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Work Stress:

Conceptualisations and Implications for Research Methodology and Workplace Intervention

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"The aetiology of this patient's panic disorder is probably multifactorial. Although this patient does have a family history of panic disorder (which is not uncommon and found in 25% of such patients) environmental factors would appear important in determining the onset of his illness. Mr....first developed his anxiety symptoms in a period when he felt very stressed by his work situation and it is interesting that he has had exacerbation of his symptoms when he has found himself in a situation where he has felt out of control and trapped...and that senior...staff have been unsympathetic about his concerns..."

Workers' Compensation Psychiatric Report, January 1992.

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ABSTRACT

This thesis examines different conceptualisations of work stress, and the implication of these for research methodology and workplace intervention. Prominence was given to the Demand-Control/Support (DC/S) model, because of its dominance in the work stress literature, and its continued ability to account for health and productivity outcomes. This model emphasises the role of the work environment (in contrast to the individual), specifically the combination of high demands, low control and low support in the development of occupational strain.

In response to a real life problem, a study was undertaken to ascertain levels and sources of occupational strain for Correctional Officers (COs). As far as possible a participative methodology was used in the study. A multi-factorial model of work stress was proposed including the following key risk factors: shift work, length of service, financial worries, job classification, trait anxiety, work environment, and coping styles. The DC/S model showed some limitations in accounting for high levels of strain within the organisation compared to other occupations. Follow up analyses showed a high degree of utilisation of results and recommendations, especially in the area of support services for COs.

Further, specific theoretical tests of the DC/S model were undertaken to assess its relevance in accounting for differences in levels of strain and well-being, between occupations, within occupations, and at the individual case level. The DC/S model showed some utility in accounting for different levels of well-being and strain between two occupations (COs, N=419 and nurses, N=109). Two further studies provided support for the utility of the model in predicting with-in occupational differences in level of strain and well-being. Using hierarchical regression analysis, and controlling for a range of confounding measures (including trait anxiety), strong support for an additive DC/S model was found in the CO data; modest support for an interactive Demand-Control model was found in nurses (N=65) using both cross-sectional and prospective data (taken one year later) after further control for initial strain levels. Finally, a case analysis of COs (N=8) showed that compared to occupation level data (COs, N=419), levels of strain and well-being could be predicted in individual cases by the kind of job they occupied as per DC/S theory.

The thesis concludes by reconsidering DC/S theory in the context of the results of the studies, and broader paradigm shifts in conceptualisations about health and work. Future directions for psychologists in the area are proposed.

SIGNED STATEMENT

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by any other person, except where due reference has been made in the text.

I give my consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

Signed

Date 30th April 1996

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Chapter 1

1.1 The work stress problem

In recent years, occupational stress and workplace health and well-being have become issues of central concern both internationally and nationally, for management, labour and the individual worker (Keita & Hurrell, 1994). Escalating costs related to stress are reported in industrial countries world-wide (Karasek & Theorell, 1990). In the U.S.[1], workers' compensation stress claims tripled from 1980 to 1986 (Grippa & Durbin, 1986) and losses to the economy associated with job stress were estimated to be $150 billion per year (Freudenheim, 1987). Further, the National Institute for Occupational Health and Safety identified psychological disorders (including neurosis, personality disorder and alcohol and drug dependency) as one of the 10 leading occupational diseases and injuries in the U. S. These disorders are usually investigated under the rubric of "job stress" (Sauter, Murphy, & Hurrell, 1990). In the United Kingdom, the cost to industry of staff who underperform due to stress was estimated to be around 3,000 million pounds (Cox, Leather, & Cox, 1990). Similarly in Sweden the number of workers' compensation claims grew from 190,000 in 1980 to 260,000 in 1988, although the specific number of stress claims was not identified (Karasek & Theorell, 1990). Levi (1990) claimed from an earlier World Health Organisation report (1987) that about 75% of people who consult psychiatrists do so because of problems that can be linked to job dissatisfaction or the inability to relax.

In Australia, the cost of organisational/occupational stress was estimated recently by the Federal Assistant Minister for Industrial Relations to be around $30 million (*The Australian*, 17 June 1994). For Australian government workers in the Commonwealth claims for stress-related illness in 1989 amounted to 3.9% of all worker's compensation claims and 13% of costs. By 1990-91 these figures had increased to 4.6 and 18% respectively (Toohey, 1992). Stress claims were estimated to average A$29,000 each. These figures are assumed to be conservative and do no include additional costs of staff replacement and retraining, special supervision, workflow interference, unplanned absences and service complaints, and the cost of sick leave leading up to the compensation claim (Toohey, 1994).

Economic costs of work stress along with worker rehabilitation legislation have provided the impetus to consider seriously the impact of stress in the workforce on workers. Under the Workers' Rehabilitation and Compensation Act 1986, stress arising out of work is compensable.

Locally there has been a considerable increase in stress claims in the last triennium among government workers in South Australia. During the 1990/1991 period the Government Worker's Rehabilitation and Compensation Office was expecting to pay over $10 million in benefits to stress related claims in South Australia (personal communication, July 1991). In 1991, the Department of Correctional Services commissioned a study of stress among its

workers, the first of its kind in the state of South Australia. The Department for Family and Community Services has recently commissioned a similar study (February 1996).

Against this background, the assumed positive benefits of work have been challenged. Work has long been proclaimed to provide an important facet to the developing identity (Erikson, 1982). It has been argued that employment (even bad jobs) can provide latent benefits: first, they provide a time structure for the waking day; second, they involve regular contact with people outside the nuclear family; third, they involve people in shared goals; fourth, they provide a sense of identity; and fifth, they enforce activity (Jahoda, 1982).

A long tradition of research has explored the impact of unemployment on health and well-being, on the assumption that employment has beneficial effects. Longitudinal studies have shown that a significant deterioration in affective well-being results from job loss (Cobb & Kasl, 1978; Linn, Sandifer, & Stein, 1985). Moreover, the reverse experience, re-entry into the workforce, has led to significant improvements in mental health (Payne & Jones, 1987; Warr & Jackson, 1985).

However more discerning assessments of the work experience have made these results conditional. In a ten year longitudinal study of South Australian school leavers, Winefield, Winefield, Tiggemann, and Goldney (1993) drew the broad conclusion that being satisfactorily employed enhanced psychological growth and self-esteem, but being unsatisfactorily employed was detrimental to psychological health and psychologically akin to being unemployed. A similar large scale study of unemployed young people, also supports this conclusion (O'Brien & Feather, 1990).

Various reviews of the now extensive work stress literature (e.g. Ganster & Schaubroeck, 1991) and empirical tests (Karasek, 1979; 1989; Parkes, 1982; Wall & Clegg, 1981) have concluded that prolonged exposure to work-related psychosocial stressors can have negative mental and physical health consequences for employees. Manifestations of work stress are hypothesised to include impaired performance, increased absenteeism due to illness, and turnover, and risks for the development of physical illness as occupational stress increases (Sauter, Murphy, & Hurrell, 1990).

A number of recent changes in the nature of the workforce will further contribute to the growth of the stress problem. Global economic demands of international competition have required restructuring of many organisations in both the private and public sectors, which has led to change and uncertainty. The threat of job loss or job insecurity in the context of high unemployment has been a reality for Australian workers for the past decade. The introduction of new technology and changes, exposing gaps between new skills required and new skills possessed are major challenges to workers (Landy, Quick, & Kasl, 1994). Projected growth in service producing industries is of particular concern as service workers have been identified as at risk for the development of psychological disorders (Landy, 1992).

In a rare public exposition of the social costs of unfettered economic rationalism, Eva Cox, a leading Australian feminist and social reformer, in an interview on ABC Lateline (8th. November 1995), argued for "social capital" (i.e. investments in humanitarian ideals e.g. social support) in organisations and the community. Cox discussed the breakdown of trust and

confidence in the community, about the public service, as a result of economic rationalism. She argued that the work place community needs "social capital" to help develop a culture of trust, and to remedy the isolating effects of competition.

Against this contextual background of the changing nature of work, the nature of the workforce is rapidly changing with many more women, aging, and ethnic minority workers entering than ever before (Keita & Hurrell, 1994). New demands and issues arising in the workplace will lead to an increased need for continued research on workplace stress.

Research and publications in the area of occupational stress have burgeoned in the past two decades (Spielberger, 1995) and this trend is unlikely to change given the associated personal, industrial and economic costs.

1.2 Status of work stress as a national health issue

The problem of occupational stress has been raised at a national level in a number of countries, prompting advances in occupational health policy mainly in Sweden and the United States[2]. Levi (1990) reported that the Swedish Government Commission for Work Environment and Health was established in 1990 to identify present, and predict future work-related illnesses and to propose recommendations for environmental and health action to remove or reduce such risks.

Similarly in North America a national strategy to protect and promote the psychological health of workers by the National Institute for Occupational Safety and Health (NIOSH) has been developed. It represented a first attempt to fashion a comprehensive national strategy to protect and promote the psychological health of workers. Roles were identified for industry, labour, government and academia. The two key initiatives were: "(a) steps to improve the working conditions and employee mental health services and (b) increased research and surveillance to advance understanding of the problem" (Sauter, Murphy, & Hurrell, 1990).

The Swedish government also established a Work Life Fund in 1989, amended in 1991. The program makes it beneficial for employers to promote working conditions. According to Levi (1993), the program, earmarked for $3 billion for a six-year period, uses funds from taxes on company profits. The funds are then cycled back to companies on the basis of good proposals for humanistic changes in the workplace.

In Australia, the call for the National Occupational Health and Safety Commission (NOHSC) to develop a national action plan to address the issue of stress in the workplace heightened in 1991 with pressure from component States. A position paper was proposed which incorporated the results of consultation with employers, as conveyed by the Confederation of Australian Industry, and the employee view as conveyed by the Australian Council of Trade Unions.

In March 1992, an action plan was proposed which considered the following primary activities: (a) research, to define stress with the aim of developing a uniform working definition for Worksafe Australia's[3] activities, to review how Workers' Compensation Authorities and

how medical practitioners currently deal with stress patients, and (b) education, to develop training material and information on stress in the workplace. Actions in the medium term were identified as: (a) research, to identify ways of improving coding of stress related disorders for the National Data Set, to review interventions including work environment and individual interventions, and to develop a line of research with one or two known stressors; (b) a code of practice to develop a model Code of Practice on interventions for the management of stress in the workplace, to focus not on solutions to specific stressors, but to cover the process by which solutions could be implemented and evaluated; and (c) education, to develop reports on successful interventions for stress in the workplace (NOHSC, 27th meeting, 17-18 March, 1992). Whilst the National Commission "notes that occupational stress is a problem for Australian industry" (NOHSC, 25th meeting, 17th September 1991), the development of a national strategy on occupational stress in Australia is embryonic and the resources to develop it appear severely limited.

In the meantime Australia lags behind the U.S. and Sweden in conceptualising the extent and nature of the stress problem. Evidence for this statement comes from the following observations. First, the first National Occupational Stress Conference "Stress and Well-being at Work" was held in Australia as late as June 1994, sponsored by the Australian Psychological Society. Second, the National Institute of Occupational Health and Safety (Worksafe Australia) mentioned earlier in this section, still reports problems with its current data base, and is still working on a "strategic approach to reducing stress in the workplace" (Williamson, 1994). Finally, Worksafe Australia Publications List, May 1994, contained no subject reference to occupational stress.

