adequacy and the rotated factor solution obtained.

Table A10-1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.76
Bartlett's Test of Sphericity	Approx. Chi-Square	3701.95
	df	171
	Sig.	0.00

Table A10-2: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.95	20.76	20.76	3.95	20.76	20.76	3.16	16.64	16.64
2	2.69	14.17	34.93	2.69	14.17	34.93	1.99	10.45	27.09
3	1.56	8.21	43.14	1.56	8.21	43.14	1.97	10.39	37.48
4	1.49	7.83	50.97	1.49	7.83	50.97	1.89	9.95	47.42
5	1.22	6.44	57.41	1.22	6.44	57.41	1.66	8.72	56.14
6	1.01	5.289	62.69	1.01	5.29	62.69	1.25	6.55	62.69
7	0.99	5.20	67.89						
8	0.80	4.23	72.13						
9	0.76	4.00	76.13						
10	0.65	3.42	79.55						
11	0.64	3.35	82.91						
12	0.58	3.07	85.98						
13	0.52	2.75	88.73						
14	0.47	2.45	91.18						
15	0.41	2.16	93.32						
16	0.39	2.08	95.42						
17	0.35	1.85	97.26						
18	0.32	1.71	98.97						
19	0.19	1.03	100.00						

Table A10-3: Rotated Component Matrix

	Component					
	1	2	3	4	5	6
F14	0.840	-0.022	0.095	0.234	-0.0017	-0.040
F9	0.805	-0.046	0.113	0.276	0.0027	-0.036
F2	0.700	-0.144	0.167	0.271	0.091	-0.126
F19	0.666	0.117	-0.269	-0.061	0.102	0.007
F18	0.631	0.130	0.097	-0.107	-0.012	0.271
F15	0.596	0.098	-0.332	0.037	0.179	-0.036
F17	0.041	0.824	0.090	0.122	-0.013	0.074
F11	0.034	0.798	0.128	-0.011	0.032	0.138
F6	0.0025	0.642	0.092	0.186	0.114	-0.124
F7	0.032	0.104	0.818	0.065	0.068	-0.038
F4	-0.019	0.101	0.766	0.129	0.166	0.101
F12	-0.0196	0.228	0.568	0.0035	0.179	0.330
F1	0.077	0.0067	0.046	0.777	0.111	0.064
F8	0.144	0.106	0.195	0.706	-0.023	0.136
F13	0.163	0.203	-0.093	0.672	0.054	-0.008
F3	0.035	0.048	0.142	0.064	0.852	-0.008
F10	0.141	0.055	0.165	0.085	0.780	0.124
F16	0.152	0.202	0.061	0.064	0.306	0.715
F5	0.139	0.146	-0.161	-0.183	0.290	-0.661

APPENDIX 11 Analyses for group differences, Study 1

(1) These results correspond to section 9.4.2.2 in the main text, detailing the analysis conducted on reported mental health differences by rank. Significant differences between groups as identified by Tukey's Honestly Significant Difference are detailed next to the group mean information.

Table A11-1: Anova results for reported mental health differences by rank, Study 1