The conceptualisation of the occupational stress issue in Australia as a mainstream management issue rather than merely an individual issue is not wide reaching (Mitchell, 1994; Toohey, 1992). For example, in a recent Worksafe Australia report of 24 evaluative studies of stress interventions being conducted in Australia, only 3 focused on change at the organisational level (Williamson, 1994). In contrast, 21 organisational stress interventions focused on the *individual* (e.g. stress management programs, relaxation etc.) (Williamson, 1994).

The politics involved in conceptualising the stress problem and in recognising psychological disorder as a leading occupational health issue in Australia, has no doubt impaired advances towards recognising occupational stress as a national policy issue. This has implications for its prevention and treatment and for funding dollars needed to conduct research in the area (Spillane, 1986).

1.3 Perspectives on the stress problem

During the 1980s an intense debate reigned in Australia over the causation of Repetitive Strain Injury (RSI), also referred to as the "Australian Syndrome", because of its apparent lack of presentation internationally (see Quinlan & Bohle, 1991 for a comprehensive discussion).

The dominant view was that it was a psychological problem, a conversion disorder or occupational neurosis, requiring psychiatric intervention (Lucire, 1988). Emotional stress and attitudes to work (job dissatisfaction) were held to contribute strongly to the maintenance and development of the physical symptom (Kiesler & Finholt, 1988; Mullaly & Grigg, 1988).

Another view was that RSI should be viewed in the broader context of modern capitalism, because of the excessive productivity demands and dehumanisation employees endured at work (Russell, 1988a:b; Willis, 1989). Workers most afflicted, women and ethnic workers, were from the lowest positions in office and factory jobs, and had little power to change working conditions. These workers suffered advanced tenosynovitis through continuing to work in adverse conditions because of fear of dismissal (Otto, 1985).

In a review of the RSI literature, Kiesler and Finholt (1988) proposed that RSI indicated a larger social problem. They believed RSI was a manifestation of dissatisfaction in the workplace that was revealed when changes in work practices and increased productivity demands, accompanied the introduction of new technology. These changes included reduced staffing levels, increased workloads, faster pacing of work, fewer rest breaks, and increased overtime and shiftwork. Workers with an adequate degree of autonomy could self-correct. Workers in office and factory jobs, on the other hand, worked in jobs with requirements and incentives which formed barriers to these corrective measures. Consequently these workers were more likely to show RSI complaints. On the basis of this reasoning, Kiesler and Finholt recommended an analysis of the problem which focused on the social/economic/political context of the problem, and explored the question "what is it about work that these RSI victims perform that causes them to escape the workplace?".

Another view was that RSI was a form of industrial resistance. Although it recognised that RSI was a real physical injury, it emphasised social factors in the *reported* incidence, that may have little to do with the real incidence of the condition (Willis, 1986). This argument sometimes led to blaming the individual unfairly for the problem.

The analysis of RSI problem showed me a range of theoretical frameworks for viewing the problem, and each had clear and poignant implications for problem responsibility and intervention (Quinlan & Bohle, 1991). Two clear perspectives emerged. The psychological/ psychiatric view had the person as central in the process; the sociological view had the structure and management of work as central in the onset of occupational stress.

1.4 Prevailing intervention strategies

Whether for economic or humanitarian reasons, stress management programs for employees become very popular in Australia by the late 1980s. These programs mainly used techniques based on psychological theories and focused on coping, cognition, and behaviour modification.

My experience in the programs led to the conclusion that they were deficient in several respects. First, they fell critically short of changing organisational characteristics which were frequently described by participants to be a major source of stress. Second, the stress

management programs focused responsibility on the worker rather than the organisation. Workers were required to learn a repertoire of new behaviours to manage the problem. This approach had obvious limitations when stressors were identified to be related to the control/power structure of the workplace. Third, the programs were organised in work time, and were removed from the work context. It was difficult therefore to have more than one or two workers per location attend at the same time. As a consequence, the opportunity for group action back at the organisation was very limited. Fourth, the programs were remedial, rather than proactive approaches to organisational change. Fifth, there were no feedback mechanisms to provide information back to the organisation. Managers rarely attended the sessions. On the one hand I felt I was helping the employees, but on the other I felt that the approach was band-aid.

This experience led me to consider the organisational, individual, political, and economic implications of different occupational stress approaches in their emphasis on environment and the individual respectively. This thesis evolved in the context of these concerns.

1.5 Research problem and aims of the study

The gap between research and practice was exposed most recently by Burke (1993) claiming:

> "little awareness of research findings by practitioners (managers, consultants, clinicians), little intervention activity being undertaken at the organizational level, little research being undertaken to determine the effectiveness of individual level interventions, and only modest use of work research findings for intervention and policy development" (p. 85).

Theoretical models of work stress are important because they suggest a focus for intervention, and inform practice. On the other hand, because of their limitations, and operationalisation problems, theories may not be as useful practically as they ought to be. The focus of the thesis will be on both theoretical and applied issues. It is clear that there is a link between psychosocial aspects of the work environment and the health and well-being of workers but the mechanism by which this occurs is unresolved.

The first aim of the thesis is to explore different theoretical conceptualisations of work stress, their methodological requirements, and the implications of these theories for practical intervention.

The second aim of the thesis is to respond to a real life organisational stress problem and document the experience in the context of social, individual, environmental, economic, and political factors that affect the health of workers. When research is problem driven, that is stimulated by an organisation with a work stress problem, the mere interpretation of the problem has profound implications for a range of stakeholders. The imperatives of the applied research may necessitate a research process that is not strictly theory driven, but rather inductive (and inclusive in terms of wide-ranging stress sources) in nature. The results of the applied study should contribute not only to an understanding of work stress for the organisation, but

should contribute more generally to methodological knowledge, to possible intervention taxonomies, to an understanding of the politics of intervention, and the development of work stress theory.

The third aim of the thesis is to assess the dominant contemporary theoretical model of work stress, the Job Demand-Control Model (Karasek, 1979) and the expanded model, the Demand-Control-Support Model (Johnson & Hall, 1988). These models are referred to collectively in the thesis as the Demand-Control/ Support model (DC/S model). The relevance of this model, in accounting for differences in levels of strain and well-being will be assessed between occupations, with-in occupations, and at the individual case level.

Together the results of the theoretical and applied studies should contribute to future theory development in work stress research. Finally, an important role for the psychologist is identified not only in terms of work stress theory development, i.e. what is stress and why it exists, but also in terms of work stress solutions, i.e. what can be done (including applied research).

1.6 Overview of the thesis

The thesis is presented in four parts. Part I is concerned broadly with conceptualisation, measurement, operationalisation, and intervention issues as they relate to theories of work stress. *Chapter 2* examines various conceptualisations of work stress, summarises broad approaches to the conceptualisation of work stress and defines the key concepts used in the thesis. *Chapter 3* reviews psychological models, the Person-Environment Fit Model, and the cognitive-phenomenological model. *Chapter 4* reviews sociological models of work stress, the Job-Demand Control Model and the Demand-Control-Support Model.

Chapter 5 examines values, assumptions and the politics of applied work stress research. Finally, *Chapter 6* discusses measurement and research design issues for work stress research.

Part II of the thesis documents a study of stress among correctional officers (COs). Specifically it is a workplace assessment and intervention study commissioned by the Department of Correctional Services. *Chapter 7* provides a background to the problem, and a review of the literature as it relates to the health and well-being of correctional officers (COs). Next *Chapter 8* discusses the applied research method, specifically the consultative processes used, the nature of the study sample, and the measurement instrument. *Chapter 9* provides the general results of the study, and *Chapter 10*, gives a discussion of the general results of the study. *Chapter 11* provides a more focused test of the DC/S model in COs. *Chapter 12* assesses the DC/S model at the individual case level. *Chapter 13* provides some concluding comments on occupational stress in COs, and provides some theoretical interpretations of the results, and discusses the methodological limitations of the studies. Finally, *Chapter 14* outlines recommendations for intervention, and *Chapter 15* attempts to evaluate the impact of the CO study in the organisation.

Part III is concerned with further theoretical work stress research on the DC/S model. *Chapter 16* further assesses the utility of the DC/S model in predicting differences in levels of strain predicting individual levels of strain *within* the nursing occupation. Part IV assesses the utility of the DC/S model in predicting differences in levels of strain *between* two occupations, COs and nurses.

The final part, Part V, in Chapter *18* concludes by reconsidering DC/S theory in the context of the results of the studies, and broader paradigm shifts in conceptualisations about health and work. Future directions for psychologists in the area are proposed.

NOTES

1. A list of abbreviations is given in Appendix 1.

2. Part of the chapter is based on: Dollard, M. F. & Winefield, A. H. (1996). Managing occupational stress: A national and international perspective. *International Journal of Stress Management, 3,* 69-83.

3. The mission of Worksafe Australia is to lead national efforts to provide healthy and safe working environments and to reduce the incidence and severity of occupational injury and disease, based on the National Occupational Health and Safety Commission Act, 1985 (Commonwealth of Australia).

PART I

Work Stress: Conceptualisation, Measurement, Operationalisation, and Intervention

Chapter 2

WORK STRESS: CURRENT CONCEPTUALISATIONS

2.1 The nature and definition of stress

According to Beehr (1989), systematic research on job stress commenced with the pioneering work of Kahn and his colleagues in 1964 (Kahn, Wolfe, Quinne, & Snoek, 1964) on role stress. Since that time research in the area has burgeoned. Rather than resulting in a convergence of opinion about what stress is, divergent views prevail. The problem concerning a lack of common definition or conceptualisation of stress was highlighted in Schuler's (1980) definitional work of stress in organisations, by Cox (1981) and more recently (Beehr, 1987; Beehr & Franz, 1987; Dewe, 1992 a;b; Eulberg, Weekley & Bhagat, 1988; McCrae, 1990). The situation has led to claims that the construct itself is a red herring, obstructive to the thorough examination of psychological disturbances and intervention in organisations (Duckworth, 1985). Explanations of what stress is, have arisen from a variety of views, with diverse roots in medicine, clinical psychology, engineering psychology, and organizational psychology. A number of conceptual frameworks have evolved to describe and explain antecedents and consequences and the proposed relationships between them. Three broad approaches have dominated the stress literature: response based; stimulus based; and stimulus-response models. These frameworks, their assumptions, and remarks on the approaches will be discussed in the next subsection.

2.2 Response-based models

Response-based models depict stress as an outcome of a stressor agent, or in other words as a dependent variable (Cox, 1981). The approach received initial impetus from Selye (1956;1974). He defined stress as a non-specific response of the body to any demand made on it (Selye, 1956). Selye proposed the General Adaptation Syndrome (GAS), a general syndrome of physiological responses to long term exposure to stressful stimuli, in all people regardless of the nature of the stressor. He described three adaptational stages that occur with repeated exposure to a stressor: the alarm stage, the stage of resistance, and the stage of exhaustion. Each stage involved a number of physiological changes, adaptive in nature, to prepare the individual to "fight or flee" the stressor by mobilising energy resources.

Selye argued for the potential existence of first mediators of the stress response, that certain hormones or neural pathways were activated by stressors, and argued for a consistency of physiological responses to different stressors (McCarty, Horwatt, & Konarska, 1988).

Central to Selye's concept of stress was the adaptive function it served for the organism. In order for the body to maintain homeostasis it must attempt to adapt to the stressor. In the model stress was clearly regarded as a response (see Figure 2.1).