		Sum of Squares	df	Mean Square	F	Sig.
Self Esteem	Between Groups	128.12	3	42.71	5.80	0.00
	Within Groups	5041.89	685	7.36		
	Total	5170.02	688			
Means: Jnr officer 16.9, SNCOs 16.6, Maj & above 16.6, Cpl & Below 15.8 (sig: Cpl & JnrOff/SNCO)						
Neuroticism	Between Groups	139.77	3	46.59	2.85	0.04
	Within Groups	11245.84	688	16.35		
	Total	11385.61	691			
Means: Cpl & Below 12.1, SNCOs 11.7, Jnr officer 11.1, Maj & above 10.8 (sig: Cpl & Maj)						
Mastery	Between Groups	357.64	3	119.21	8.54	0.00
	Within Groups	9536.27	683	13.96		
	Total	9893.91	686			
Means: Jnr officer 22.1, Maj & above 21.7, SNCOs 21.1, Cpl & Below 20.1 (sig: Cpl & rest)						
Trait Anxiety	Between Groups	245.05	3	81.68	8.46	0.00
	Within Groups	6641.02	688	9.65		
	Total	6886.07	691			
Means: Cpl & Below 11.1, SNCOs 10.1, Jnr officer 9.8, Maj & above 9.7 (sig: Cpl & rest)						
GHQ12	Between Groups	101.09	3	33.69	3.68	0.01
	Within Groups	6240.79	682	9.15		
	Total	6341.89	685			
Means: Cpl & Below 2.7, SNCOs 2.1, Jnr officer 2.1, Maj & above 1.6 (sig: Cpl & Maj)						
Prob grp	Between Groups	0.65	3	0.22	2.27	0.08
	Within Groups	66.32	696	9.528E-02		
	Total	66.96	699			
No significant difference between means.						
Devaluation	Between Groups	116.45	3	38.82	4.09	0.01
	Within Groups	6498.72	685	9.49		
	Total	6615.18	688			
Means: Cpl & Below 8.5, Maj & above 7.8, SNCOs 7.7, Jnr officer 7.5, (sig: Cpl & SNCOs)						
Social Supt	Between Groups	64.97	3	21.66	2.85	0.04
	Within Groups	5213.96	686	7.60		
	Total	5278.93	689			
Means: Jnr officer 8.8, Maj & above 8.4, Cpl & Below 8.0, SNCOs 7.8 (sig: Jnr Off & SNCO)						
Avoidance	Between Groups	256.19	3	85.39	11.92	0.00
	Within Groups	4942.91	690	7.16		
	Total	5199.10	693			
Means: Cpl & Below 8.2, SNCOs 7.3, Jnr officer 6.9, Maj & above 6.7 (sig: Cpl & rest)						

Change sitn	Between Groups	277.63	3	92.54	17.06	0.00
	Within Groups	3743.33	690	5.43		
	Total	4020.95	693			
Means: Maj & above 11.3, Jnr officer 10.9, Cpl & Below 10.2, SNCOs 9.6 (Sig: Maj & rest; Jnr Off & SNCOs)						

(2) These results correspond to section 9.4.2.3 in the main text, detailing the analysis conducted on reported mental health differences by age (five age groups).

Table A11-2: Anova results for reported mental health differences by age, Study 1

		Sum of Squares	df	Mean Square	F	Sig.
Neuroticism	Between Groups	284.98	4	71.25	4.42	0.00
	Within Groups	11108.53	689	16.12		
	Total	11393.51	693			
Means: 17 to 21=13.1, 22 to 25=12.4, 26 to 30=11.4, 31 to 39=11.4, Over 40=10.9 (sig: 17-21 & 26 above)						
GHQ12	Between Groups	113.48	4	28.37	3.11	0.02
	Within Groups	6239.24	683	9.14		
	Total	6352.72	687			
Means: 17 to 21=2.3, 22 to 25=3.0, 26 to 30=2.3, 31 to 39=1.8, Over 40=2.0 (sig: 22-25 & 31-39)						
Prob grp	Between Groups	0.96	4	0.24	2.53	0.04
	Within Groups	66.03	697	9.473E-02		
	Total	66.99	701			
Means: 17 to 21=0.10, 22 to 25=0.17, 26 to 30=0.09, 31 to 39=0.07, Over 40=0.09 (sig: 22-25 & 31-39)						
IES	Between Groups	3336.31	4	834.08	2.93	0.02
	Within Groups	104154.9	366	284.58		
	Total	107491.3	370			
Means: 17 to 21=10.2, 22 to 25=14.5, 26 to 30=9.4, 31 to 39=11.9, Over 40=8.7 (sig: 22-25 & 26-30)						

(3) These results correspond to section 9.4.2.4 in the main text, detailing the analysis conducted on reported mental health differences by unit (four groups).