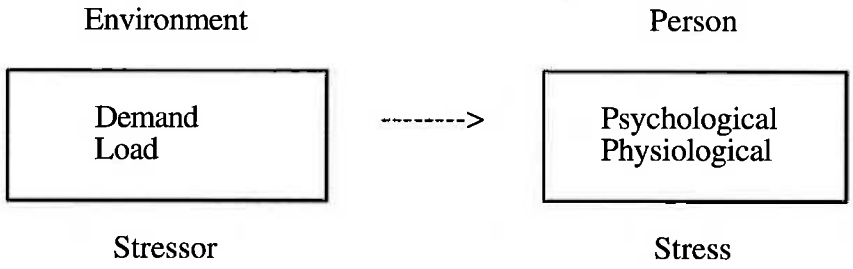


Figure 2.1 The Relation Between Stressor and Stress in the Response Based Model (adapted from Cox, 1981)

A number of criticisms have been made of the model. Selye's notion of "general response" was challenged by Mason's findings that stressful stimuli produce patterns of neuroendocrine activation that tend to be stressor-specific rather than general (Mason, 1974; Mason, Maher, Hartley, Mougey, Perlow, & Jones, 1976). In particular exercise, fasting and heat did not produce the GAS entirely.

Further, evidence was uncovered which suggested that different responses to stressors occurred according to the *coping style* used by the organism (Frankenhaeuser, 1982; Mason, 1975). High levels of adrenalin appeared to be linked to a fear reaction or a flight response, noradrenalin to an anger reaction, or fight response and corticoid (cortisol) secretion seemed to be triggered by a loss of control, feelings of dejection and depression. More recently others have suggested that cortisol is associated with the experience of unpleasant conditions and a sense of losing control (Henry, 1986). These studies provided evidence for distinctive hormonal patterns and systems responding to diverse psychological processes, rather than merely to objective stressors.

Another criticism concerned the way Selye defined stress. The contemporary prevailing understanding of Selye's terminology is that "stress" really referred to stress reaction or strain (Baker, 1985). According to Baker (1985), Selye's definition of stress has been useful for general stress management, "but it has not proven to be useful for the evaluation of occupational stress" (p. 298). Specifically the definition of stress as a non-specific response has focused attention away from the work environment and toward the adaptive capacities of the individual.

Another major criticism of Selye's model from a psychological perspective was its inability to link physiological mechanisms to human perceptions, cognitions, emotions and behaviours (Grosser, 1985). Moreover, the cognitive theorists argued that it ignored "the qualitative forms of emotion and the social and psychological factors that generated them" (Lazarus & Folkman, 1984, p. 28). Selye's theory of stress, and other theories such as drive theory (Dollard & Miller, 1950), were rejected on the basis that they emphasised generalised arousal or mobilisation as the causal concept underlying the link between emotions (and the conditions that caused them) and somatic illness. Lazarus & Folkman (1984) argued that "a uni-dimensional concept of arousal must give way to the concept that different psychological

conditions or processes will affect the physiological response pattern in different ways" (p. 29).

They argue for example that Selye's notions of "eustress" or happy stress and "distress", imply that the "bodily response to different emotional states may well be critically different as it affects adaptational outcomes" (p. 208).

2.3 Stimulus-based approaches

In this approach stress is viewed as the independent variable. Stress is to be understood as a set of causes or what happens to the person (see Figure 2.2). Probably stemming from the early work of Walter Cannon in 1939 (Beehr, 1987) this approach has an engineering analogy, that is well described by Cox (1981). Stress is viewed as an environmental cause. A load (stress) can be endured by a metal provided the response (strain) is within an "elastic limit", and that "when the load is removed the metal will return to its original condition" (Cox, 1981, p. 13).

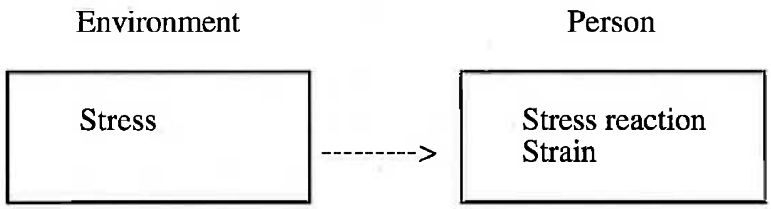


Figure 2.2 The Relation Between Stress and Strain in the Stimulus Based Models (adapted from Cox, 1981)

Outside the limits permanent damage may result: in humans, physiological or psychological damage may occur. The model can measure the point where collapse occurs because the stress is too demanding but can not predict that low demands might also be stressful (Cox, 1981). For example, Welford (1973) suggested a more complex stimulus-based approach, which curvilinearly relates the level of demand to the degree of felt stress or subsequent performance. Welford (1973) argued that submaximal performance is an indicator of stress, that an inverted U shape relates the efficiency of performance to demand. This kind of approach can predict that jobs with qualitative underload (too simple) and jobs with quantitative overload (too much) will produce stress reactions.

Stimulus based models describe stress in terms of stimulus characteristics of the environment, which are recognised as disturbing or disruptive (Cox, 1981).

Job characteristic approaches to occupational stress, that assume that job characteristics are important determinants of workers' behaviour and attitudes may be considered under this rubric (Hackman, 1969). However, in this tradition the antecedent stimulus is referred to as the "stressor". Approaches include the Job Characteristics Model (Hackman & Oldham, 1975; 1976; 1980), the Job Demand-Control Model, (Karasek, 1979), and the Vitamin Model (Warr,

1986; 1987). Because of their emphasis on the objective properties of the job, these approaches have also been referred to as *sociological* models or organizational models (Beehr & Franz, 1987). They view the stressor to be psychosocial rather than physical, and the organisation as the primary target for intervention.

Criticisms have been levelled at the response-based and stimulus-based approach for being descriptively simplistic and too mechanistic, with the individual treated as passive, and with no conceptualisation of individual psychological processes in the stress process (Cox, 1981; Grosser, 1985). The approaches do not account for individual differences in reactions to the same stress, the impact of stress exposures early in life, or the possibility of stress "resistance".

2.4 Stimulus-response models

Other dominant frameworks underpinning contemporary stress research are the *psychological* models or discrepancy models. Essentially these models assume that stress is a dynamic process matching aspects of demand against a person's resources or ability to cope (Cox & MacKay, 1984).

One orientation is the person-environment fit (P-E fit) concept proposed by French, Caplan and Van Harrison - the extent to which individual skills and abilities are matched by the demands of the job, and the extent to which person needs are supplied by the job. When misfit of either kind is present strains occurs. The P-E fit model emphasises psychological factors, such as skills, abilities, needs and perception, in the development of strain (French, Caplan, & Harrison, 1984).

Another orientation is the cognitive model of stress (not specifically work stress), which assumes that an appraisal process is necessary: "for threat to occur, an evaluation must be made of the situation to the effect that a harm is signified" (Lazarus, 1966, p. 44). Stress in these stimulus-response based models is not just the property of the body. It is the result of transactional psychobiological processes (Lazarus, 1966), and occurs when demands tax or exceed adjustive resources.

A major criticism of stimulus-response models is that although they can predict individual differences in the experience and reaction to stress, they can not predict which aspects of the work environment will be stressful (Baker, 1985).

It seems useful to summarise the main approaches, their historical antecedents, the nature of the stressor and outcome, the primary target for intervention and principal theorists. Table 1.1 expands on a table developed by Beehr and Franz (1987).

Table 2.1 *Approaches to Work Stress*

Approach	Historical Antecedents	Stressor	Outcome	Primary Target for Intervention	Principal Theorists
Response-based	Medicine	Physical	Physical Strain	Individual	] Selye
Stimulus-based	Engineering	Physical	Job Performance/ Productivity	Organisation	] Welford
	Industrial Sociologists Organisational Psychology, Ergonomy	Social Environment Psychological	Psychological Strain/ Physiological Strain/ Productivity	Organisation	] Karasek, Warr, Hackman & Oldham
Stimulus-response based	Clinical/ Counselling /Psychology	Psychological	Psychological Strain Physiological Strain	Individual	] Cox; Schuler; McGrath; French, Caplan, Harrison, Edwards; Lazarus; Dewe; Greenhaus & Parasuraman; Beehr & Bhagat.

Two major frameworks will be discussed in this thesis: the psychological model (stimulus-response) model and the organizational/ sociological model (stimulus-based) model. Physiological models (e.g. Selye) are not seen as relevant for this thesis.

2.5 Social psychological framework

Throughout the thesis psychological and sociological views of stress are contrasted. It ought to be pointed out however that although the two paradigms are at different extremes they may still be regarded as within a social psychological paradigm (Muntaner & O'Campo, 1993).

The aim of sociological social psychology is to study the effects of social structure on human behaviour or personality. Psychological social psychology, aims to study behaviour of individuals in social context. It is argued that sociological social psychology is a discipline between two ontological levels (the sociological and the psychological), whereas psychological social psychology situates itself at a single ontological level, the psychological (e.g. working shift work causes sleep disturbance) (Muntaner & O'Campo, 1993).

It is also argued that sociological social psychology is emergentist, that what happens at a sociological level can not be explained in psychological terms (e.g. unemployment rates can not be understood through examination at the psychological level of individual workers) (Muntaner & O'Campo, 1993). Further; it is also assumed that what happens at a sociological level can determine what happens at a psychological level (e.g. increased levels of unemployment lead to more work pressure and higher levels of depression in workers, as workers engage in longer hours to keep their jobs) (Muntaner & O'Campo, 1993). This is an assumption of the Job Demand-Control model (see Chapter 4), that the organisation of work itself affects strain and well-being (Karasek & Theorell, 1990).

2.6 Central terms of psychological and sociological models

In order to examine the different conceptualisations of work stress some definitional terms are now proposed for the thesis. Some are generic and underlie both psychological and sociological frameworks. Other definitions relate to one or other of the frameworks only. Further terms will also be defined to assist in the general discourse of the thesis.

2.6.1 Psychological definitions

Stress is a relationship between the person and the environment that is appraised as taxing or exceeding resources, and endangers well-being (Lazarus & Folkman, 1984). Consistent with recent conceptualisations *stress* is also defined as (e.g. Beehr & Bhagat, 1985; Cox, 1990; Edwards, 1988: 1992; Schuler, 1980), "the psychological state experienced by an individual when faced with demands, constraints and/ opportunities that have important but uncertain outcomes" (Greenhaus & Parasuraman, 1987, p. 38).

French, Caplan, and Harrison (1984), define stress as objective misfit, subjective misfit, a variable in the objective environment which is presumed to pose a threat to the individual, or a variable in the subjective environment which the person perceives as threatening (p. 5)

In the psychological models it is the *cognitive appraisal* of the work environment (Lazarus & Folkman, 1984), *perceived* stress (Greenhaus & Parasuraman, 1987) or *subjective* person-environment fit (French, Caplan & Harrison, 1984) that is the important ingredient. It is usually the starting point for empirical tests of the psychological the models, testing the relationship between cognitive appraisal and strain (line b) rather than the relation between the objective stressor and the perception or appraisal of it (line a) as shown in Figure 2.3 (see French et al., 1984, p.2). Of course the model is highly simplistic but captures the most fundamental relationships in a psychological paradigm.

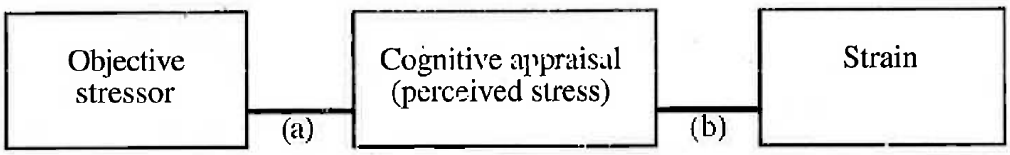


Figure 2.3 The Basic Psychological Paradigm

2.6.2 Sociological definitions

In contrast to psychological definitions, sociological definitions of stress emphasise the objective work environment as causal in the development of strain. According to Karasek, Baker, Marxer, Ahlbom, & Theorell (1981, p. 695) "strain results from the joint effects of the demands of the work situation (stressors) and environmental moderators of stress, particularly the range of decision making freedom (control) available to the worker facing those demands". Work stress is therefore linked to the structure of work and the production process (Baker, 1988).

Strain can be understood to result for those with objective high demand and objective low control. It is therefore not necessary to investigate the impact of these environmental

conditions by distinguishing appraisals or various needs that may exist among workers (Karasek, 1989). The assumption appears to be that if individual "needs" for certain environmental conditions play a role in the stress process, they do so by operating similarly for all people. This conceptualisation of stress views environmental causes as the starting point, although they do not strictly preclude the importance of personal factors (Karasek & Theorell, 1990).

Empirical tests of the sociological model, ideally investigate the link between objective stressors and illness (Frese & Zapf, 1988). *Stress* in these models refers to the intermediate state of arousal between the objective stressor and strain. Karasek (1989) notes that this state (stress) is rarely measured in his research. Figure 2.4 shows a basic sociological model.

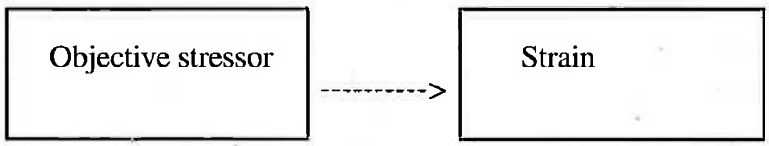


Figure 2.4 The Basic Sociological Model

2.6.3 Generic definitions

Work stress is used to denote a *condition* or intermediate arousal state between *objective* stressors and strain. Note that *stress* is sometimes used interchangeably with cognitive appraisal, or perceived stress, or subjective person-environment fit in psychological definitions.

Work stress will also be used to describe the general field of study, or an "area of practice or research focusing on social psychological characteristics of work that are detrimental to employee's health" (Beehr, 1989, p. 74). Work stress, job stress and occupational stress will be used interchangeably.

Work stressors are defined as environmental situations or events potentially capable of producing the state of stress (Baker, 1985; Beehr, 1989; Beehr & Bhagat, 1985; Greenhaus & Parasuraman, 1987). Of course stressors may emanate from the person or domestic non-work environment (Fletcher & Payne, 1980).

Strain refers to the individual's response to a stressor, or stress; the symptoms or indices of stress including physiological, psychological, and behavioural changes (Baker, 1985; Greenhaus & Parasuraman, 1987), which can be short term (elevation of physiological levels, or minor illness) or long term. Some theorists have specified that the responses be aversive (Beehr, 1989).

Work and non-work outcomes refer to the consequences of strain that have implications for the work and non-work domains (Greenhaus & Parasuraman, 1987), including work-home conflict, stress leave, job change indications.

Stressor-strain relationship will be used generally to describe the main features of the work stress process. More specifically it refers to the way the work environment (or features external to the individual) leads to strain symptoms.

Stress-strain relationship will be used to refer to the relationship that exists between the dynamic condition of stress and the subsequent condition strain, where the individual experiences stress symptoms (Schuler, 1980).

Stressor/stress-strain relationship refers to the possibility that strain may result from objective work stressors, and subjective appraisals.

Moderator refers to an individual characteristic or environmental factor (such as autonomy) in the presence of which the strength and/or direction of the relationship between stressor and strain (or stress-strain relationship in psychological models) is changed. Moderator research has more interest in the predictor variable, whereas mediator research is more interested in the mechanism (Baron & Kenny, 1986).

Mediators are concerned with how and why a causal system operates. For example, a variable may act as a mediator to the extent that it accounts for the relationship between a stressor and strain. Mediators can explain how external events take on internal psychological significance (Baron & Kenny, 1986).

Chronic stressors/stress. Consistent with many other work stress conceptualisations, the stressors/stress examined in the thesis will be ongoing chronic work stressors/stress as distinct from acute, critical incidences or episodic events (Greenhaus & Parasuraman, 1987).

To summarise, the foregoing has provided a brief overview of two main perspectives of occupational stress. Psychological models come under the general rubric of stimulus-response models. Sociological models come under the general rubric of stimulus-based approaches. Both psychological and sociological models are considered extremes within the broader social psychological paradigm.

Before providing a more extensive critical appraisal of the two main theoretical frameworks, the next section gives an overview of clusters of variables generally accepted as sources of stress, and gives examples of components within the clusters. Also categories of strain and outcomes, generally thought to result from chronic work stress are reviewed.

2.7 Origins of strain

A general trend in the work stress literature is to list work conditions thought to be related to, or causal in the development of workplace strain. Many contributions arise from empirical work without a conceptual framework for the investigation of these relationships. This research describes when stress and strain exists, but is not capable of describing why stress and strain exists, and the process underlying its development. This is the province of theoretical paradigms and the subject of Chapter 3 and 4. This section will highlight some consistent empirical findings about work stressors and strains to provide a framework/context for the consideration and evaluation of models that attempt to explain why stress and strain occur (Baker, 1985).

It would be impossible to list all potential specific sources and categories of stressors indicated in the literature. The present section aims to outline some of the more salient

stressors and their links with strain and other outcomes. Additionally, other factors that might mediate, moderate, or be directly linked with levels of strain are identified.

2.7.1 Work environment: Psychosocial risk factors

Workplace stressors can be conceived as arising from the physical work, job/task content, organisational factors and social context (Hurrell, 1989). The physical work environment may include stressors such as noise and temperature extremes, chemical hazards and poor ergonomic conditions (Baker, 1985). The present study is not concerned with these stressors, as according to Baker (1985) hazards such as these are rarely present in such extreme forms as to constitute direct physiological stressors. In particular the work environment stressors of interest are psychosocial factors, that is those arising from the social environment at work, organisational aspects of the job, or from the content or certain operational aspects of the tasks performed (Sauter, Murphy, & Hurrell, 1990).

OPERATIONAL ASPECTS

Operational aspects include aspects of the job or task characteristics such as work load, deadlines, and decision making and structural factors such as shiftwork, forced overtime, working excessive hours and machine pacing (Baker, 1985).

Work demands. Evidence exists that links work demands (such as work overload) to adverse health effects. Work demands have been linked to cardiovascular disease (Johnson & Hall, 1988) to self-reported affective distress (Kirmeyer & Dougherty, 1988), job dissatisfaction (Beehr & Drexler, 1985), and clinician-diagnosed affective disorder (Bromet, Dew, Parkinson, & Schulberg, 1988) and psychological distress (Parkes, 1990). The impact of work demands is most evident when worker control or discretion over these demands is low such as in boring work, resulting in myocardial infarction (Karasek & Theorell, 1990; Theorell, Hamsten, de Faire, Orth-Gomer, & Perski, 1987). There is also evidence that having too little to do, resulting in under utilisation of skills can lead to job dissatisfaction (Caplan, Cobb, French, Harrison, & Pinneau, 1975), psychological strain (Orpen & King, 1986) and depression (Ganster, Mayes, & Fusilier, 1986).

Work schedule/ shift work. Shift work has been linked with significant excess risk of myocardial infarction (Alfredson, Karasek, & Theorell, 1982), gastrointestinal symptoms (Rutenfranz, 1981), and with sleep maladaptation resulting from shift work, the effect increasing with age (Foret, Bensimon, Benoit, & Vieux, 1980). Working irregular hours, such as working rotating shifts has been linked with higher levels of noradrenalin, which may be linked with increased cardiovascular risk (Ely & Mostardi, 1986).

Other physical, social and psychological consequences of shift work have also been identified such as weight gain, gastrointestinal disorders, increased length of illness, musculoskeletal disturbances, cardiovascular irregularities, psychosomatic disorders and psychological problems (Carpentier & Cazamian, 1977; Duchon & Keran, 1990; Rutenfranz, 1981).

Disruptions to family and social life can also result from shift work. Shift workers may have difficulty finding time for spouses and children, have fewer friends and be less able to engage in social activities (Froberg, 1981). Disturbances to social life, Froberg (1981) argues, may even be more serious than fatigue from shift work. Although the relationship between coronary heart disease (CHD) and stress is not clear cut, there is supportive evidence that working excessive hours or having more than one job may be associated with CHD (Kasl, 1978). Some studies suggest that shift work may also lead some workers to abuse substances such as caffeine, nicotine and drugs in an attempt to regulate sleep and alertness which may in turn be linked with strain symptomatology (Moore-Ede & Richardson, 1985).

ORGANISATIONAL ASPECTS

Organisational stressors include the worker's role within the organisation and the structure of the organisation. Stressors related to role have included work role ambiguity, role conflict and responsibility for the well-being of others. Stressors related to the structure of the organisation include lower levels of appointment, authoritarian leadership processes, lack of participation in decision making, a flat organisational structure leading to dead end jobs, and job insecurity (Baker, 1985; Schuler, 1980).

Work role ambiguity and role conflict. Work role ambiguity is assumed to exist when there is a discrepancy between the amount of information needed for the person to perform their work role adequately and the information available to the individual (Kahn, Wolfe, Quinne, & Snoek, 1964). Evidence points to ambiguity in work role to be a major contributor to lower job satisfaction (Beehr & Drexler, 1986; Greenhaus, Bedian, & Mossholder, 1987), as well as higher job tension and lower self confidence (Kahn, et al., 1964).

Other research has linked ambiguity in work roles and responsibilities to indices of poor mental health (Greenhaus et al., 1987). Role conflict (the degree to which the job is characterised by conflicting demands) has also been linked with low job satisfaction and poor mental health (Greenhaus et al., 1987) (For review see Jackson & Schuler, 1985). Inconsistencies in the relationship have been noted between the role characteristics-outcome relationship and the results from meta-analytic studies (Fisher & Gitelson, 1983; Jackson & Schuler, 1985) suggest that a number of moderator variables may be involved.

Autonomy. Autonomy is the extent to which employees are encouraged to be self sufficient and to make their own decisions (Moos, 1986). Growing evidence suggests that lowered self-esteem, job dissatisfaction, emotional distress and job search intent can result from non-participation of workers in decision making (Beehr & Drexler, 1986; Spector, 1986) and low decision-making latitude (Karasek & Theorell, 1990). Margolis, Kroes & Quinn (1974) found that non-participation in decision making was the major source of stress among police officers. Non-participation at work was found to be significantly related to poor self-esteem, low job satisfaction, poor health, escapist drinking, depressed mood and absenteeism. Lombardo (1979) also found that a lack of input into the decision making process led to feelings of powerlessness and this was a major source of stress for correctional officers.

SOCIAL CONTEXT

Lack of support from supervisors and co-workers is also considered an important source of work stress. A great deal of research has been directed to the role that social support has in the work stress process with some theorists suggesting that it acts as a coping resource, helping people cope with stress (e.g. Folkman & Lazarus, 1984).