Table A11-3: Anova results for reported mental health differences by unit, Study 1

		Sum of Squares	df	Mean Square	F	Sig.
Devaluation	Between Groups	148.97	3	49.66	5.27	0.00
	Within Groups	6450.18	684	9.43		
	Total	6599.16	687			
G3(Inf) 8.9, G1 Corps 8.1, G3(non Inf) 7.9, G4 Corps 7.3 (sig: G3(Inf) & G3(non)/G4)						
Symptom Reduction	Between Groups	37.32	3	12.44	2.93	0.03
	Within Groups	2915.06	686	4.25		
	Total	2952.37	689			
G3(Inf) 9.5, G1 Corps 9.2, G3(non Inf) 9.2, G4 Corps 8.9 (sig: G3(Inf) & G4)						

(4) These results correspond to section 9.4.2.5 in the main text, detailing the analysis conducted on reported mental health differences by marital status (three groups).

Table A11-4: Anova results for reported mental health differences
by marital status, Study 1

		Sum of Squares	df	Mean Square	F	Sig.
Avoidance	Between Groups	105.33	2	52.66	7.18	0.00
	Within Groups	5064.17	690	7.34		
	Total	5169.49	692			
Means: Single 8.2, separated 8.1, married 7.4						<i>(sig: single & married)</i>
Change sitn	Between Groups	61.17	2	30.58	5.34	0.01
	Within Groups	3950.37	690	5.73		
	Total	4011.54	692			
Means: Separated 10.3, married 10.2, single 9.5						<i>(sig: single & married)</i>
Trait Anxiety	Between Groups	119.61	2	59.11	6.09	0.00
	Within Groups	6745.41	687	9.82		
	Total	6865.02	689			
Means: Single 11.3, separated 10.8, married 10.3						<i>(sig: single & married)</i>
Self Esteem	Between Groups	132.38	2	66.19	9.02	0.00
	Within Groups	5029.61	685	7.34		
	Total	5161.99	687			
Means: Married 16.5, separated 15.9, single 15.5,						<i>(sig: single & married)</i>

APPENDIX 12

Analyses for group differences, Study 2

Repeated measures anovas by the occurrence of a significant life event.

Table A12-1: Tests of Within-Subjects Contrasts, GHQ12 dependent variable

Source	TIME	Type III Sum of Squares	df	Mean Square	F	Sig.
Time		4.15	1	4.15	0.87	0.35
Time * Sig event		29.25	1	29.25	6.11	0.01
Error(Time)		808.97	169	4.79		

Table A12-2: Tests of Between-Subjects Effects, GHQ12 dependent variable

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	2543.03	1	2543.03	249.24	0.00
Sig event	168.36	1	168.36	16.50	0.00
Error	1724.33	169	10.20		

Table A12-3: Descriptive statistics, GHQ12 dependent variable

	Significant event	Mean	Std. Deviation	N
T1 GHQ	0	1.87	2.50	100
	1	3.89	3.54	71
	Total	2.71	3.13	171
T2 GHQ	0	2.24	2.49	100
	1	3.07	2.46	71
	Total	2.59	2.51	171

Table A12-4: Tests of Within-Subjects Contrasts, Avoidance dependent variable

Source	Time	Sum of Squares	df	Mean Square	F	Sig.
Time		36.69	1	36.69	7.97	0.01
Time * Sig event		0.49	1	0.49	0.11	0.75
Error(Time)		791.68	172	4.60		

Table A12-5: Tests of Between-Subjects Effects, Avoidance dependent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	24501.22	1	24501.22	2107.19	0.00
Sig Event	42.94	1	42.94	3.69	0.06
Error	1999.91	172	11.63		

Table A12-6: Descriptive statistics, Avoidance dependent variable

	Significant event	Mean	Std. Deviation	N
T1 Avoidance	0	8.53	2.87	102
	1	9.17	2.96	72
	Total	8.79	2.92	174
T2 Avoidance	0	7.79	2.75	102
	1	8.58	2.84	72
	Total	8.12	2.801	174