Social support has been found to moderate or "buffer" the relationship between work stressor/stress and outcome (see Cohen & Wills, 1985), although a more recent review suggests that social support has a direct effect on outcome regardless of the level of stress/stressor (Kahn & Byosiere, 1992).

2.7.2 Situational factors

Besides stressors arising from the work context, situational factors may also contribute to occupational strain. Holmes and Rahe (1967) demonstrated a relationship between change in life events, such as death of a spouse, marital separation, getting married, or change in financial status, and physiological illness. Morrison, Dunne, Fitzgerald, & Cloghan (1992) found life events to predict family strain, low energy, depression and poorer physical health, in a sample of correctional officers.

The life events scale however has been criticised on the grounds that life events may be perceived as either positive or negative and therefore can have a differential impact on individuals (Johnson & Sarason, 1979). Even so, a consistent relationship is found in the literature, albeit often low to moderate in strength, between total stressful life events and incidence of illness and future health problems (Christie-Seeley, 1983).

The life events approach was an attempt to measure stress objectively and then determine the effects of stress on health outcomes. However some psychological theorists have argued that subjective measuring or appraisal of environmental events is much more important than its occurrence. Further, major stressful life events are often infrequent and may be less important in predicting psychological and somatic symptoms than everyday stressful hassles or episodes (Lazarus, 1981; Lazarus & Folkman, 1984). A recent test showed that the total effect of hassles on psychological symptoms (r=.19) was less than the total effect of life events on psychological symptoms (r=.38) (Aldwin, Levenson, Spiro, & Bosse, 1989). Aldwin et al., (1989) suggested that hassles and minor life events tap a different source of stress.

Another situational factor that influences the level of strain is non-work support (Kahn & Byosiere, 1992). Numerous studies have examined the effect of family or home environment upon organisational outcomes. For example Jackson and Maslach (1982) found in a study of police officers that job burnout was associated with problematic family relationships. The results are mixed however as more recently, Bromet et al. (1988) found in a longitudinal study of non-managerial male power plant employees, that marital stress was not predictive of poorer mental health. Risk factors including financial difficulties and family problems have been linked to physical and psychological disorders (Dohrenwend & Dohrenwend, 1974).

2.7.3 *Individual factors and lifestyle*

A range of personality variables may also be involved in the work stress process including Type A behaviour pattern, (Friedman & Rosenman, 1974), hardiness (Kobasa, 1979), locus of control (Lefcourt, Martin & Saleh, 1984; Parkes, 1984; Parkes, 1991), negative affectivity (Parkes, 1990; Payne, 1988; Watson & Clark, 1984, Watson & Pennebaker, 1989) and self-esteem (Brockner, 1988).

The ways in which individual factors may be involved in the work stress process are numerous. Individual factors may moderate the stressor/stress-strain relationship, influence the appraisal of the environment, create stressful environments, influence the nature and magnitude of responses to stress, influence coping, or directly affect levels of strain. Individual factors may specify a range of needs against which environmental ingredients are matched (see P-E fit models, Chapter 3) or result in the self-selection of workers into stressful/non-stressful environments (Greenhaus & Parasuraman, 1987). Individual factors may be the source of vulnerability (i.e. Type A, external locus of control), or psychological resources (e.g. internal locus of control, age, self esteem and mastery (Pearlin & Schooler, 1978). [For a critical review of the empirical evidence on personality constructs and their role in job stress see Ganster & Schaubroeck (1991)]. Some examples of the role of personal constructs are given here.

A number of studies have shown the direct effect of individual difference variables on strain symptomatology (despite the quality of an individual's work or number/desirability of life events). Examples of these individual difference variables include personal orientations or thinking styles (Cooke, Rosseau, & Lafferty, 1988), gender (Payne, 1988), and negative affectivity (Henderson, Byrne, & Duncan-Jones, 1981; Morrison et al., 1992; Parasuraman & Cleek, 1983; Payne, 1988; Parkes, 1990).

Negative affectivity (NA) refers to a "broad range of aversive mood states including anger disgust guilt, fearfulness, and depression" (Watson & Pennebaker, 1989, p. 234-5). Research conducted by Watson et al. (1987), demonstrated the importance of dispositional sources in predicting strain despite the level of work stress: "high NA [negative affectivity] individuals are capable of experiencing a great deal of stress and discomfort even in relatively benign contexts. Their high levels of distress will likely persist in the face of dramatically altered working conditions." (p. 146).

In a review of the relationships between individual differences and strain, Payne (1988) concluded that NA (trait neuroticism/trait anxiety) has the strongest correlation with measures of psychological symptomatology (cf. Type A, locus of control).

> "If a case were to be made for any of these three [locus of control, Type A, negative affectivity] as the fundamental underlying variable then negative affectivity would appear to be the strongest candidate" (Payne, 1988, p. 228).

Payne (1988) observed for the "sociology of knowledge that trait anxiety/neuroticism has been largely ignored in 25 years of stress research" (p. 216). A recent editorial by Burke (1992) urged researchers to integrate anxiety as a central concept:

"While anxiety qualifies as a both an outcome variable as well as a potential individual difference predisposition, it has not received much attention to date in the occupational stress field (Burke, 1992).

NA has also been identified as a fundamental dimension in personality structure: one of the five basic personality dimensions, otherwise referred to as "neuroticism" or "emotional stability" or "anxiety" (Digman, 1989); and one of three super factors, or traits, identified as the N (neuroticism-stability) dimension (Eysenck, 1981).

One of the earliest studies to report a high level of correlation between individual difference and symptomatology was by Henderson, Bryne and Duncan-Jones (1981). They found that trait neuroticism accounted for 69% of the variance in a combined measure of mental health.

Individual difference variables have also been found to moderate the stress-strain relationship. Kobasa (1979) showed in a study of middle-upper level business executives, that a group of personality characteristics termed "hardiness", (a tendency to react to stress with a sense of high personal control, challenge seeking in daily life, and high internal commitment) moderated the stress-illness relationship. Executives with high stress (measured by the Holmes scale) who featured hardiness showed significantly less illness than those without hardiness. Howard, Cunningham, and Rechnitzer (1986) in a longitudinal study found hardy workers showed smaller increases in blood pressure and serum triglycerides in response to increasing role ambiguity compared to less hardy workers.

The moderating role of hardiness has not been consistently found. For example, in a longitudinal study of 468 executives, Manning, Williams and Wolfe (1988) found a direct rather than moderating role of hardiness. Hardy individuals reported higher levels of job satisfaction, fewer somatic complaints, less depression and less anxiety. Manning et al. (1988) did report however that "hardiness" itself was negatively related to measures of life and work stress, so that *independence* of the variables could not be assumed.

The moderating role of NA has also been investigated with mixed results. In a study of COs Morrison et al., (1992) found an interactive effect of NA on the relation between job demands and mental health but not for job satisfaction or physical health symptoms. Only six of forty two interactions tested showed moderating effects. In a study of first level managers, Parasuraman and Cleek (1984) reported moderating effects of NA (trait anxiety) on the qualitative and quantitative overload-(stressor) job satisfaction relationships. In particular, NA augmented the dissatisfaction associated with the two types of role overload. However, only two of eight interactions tested were significant. NA showed direct effects with felt stress and job satisfaction in the other tests. The researchers described these findings as demonstrating the importance of prior susceptibility in influencing stress reactions.

Parkes (1990) also found an interaction effect between NA and work demands in the prediction of mental strain in trainee teachers. The interaction effect led Parkes (1990) to the conclusion that:

"when high-NA individuals perceived high levels of demand, they responded with high levels of affective distress, whereas their low NA counterparts did not show this reactivity. The strong interaction between work demand and NA found in the present study is consistent with the concept of NA as an index of vulnerability or reactivity to work stress, an idea originated by Spielberger et al. (1970, p. 407)" (Parkes, 1990, p. 407).

However, NA did not moderate the work support-outcome relationship prompting the suggestion that the reactivity function of NA applied only to impersonal quantitative stressors (such as work load) rather than in relation to interpersonal forms of stress (such as lack of support from colleagues and peers) due to social support (Parkes, 1990). Overall the evidence is more supportive of NA acting as a direct effect rather than a moderator of work stress/ stressors.

There is also a substantial body of evidence that links risk behaviours to increased morbidity and mortality. An Australian survey of 262 prison officers in two New South Wales institutions, found elevated risks of cardiovascular heart disease when compared to a general sample of Australian males (Webster, Porritt, & Brennan, 1983). Health risks were found to be related to being overweight, cigarette smoking and lack of physical exercise or lifestyle factors, rather than to reported stress levels.

It is difficult to tell if these unhealthy behaviours are acts of deliberate exposure to risks (much like a stable personality trait), or whether they are outcomes of social conditions, stressful work, or other stress. They are therefore sometimes considered as consequences or outcomes of stress, or dependent measures in stress models (Caplan et al., 1975; Sauter et al., 1990).

2.7.4 Personal coping resources and responses

The way the individual attempts to cope with stress can lead to variations in levels of strain. Wheaton (1983) used a community sample to examine the role of personal coping resources (rather than external sources such as social support) in attenuating the impact of summed or aggregated exposure to acute and chronic stress on psychiatric symptom clusters (schizophrenia, depression and anxiety). In the study, personal coping resources were conceived of in terms of individual dispositions that could have consequences for coping ability or amount of typical coping effort expended. Two dispositional characteristics were considered: inflexibility and fatalism. Low fatalism and low inflexibility were found to have a strong moderating influence on the impact of stress. The findings clearly define a role for personal coping resources in moderating the impact of stress.

Kessler, Price and Wortman, (1985) claimed that "although it is widely assumed that choice of coping strategies can ameliorate the impact of stressful situations, there is surprisingly little sound empirical research bearing on this assumption" (p. 559). Since then much more research on coping has been conducted. Coping is potentially an important component of the psychological models, therefore a more extensive examination of the empirical evidence on coping will be undertaken in the next chapter which examines psychological models.

2.7.5 *Work role socialisation*

Recently Landsbergis (1988) pointed out the lack of studies that have assessed the role of socialisation in the work stress process. Most studies have viewed personality characteristics as stable, with their origins early in life. Few studies have examined the possibility of the work environment impacting on either personality, coping responses, or both. Karasek & Theorell (1990) argue that the work environment structure leads to certain types of coping (see Chapter 4). Similarly the learned helplessness model initially proposed that people give up when they discover they are helpless and that this generalises inappropriately to new situations (Seligman, 1975). Lazarus and Folkman (1984) however suggest this is not always the case, rather it is the way the person construes events in a seemingly idiosyncratic fashion that precedes the behaviour.

2.8 Strains and outcomes

It is generally assumed in most stress models that reactions to the condition of stress lead to acute reactions or *strain* symptoms in the worker. These reactions may be transitory, but short-term strains are presumed to have longer term outcomes (Sauter et al., 1990).

Occupational stress research has typically divided the acute and longer term consequences of stress into three categories: psychological, behavioural or physiological (Baker, 1985; Schuler, 1980). Psychological strain is indexed by: cognitive effects, such as an inability to concentrate and job dissatisfaction; affective disorders, including mental health states such as anxiety and depression; and somatic symptoms such as headaches, perspiration, and dizziness (Caplan et. al., 1975; Perrewe & Anthony, 1990).

Psychological conditions that are investigated as consequences of "job stress", may not necessarily be classifiable under recognisable psychiatric classification systems. Rather, the condition may represent "significant functional disturbances or risks for the development of clinical disorders", and may include anxiety, depression, or job dissatisfaction (Sauter et al., 1990, p. 1147).

Behavioural strain may be indicated by the use of alcohol and drugs, including smoking. Physiological strain has been indexed by changes in heart rate and skin temperature (Perrewe & Ganster, 1989), blood pressure and other biochemical measures such as cholesterol, cortisol and catecholamines (Fox, Dwyer, & Ganster, 1993; Frankenhaeuser & Gardell, 1976; Rahe, Ryman, & Biersner, 1976).

The longer term consequences of strain are sometimes referred to as *outcomes* and include psychological, physiological and behavioural changes with consequences for the work and non-work domains (Greenhaus & Parasuraman, 1987). Strain is recognised as a factor which can impact negatively on behavioural outcomes, such as work performance, and can result in absenteeisms, industrial accidents and staff turnover all at considerable cost to organisations (Greenhaus & Parasuraman, 1987). The loss of key personnel through death or disability can have an immeasurable financial impact on both small and large organisations (Cox, 1981).

Longer term physiological effects of stress have been identified as coronary heart disease, hypertension and peptic ulcers (Kasl, 1978). Longer term psychological outcomes include mental illness and suicide, and marital dissolution (Greenhaus & Parasuraman, 1987).

Besides these outcomes, strain from the work environment may spillover into the home environment (Fox et al., 1993; Greenhaus & Beutell, 1985). Work-home conflict is defined as a "form of inter-role conflict in which the role pressures from work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985).

According to a theoretical model of role conflict proposed by Greenhaus and Beutell (1985) there are three ways in which role pressures can become incompatible: (1) time spent in one role may leave limited time for other roles; (2) strain within one role domain may "spill over" into another role domain; (3) behaviour appropriate in one role may be inappropriate or dysfunctional in another role.

The model proposes that pressures that have an impact on time, strain or behaviour within a role can produce conflict between that role and another role. In the case of work-family conflict, time based conflict is the most prevalent type of work-family conflict (Burke, 1988). Several studies have found heightened "work-home conflict" for employees with extensive time commitments at work, long hours and inflexible hours (Greenhaus, Bedeian, & Mossholder, 1987; Pleck, Staines, & Lang, 1980).

In an empirical study based on the Greenhaus and Beutell (1985) model, Bacharach, Bamberger and Conley (1991) examined the question of whether role stress "spills over" into the worker's home life and in turn whether personal and family well-being at home impacts on the attitudes and feelings workers have in their jobs. They found that work-based role conflict was an important antecedent of work-home conflict and further that increased symptoms of strain, operationalised in terms of job burnout and satisfaction, are an important direct consequence of work-home conflict among nurses and engineers.

To summarise, this chapter has outlined three traditional models for viewing stress. Psychological models were described as stimulus-response models. Sociological models came under the rubric of stimulus models. Physiological models (e.g. Selye's) because of their limitations will not be considered further in this thesis. Principal definitions to be used throughout the thesis were provided, with regard to the conceptual framework from which they arise.

The chapter provided a brief overview of key variables which have been shown to be important antecedents and/or modifiers in the stress/or-strain process. The overview suggests the kinds of clusters of variables that need to be accounted for in a plausible theory of occupational stress. Finally, the chapter considered strains and outcomes typically examined in work stress models including psychological, behavioural and physiological categories.

Empirical relationships inform about when stress/strain exists but not why it exists. Although the research has led to the elucidation of many stressors and strains, it has been described in general as "an atheoretical search for effects of any aspect of work on employee

health and well-being" (Beehr, 1989, p. 78), and "based on empirical research which is capable of describing when stress exists but not why it exists" (Baker 1985, p. 369).

Two major aetiological frameworks have evolved to explain why stress/strain occurs: psychological and sociological. The assumptions of the models, empirical tests of the models and limitations are the focus of the next two chapters.

Chapter 3

PSYCHOLOGICAL MODELS: THEORY, RESEARCH AND CRITIQUE

3.1 Introduction

Many major psychological models have been proposed each specifying and emphasising certain relationships among component variables. Numerous frameworks therefore exist for synthesising, evaluating, stimulating and guiding stress research. Some of the major theories include the stress and task performance model (McGrath, 1976), the Person-Environment fit (P-E fit) theory (French, Caplan & Harrison, 1984), the facet model (Beehr & Newman, 1978), role stress theory (Kahn et al., 1964), burnout theory (Maslach, 1982), effort-reward imbalance theory (Siegrist, 1991), and the transactional cognitive model (Cox, 1981; Lazarus & Folkman, 1984).

This chapter deals with two psychological models: the P-E fit model and the cognitive-phenomenological model. Of all the psychological models, the P-E fit model has dominated the work stress literature (Ganster & Schaubroeck, 1991).

3.2 Person-Environment fit model

3.2.1 Model description

The P-E fit model (French & Kahn, 1962; Harrison, 1978; House, 1972) is grounded in the theoretical work of Lewin (1951) and Murray (1938) on motivational processes, and the belief that behaviour is a function of the person and the environment (see Figure 3.1). A central tenet of the model is that job stress, that is, the degree of fit between the individual and the environment (subjective P-E fit), is a major cause of strain (Blau, 1981). Two kinds of fit are specified: (1) the extent to which individual skills and abilities match the demands of the job and, (2) the extent to which person needs are supplied by the job environment. When misfit of either kind is present, strains such as job dissatisfaction, anxiety, depression and absenteeism can occur. Motives (needs) include self-utilisation, participation and income. Examples of demands include job complexity, work load, overtime, responsibility for others, and role ambiguity (Caplan et al., 1975).

If the motives (needs) of the person and the perceived supplies from the job can be measured along similar dimensions (also perceived abilities - job demands), then a discrepancy score indicating the goodness of fit between the subjective person and subjective environment can be calculated (Blau, 1981). According to the model, the discrepancy score specifies job stress, and the greater the discrepancy, the greater the stress.

The model distinguishes between the objective environment and person, and the subjective environment and person.

"Objective variables exist for the scientist and are based on scientific observations...Subjective variables, on the other hand, exist for the person as self-perceptions and perceptions of the objective world with which the person is in contact" (French, Caplan & Van Harrison, 1984, p. 3).

Although the model includes a focus on the objective environment it emphasises subjective factors in the development of strain. However it asserts that the objective environment and objective person interaction affects the corresponding subjective environment and subjective person interaction to influence strain and health (French et al., 1984). Personality traits can influence perception of the objective environment and/or moderate the relationship between stress and strain (French & Caplan, 1972).

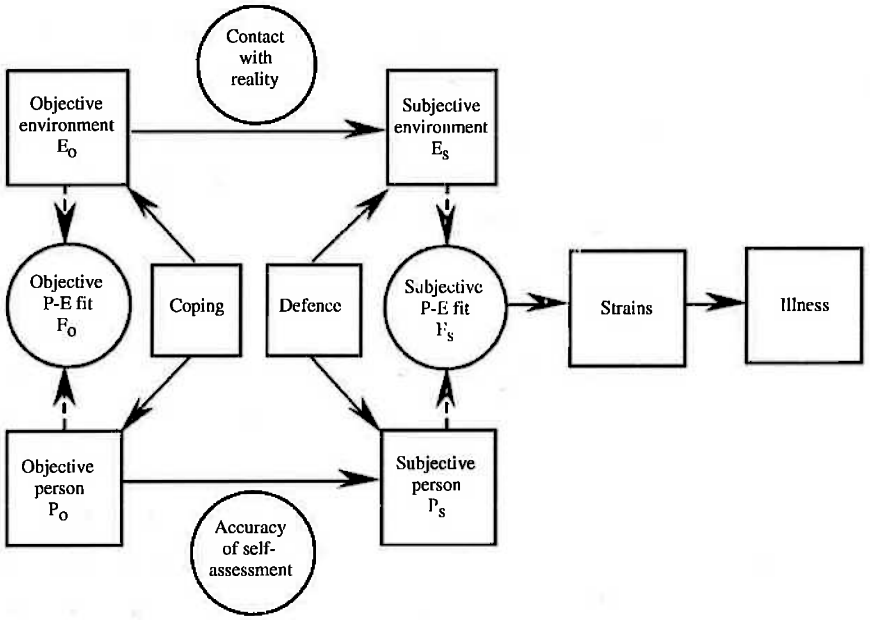


Figure 3.1 A model describing The Effects of Psychosocial Stress In Terms Of Fit Between The Person And The Environment. Reprinted from Caplan, R.D. (1983). Person-Environment fit: Past, present, and future. In C. L. Cooper (Ed.), *Stress Research*, (pp. 35-78). New York: Wiley.

Note. Concepts, within circles are discrepancies between the two adjoining concepts. Solid lines indicate causal effects. Broken lines indicate contributions to interaction effects (Harrison, 1978).

Other modifiers in the process include individual coping behaviours. Coping can reduce the objective misfit between the person and the environment. Defence mechanisms can reduce the subjective misfit by distorting the perceptions of the environmental stress and /or of the self without any corresponding changes in the objective misfit. This is in opposition to the tendencies toward the accurate perception of the environment and of the self (French et al, 1984). Defence mechanisms will reduce the level of strain.

Social support plays three roles in relation to job stress and strain: (1) a direct role, social support will be negatively related to job strains; (2) an interactive role, social support will buffer the job-stress-job strain relationship (Blau, 1981; French, Rogers & Cobb, 1974); and

(3) a preventive role, social support will reduce stresses in the subjective environment (French et al, 1984).

Depending on the degree of fit between the person and the environment, three different relationships between P-E fit and strain may arise including curvilinear functions (Harrison, 1978). According to Harrison (1978), these

> "relationships with P-E fit cannot be predicted by separate measures of the environment and the person or by an additive combination of them. If these curvilinear relationships are found, the use of the P-E fit theory can be justified" (p. 188).

3.2.2 Empirical evidence for the model

According to Harrison (1978), "P-E theory attributes meaning to the discrepancy between E and P measures as well as to the E and P measures themselves" (p.187). In evaluating the usefulness of the P-E fit theory the question "Can the variation in strain predicted by P-E fit be accounted for more simply with the component E and P measures?" (Harrison, 1978, p. 187) needs to be addressed. From a theoretical perspective the discrepancy score needs to be retained (Blau, 1981).

Major tests of the P-E fit model by Caplan et al (1975) and French et al. (1984) of 2010 workers in 23 occupations, and other studies (Harrison, 1976; House, 1972; Kulka, 1976; Locke, 1969) have provided evidence for the existence of curvilinear relationships between P-E fit dimension and strain as predicted by the P-E fit theory. A number of studies (Blau, 1981; Harrison, 1976; House, 1972; Kulka, 1976) also show that component measures account for variance beyond that accounted for by P-E fit measures. Consistent with Harrison (1978), French et al., (1984) noted that P-E fit variables supplement but can not replace the predictive power of the component measures.

Harrison (1978) therefore drew the conclusion that:

> "For the present, the evidence is clear that researchers studying job stress should take advantage of the predictive power of measures of P-E fit and the underlying P-E fit theory. At the same time, independent effects which the component measures of the person and the environment have on strain should also be studied. Such independent effects may be interpreted using P-E fit theory. The evidence does not, however, exclude the interpretation of these effects by theories describing the independent operation of characteristics of either person or environment (cf. Hope, 1975)" (Harrison, 1978, p. 197).