Table A12-7: Tests of Within-Subjects Contrasts, Accommodation dependent variable

Source	Time	Sum of Squares	df	Mean Square	F	Sig.
TIME		0.14	1	0.14	0.04	0.85
Time * Sig event		31.28	1	31.28	8.44	0.00
Error(Time)		611.35	165	3.71		

Table A12-8: Tests of Between-Subjects Effects, Accommodation dependent variable

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	22478.45	1	22478.45	2310.99	0.00
SIGYN	22.57	1	22.57	2.32	0.13
Error	1604.91	165	9.73		

Table A12-9: Descriptive statistics, Accommodation dependent variable

	Significant event	Mean	Std. Deviation	N
T1 Accom	0	8.39	2.74	98
	1	8.30	2.38	69
	Total	8.36	2.59	167
T2 Accom	0	7.74	2.67	98
	1	8.88	2.45	69
	Total	8.201	2.64	167

Repeated measures anovas by the receipt of stress education.

Table A12-10: Tests of Within-Subjects Contrasts,
Avoidance dependent variable

Source	Time	Sum of Squares	df	Mean Square	F	Sig.
Time		36.82	1	36.82	7.76	0.01
Time * Stress Ed.		1.60	1	1.60	0.34	0.56
Error(Time)		768.78	162	4.75		

Table A12-11: Tests of Between-Subjects Effects, Avoidance dependent variable

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	22820.56	1	22820.56	2089.27	0.00
Stress Ed	0.12	1	0.12	0.01	0.92
Error	1769.49	162	10.92		

Table A12-12: Descriptive statistics, Avoidance dependent variable

	XA52	Mean	Std. Deviation	N
T1 Avoid	0	8.807	3.01	93
	1	8.70	2.66	71
	Total	8.76	2.86	164
T2 Avoid	0	7.99	2.71	93
	1	8.17	2.77	71
	Total	8.01	2.79	164

Table A12-13: Tests of Within-Subjects Contrasts,
Social Support dependent variable

Source	Time	Sum of Squares	df	Mean Square	F	Sig.
Time		17.12	1	17.12	4.16	0.04
Time * Stress Ed		3.85	1	3.85	0.94	0.34
Error(Time)		666.65	162	4.12		

Table A12-14: Tests of Between-Subjects Effects, Social Support dependent variable

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	23118.81	1	23118.81	1966.69	0.00
Stress Ed	30.06	1	30.06	2.56	0.11
Error	1904.34	162	11.76		

Table A12-15: Descriptive statistics, Social Support dependent variable

	Stress Ed	Mean	Std. Deviation	N
T1 Social Support	0	8.52	2.94	94
	1	8.91	2.92	70
	Total	8.69	2.93	164
T2 Social Support	0	7.84	2.58	94
	1	8.67	2.86	70
	Total	8.19	2.72	164

Table A12-16: Tests of Between-Subjects Effects, Dependent Variable: Neuroticism

Source	Sum of Squares	df	Mean Square	F	Sig
Corrected Model	404.51	6	67.42	4.19	0.00
Intercept	94655.12	1	94655.16	5886.56	0.00
STATUS	0.304	1	0.30	.019	0.89
RANK2	149.95	1	149.95	9.326	0.002
AGE	254.26	4	63.56	3.953	0.004
Error	10934.32	680	16.08		
Total	105994	687			
Corrected Total	11338.84	686			

a R Squared = .036 (Adjusted R Squared = .027)

Table A12-17: Descriptive statistics, Neuroticism dependent variable

Age	Mean	Std. Deviation	N
17-21	13.28	7.76	61
22-25	12.46	3.63	152
26-30	11.41	3.25	221
31-40	11.37	3.43	180
41 +	10.86	3.69	73
Total	11.74	4.07	687