Blau (1981) suggested that the use of the P-E approach would be appropriate and meaningful when individual differences in preference (need) was likely, concluding that "where very minor individual differences in preference regarding job problems are predicted, a simple environmental measure should suffice" (p. 293).

In summary, while the P-E fit theory provides a useful conceptualisation of the relationship between the person and the environment and concomitant strain, the evidence:

(1) for additional variance beyond that accounted for by the E and P component measures, is not consistent; and

(2) suggests the independent operation of environmental and person variables as they reflect job stress and result in strain (Blau, 1981).

This does not mean that the theory can not account for the relationships. P-E fit may be conceptually sufficient, rather the evidence obtained could be an outcome of *methodological difficulties* in the operationalisation of the P-E fit constructs. A number of theoretical and methodological criticisms of P-E fit theory have been documented.

First, it could be that the variables in addition to operating in relation to each other can operate independently. If this is the case then it suggests the need to develop theories describing the independent operation of the person, and environment variables as they reflect job stress and result in strain (Harrison, 1978).

Second, job stress defined in terms of need-supply fit, is very broad and can potentially subsume all types of organisational phenomena (e.g. supervision, work environment, interpersonal aspects) (Blau, 1981). Blau cautions that "without an identifiable context of application which allows for comparison, there is the danger that job stress defined in terms of need-supply fit could be reduced from a theoretical construct to an atheoretical tool or method of investigation based on simply calculating P-E discrepancy scores" (Blau, 1981, p. 297).

Third, a theoretical problem with the P-E fit model is the assumption that a state of "fit" means no stress. According to the inverted U shape relationship between performance, no stress means low performance (Schuler, 1980), yet some researchers (Feather, 1975; Kulka, 1976) have noted that constant perfect fit can result in boredom and lack of development.

Fourth, the theory has little utility for predicting what work conditions are likely to result in stress (Baker, 1985). This criticism applies to *all* psychological models. This is because the work conditions are interpretable only through the eyes of the individual worker, and stress becomes a function of individual perceptions, needs and abilities. Baker explains that "some persons may view participation in decision making as a demand while others view it as a need or desire" (p. 371).

Fifth, as Caplan (1983) notes, "there is no adequate theory about when to assess P-E fit with regard to need-supplies fit and when with regard to abilities-demands fit" (p. 41) and further analysis of the relationship between need-supply and ability-demand dimensions of the P-E fit job stress model have been called for (Baker, 1985; Blau, 1981; Landsbergis, 1988).

Sixth, the P-E fit model does not assess control as a discrete variable (Baker, 1985) and "the absence of the decision latitude measure critically weakens the model" (p. 377).

Seventh, the emphasis of the theory has been challenged. Referring to the large scale studies carried out by Caplan et al., (1975), Baker (1985) points out:

> "While the model emphasises individual level misfit between person and environment, the systematic differences in P-E fit between occupations suggest that the work environment is a significant source of the observed misfit" (p. 374).

The evidence currently arising out of tests of the P-E fit theory is limited because of some methodological problems. First, the subject fills out both person and environment measures which can lead to "scale contamination" (Baker, 1985, p. 373). The second methodological limitation arises from *confounding* of measures on dimensions of P-E fit. For example, the

measure of job complexity could reflect other dimensions such as pay, status and other rewards. The measure of job complexity would reflect supplies for these other dimensions, and would therefore be confounded with P-E fit on dimensions of pay, status, and other rewards (Harrison, 1978).

Altogether, the predictive power of the model, the ultimate test of its utility, has been unimpressive and Caplan (1983) concluded that, "the percentage of variance that PE theory can explain in strain must be increased if the theory is to deserve further attention in stress research" (p. 42). The conclusion has been drawn that "the focus of Van Harrison's model seems more toward the development of a conceptual framework than an empirically testable model, and one should be impressed with such a commendable tendency in theory development" but that the model lacks clarity (Eulberg, et al., 1988, p.341). More recently Edwards & Cooper (1990) reviewed the P-E fit approach and concluded that it had serious theoretical and methodological problems and that the "acceptance of the P-E fit approach may be unwarranted" (p. 293). No doubt due to the difficulties with P-E fit theory, interest in the process model began to wane in the late 1970s (Ganster & Schaubroeck, 1991).

3.3 Cognitive theory of stress and coping

3.3.1 Introduction

Although the cognitive theory of stress and coping has previously received limited attention in the work stress literature it has greatly influenced the broader stress research domain (Cox, 1981; Edwards, 1992). Lazarus and colleagues have added significantly to the study of stress by describing in specific terms how one's perceptions of objective events can be translated into stressful experiences and can determine their health valence (Hurrell, 1989). The approach now appears to be gaining momentum. Theory-building and research efforts in work stress have recommended the focus shift from the objective environment to subjective perceptions of events, and to the social and cognitive factors that influence perceptions (Dewe, 1992 a;b; Duckworth, 1985; Eulberg et al., 1988; Newton, 1989).

During the late 1960s, Lazarus' (1966) transactional model of stress was becoming influential as a general theory of stress. It is suspected that its wider influence was to stimulate a shift in the methodological paradigm for studying *job* stress from objective environmental factors toward subjective appraisals of the working environment (Ganster & Schaubroeck, 1991).

The cognitive-phenomenological theory of stress (and coping) is based on the work of Lazarus and his colleagues (e.g. Coyne & Lazarus, 1980; Lazarus, 1966, 1981, 1991; Lazarus & Folkman, 1984). It is described as a transactional, process, contextual, and meaning-centred approach to stress, and has recently been discussed in the context of workplace stress (Lazarus, 1991). The theory proposes two processes, cognitive appraisal and coping, as mediators of stress and stress-related adaptational outcomes.

Stress (see psychological definition given in Chapter 2) depends on the balance of power, as appraised subjectively, between the environmental demands, constraints and resources and the ability of the person to manage them (Lazarus, 1991).

For the relationship to be stressful there must be a stake in the outcome, in other words, the transaction must be relevant to important personal goals. There must also be an appraisal that the demands tax or exceed the person's resources (Lazarus, 1991). Stress so defined is relational in nature: "it is not a property of the person or the environment, nor is it a stimulus or a response. Stress is a particular relationship between the person and the environment" (Folkman, 1984, p. 840). Proponents of the theory argue that the relationship is a *process*, it is dynamic and changing and it is bi-directional with the environment and the person each acting on the other (Folkman, 1984). It is not a static arrangement, and changes over time and across situations.

Further, Lazarus (1991) emphasised that person-environment relationships transcend the separate interacting person and environment variables. This relational/transactional view of stress is similar to other theoretical formulations of work stress (Cox, 1981; Edwards, 1988, 1992; French, et al., 1974; McGrath, 1970; Schuler, 1980).

According to the model, the stress process begins when a situation is appraised as stressful. Coping is then activated and involves attempts to alter the person-environment relationship (i.e. problem-focused coping) and/or regulate emotional distress (i.e. emotion focused coping). The situation is then re-appraised and the process is repeated. If the situation is resolved, coping ceases. If it is unresolved, psychological and physiological strain persist resulting in longer term negative effects on somatic health, well-being and social functioning (Lazarus & Folkman, 1984).

Cognitive appraisal can be an outcome of need-centred or defensive processes, and beliefs about personal control. Additionally, situational factors, for example novelty, predictability, event uncertainty, controllability, temporal factors, and ambiguity, can influence appraisal (for a full account of these influences see Lazarus & Folkman, 1984).

The cognitive theoretical framework emphasises the *meaning* given to events. This is determined by two major cognitive appraisal processes: primary appraisal through which the person evaluates the significance of the transaction with respect to well-being, and secondary appraisal, through which the person evaluates the coping resources and responses available (Folkman, 1984).

Primary appraisals are evaluations about "what is at stake". Types of appraisal may be irrelevant, benign-positive, or stressful (Folkman, 1984). If a transaction is determined to be irrelevant then it has no consequence for well-being. If it is evaluated as benign-positive then it is within the capability of the individual and indicates positive consequences. Stressful appraisals involve appraisals of harm/loss, threat, or challenge.

Harm/loss is defined as damage that has already occurred as in accidental injury, death of a friend or loss of self-esteem. Threat refers to a potential or anticipated damage or loss that may or may not be inevitable. Challenge, often neglected as a stressor in empirical research, refers to an opportunity for growth, mastery or gain (Lazarus & Launier, 1978). Although

challenges generally have a positive tone they too require singular efforts from the individual (McCrae, 1984).

Secondary appraisal includes judgements about "what can be done" with coping resources available (see next section). Secondary appraisal becomes important following an assessment of harm, loss, threat or challenge and the individual makes some assessment of resources in view of the situational demands.

According to Lazarus (1991) the task of appraisal is to integrate two forces, personal agendas (e.g. goals and beliefs) brought to the transaction by the person and the environmental realities that affect the outcome. Appraisal is shaped by the qualities of the relationship between the person and the environment, and configurations of the environmental events themselves (Lazarus & Launier, 1978).

Some models of general stress, (Coyne & Lazarus, 1980; Lazarus, 1966, 1981, 1991; Lazarus & Folkman, 1984) and work stress (Beehr & Bhagat, 1985; McGrath, 1976; Schuler, 1980) emphasise cognitive appraisal explicitly. Once a situation has been appraised as stressful, coping comes into play. The next section examines the role of coping.

3.3.2 Coping

Theorists generally distinguish between coping resources and coping responses. Coping resources are relatively stable personal and environmental characteristics that are available to the person when they develop their coping strategies. Coping resources refer to physical, psychological social support and material resources an individual has access to. For example high levels of self-esteem, internal control beliefs, and positive beliefs are thought to arise from previous success in coping with stress (Lazarus & Folkman, 1984). Social support is an example of a coping resource that has been studied extensively in the work stress literature. It is assumed that having access to these coping resources would be beneficial to the health of workers, especially in times of stress (Callan, Terry, & Schweitzer, in press).

Coping responses are defined as "cognitive and behavioural efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction" (Folkman, 1984, p. 843; Folkman & Lazarus, 1980; Lazarus & Launier, 1978; Lazarus, 1991).

According to theorists Lazarus (1991) and Edwards (1992), coping affects the stress reaction in two fundamental ways. First, emotion-focused coping is involved in the regulation of distressing emotions which are caused by harm or threat. It does not change the objective terms of the person-environment, only the way in which the terms are attended to or interpreted. Second, problem-focused coping, consists of efforts to alter the actual objective reality of the person-environment relationship, for example by seeking information about what needs to be done, and then changing one's own behaviour or taking action on the environment.

Problem solving approaches are viewed by some as adaptive coping, because they are aimed at dealing directly with the stressful situation by seeking and implementing solutions. On the other hand, emotional/ defensive coping is generally viewed as maladaptive because it

fails to deal with the problem and is unlikely to reduce the level of strain in the longer term (Kahn et al., 1964).

3.3.3 Empirical evidence for the cognitive-phenomenological model

COPING AS PROCESS

Folkman and Lazarus (1985), provide substantial evidence for the theory that coping in response to a stressful encounter should be viewed as a dynamic process characterised by change. A classic study of students at three stages of a mid-term examination, the anticipation stage before the exam, the waiting stage after the exam and before the grades were announced, and after the grades were posted, showed significant changes in coping responses across the three stages.

CORRELATES OF COPING

Although taxonomies (broad categorisations) for describing coping behaviours provide a comprehensive base for the assessment of actual coping behaviours in investigations, there are a number of disadvantages. One problem in using the taxonomy approach in research is that limited attention is given to the process by which individuals select specific coping methods/ and or direct coping efforts toward specific foci (Edwards, 1988, p. 240).

Although the importance of factors which presumably influence the selection of coping strategies have been discussed (Kessler et al., 1985; Lazarus & Folkman, 1984) there are few empirical studies that address the problem of how coping strategies are selected (Dewe, 1992a). Edwards (1988, 1992) calls for a more explicit and comprehensive consideration of the decision-making process which influences the selection of coping methods and foci (Edwards, 1988, p. 240). As the following sections indicate there is some evidence to support the hypothesis that situational determinants, cognitive appraisal, and personality are all important determinants of coping.

Determinants of coping: situational and cognitive appraisal. Folkman and Lazarus (1980) proposed that situational determinants and cognitive appraisal both affect the coping process. McCrae (1984) reported two studies that attempted to determine the influence of situational determinants and cognitive appraisal on the choice of coping strategies. In the first study McCrae objectively classified three types of stressors (life events) as either loss, threat or challenge (situational variables). In the second study, subjects chose instances of loss, threat or challenge that they had recently experienced; the three types of stressors were considered as appraisals and therefore attributes of the relationship between the person and the environment.

Results from first study, showed 2-16% of the variance in coping mechanisms, was accounted for by the classifying factor but that "even the largest effect leaves considerable amounts of variance unexplained" (McCrae, 1984, p. 923-924). This suggested that the characteristics of the individual and other characteristics of the stressful situation may contribute to the unexplained variance. Results from the second study showed that the variance was even smaller: 1% to 8%, of the variance in coping mechanisms, was accounted for by cognitive appraisal.

McCrae (1984) concluded the coping was not a unitary process. He noted a marked differentiation in selection of coping mechanisms appropriate to different conditions. Across both studies, *type* of stressor had a consistent and significant effect in the choice of coping mechanism. The observation remained, however that a large proportion of variance in the choice of coping mechanism, was unexplained by the objective classification of the stressor, or by the subjective appraisal.

Clearer support for the role of cognitive appraisal as a determinant of coping was however established in another study. Folkman and Lazarus (1980) conducted an empirical study of stressful episodes in a middle-aged community sample over a 1 year period. In the study two categories of coping were examined, *emotion-focused coping*, intended to control the emotional response to the situation, and *problem-focused coping* intended to alter the situation.

Situations in which something constructive could be done and in which more information was needed, generated higher levels of problem-focused coping than situations that had to be accepted. Situations that had to be accepted, on the other hand, and in which the person had to hold back from acting, generated higher levels of emotion-focused coping than those in which something constructive could be done. Clearly cognitive appraisal affected the coping response.

Recently Carver, Scheier, and Weintraub (1989) also found evidence, though limited, to support Folkman & Lazarus. They found acceptance and denial (only), two specific forms of emotion focused coping, to be more likely in situations appraised as uncontrollable rather than in situations appraised as controllable, but did not find a *global* emotion-focused coping effect. Further, they found a higher level of active coping in controllable rather than in uncontrollable situations (Carver et al., 1989).

Evidence from the work stress literature also shows support for the role of context (situation) and appraisal in the selection of coping strategies. Latack (1986) found less use of *control* strategies for workers in situations of higher levels of work stress due to work role ambiguity, compared to those who did not face as much work stress in relation to work role ambiguity.

Pearlin and Schooler (1978) found an infrequent use of problem-focused strategies directed at changing the work situation. They suggested that this could be due to the chronic nature of problems in the work arena that workers have to accept, such as depersonalisation and noise, and which may generate emotion-focused rather than problem-focused coping.

In contrast to this, Folkman and Lazarus (1980) found higher levels of problem-focused coping were used when the stressful episode was work-related, whereas in a health-related context increases in emotion-focused coping were found. Folkman and Lazarus (1980) argued that in the study by Pearlin and Schooler (1978), the interpersonal domain of the work environment, where the potential for change exists, was not assessed. While it is difficult to draw conclusions from these studies both suggest that *context* of the stress episode influences the type of coping employed.

The idea that appraisal affects coping is reflected in the hypothesis that as stress levels increase, individuals discard problem-solving coping strategies and adopt emotion-focused

strategies aimed to attenuate the stress symptoms rather than resolve the stressful situation Kahn et al. (1964). In support of this proposal, Latack (1984) found that the additive effects of transition events of work and personal life, led to coping strategies that focused on symptom management, rather than on problem solving strategies.

Personal qualities can influence cognitive appraisal. Three main personal characteristics have been examined for their influence on the appraisal process. Kobasa proposed that "hardiness" predisposes individuals to appraise a potentially stressful situation more optimistically than individuals who are not so hardy. The Type A person (high competitiveness, high need for achievement and recognition of achievement, a chronic sense of time urgency and workaholism) may perceive a passive low pressure environment as a constraint. On the other hand a Type B person may view the same situation as an opportunity (Schuler, 1980). Differences in the appraisal process might explain the observation that individuals with a Type A behaviour pattern were six times more likely to have a coronary heart disease that those with a Type B behaviour pattern (Friedman & Rosenman, 1974).

Another personality characteristic thought to influence appraisal is negative affectivity (NA). By definition NA is the disposition to experience negative affect across time and *regardless* of the situation (Watson & Clark, 1984). Strong evidence demonstrating bias in perception comes from Aldwin, Levenson, Spiro III and Bosse (1987), who found that emotionality (neuroticism) predicted the reporting of both subjective stress (hassles) and objective stress (life events) ten years after the initial assessment of neuroticism. Augestad & Levander (1992) used a range of personality dimensions, including aggression, impulsivity, extroversion, conformity, socialisation and anxiety, and found that anxiety (a measure of NA) was positively correlated with the perception of job stress. Only one other relationship was significant, employees with lower scores in socialisation also scored higher in job stress.

Personal qualities can moderate the appraisal process and influence the coping strategy used. Apart from influencing appraisal directly, personal qualities may interact with the way a situation is perceived to influence the type of coping strategy used. Parkes (1984) found that the personal factor, locus of control, played a role in the selection of different types of coping strategies by different subjects. Internals changed their response to situations appraised as "must accept", decreasing levels of direct coping and increasing levels of suppression in a potentially adaptive manner as the appraised degree of controllability of the situation was reduced. Conversely, externals reported more use of suppression when they perceived the situation as one they could change than they did in response to other appraisals.

Parkes concluded that "the patterns of coping reported by internals were potentially more adaptive in relation to types of appraisal than those of externals" (p. 655). This she argued could explain the differential impact of stress, that is a stronger positive correlation between measures of stressors and symptomatology for externals compared to internals in the broader stress literature. The study showed the role of personality in the selection of coping responses even though the appraisal of the situation was "similar".

Direct personal (coping resources) influences on the type of strategy selected. Studies have shown that personal influences directly influence the type of strategy selected. For

example, Anderson's (1977) study of small business owners after a severe flood, found that internals achieved less stress and better performance, because of the types of coping strategies they used. Specifically, internals engaged in more task-oriented behaviour and fewer emotion-centred behaviours in an effort to recover from the setback than did externals. Similarly, studies assessing organisational change have found an association between internal control beliefs and more effective coping strategies than counterparts with more external control beliefs (Ashford, 1988; Callan & Dixon, 1992)

Other studies have shown that NA influences the coping strategy used. Parasuraman and Cleek (1984) found a strong positive relationship between NA (trait anxiety) and maladaptive coping behaviour. Carver et al. (1989) found an unwillingness of high NA respondents to engage in active coping. They also found high NA respondents to have the tendency to disengage.

To summarise, it appears that there is the support for the central arguments of the cognitive theory of stress and coping. First, the conceptualisation of coping as a process, seems strongly supported in the literature (Folkman & Lazarus, 1984; Folkman & Lazarus, 1985). Second, the idea that cognitive appraisal is important in determining the resultant coping response is also supported (Folkman & Lazarus, 1980; McCrae, 1984). Third, the context of the cognitive assessment is important, with different coping strategies employed in different domains (home and work), (Carver et al., 1989; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978) and in response to situational determinants (objective appraisals) (McCrae, 1984). Fourth, personality factors (coping resources) were found to affect perception of the situation (Kobasa, 1979), to interact with the appraisal to predict coping outcome (Parkes, 1984), and to affect the selection of coping strategy (Anderson, 1977; Ashford, 1988; Callan & Dixon, 1992; Carver et al., 1989; Parasuraman & Cleek, 1984). Finally, there is a substantial proportion of variance in coping strategies not accounted for by situational and cognitive appraisal, assessed by researchers (Dewe, 1992b: McCrae, 1984). What evidence is there that coping affects strain outcomes once a situation is appraised as stressful?

3.3.4 Role of emotion-focused coping and problem-focused coping

Coping is assumed to mediate the stress-strain relationship in the cognitive-phenomenological model and this mediational role has been demonstrated in the work stress literature (Terry, Tonge, & Callan, in press). More frequently however, the direct effect of coping on levels of strain, and the moderating role of coping on the stress-strain relationship has been assessed.

Empirical evidence from the work stress literature has shown problem focused coping to have the following effects in the stress-strain relationship: a beneficial moderating effect (Bhagat, Allie, & Ford, 1991; Callan, Terry, & Schweitzer, in press; Mitchell, Cronkite, & Moos, 1983; Parkes, 1990); no moderating effect (Ashford, 1988; Shinn, Rosario, Morch, & Chestnut, 1984); a beneficial direct effect due to problem focused coping (Bhagat et al., 1991; Latack, 1986); and no direct effect (Israel, House, Schurman, Heaney, & Mero, 1989;

Parasuraman & Cleek, 1984; Shinn et al., 1984). Emotion focused coping has been found to have: a beneficial moderating effect (Ashford, 1988); a detrimental moderating effect (Parasuraman & Cleek (1984); no moderating effect (Shinn et al. 1984); a direct positive (harmful) relationship (Callan, Terry, & Schweitzer, in press; Israel et al., 1989; Parasuraman & Cleek, 1984); a negative (beneficial) effect (Parkes, 1990); and no direct effect (Bhagat et al., 1991).

Other studies have examined coping without defining it in terms of problem focused or emotion focused and have found coping mechanisms to be largely unsuccessful in moderating the stress-strain relationship (Osipow & Davis, 1988) or showing direct effects on strain (Dewe, 1992a). Yet, Dewe concluded from his qualitative analysis "nevertheless the size of the adjusted R^2 and its significance suggests that the explanatory potential of these variables offers an avenue for research more fruitful than traditional interactional approaches" (p. 102).

How specific coping responses combine with work stress is not clear at all, as the results reported above show. It is likely that the large variation in results arises from different study samples, different measurement instruments, and different variables under investigation. However a careful examination of the propositions that have guided the empirical studies cited above show as many varied hypotheses, and a good deal of uncertainty regarding the coping process. Some evidence suggests that *individual* coping strategies can reduce occupational stress (Ashford, 1988; Parasuraman & Cleek, 1984; Parkes, 1990; Rosenbaum, 1983). However, other studies show little evidence to support this position (Dewe, 1992a; Opisow & Davis, 1988; Shinn et al., 1984).

3.3.5 Scales for measuring coping

The most widely used inventory for assessing coping [in the cognitive-phenomenological approach] is the Ways of Coping scale developed by Folkman and Lazarus (1980 and revised in 1984/5. A number of criticisms have been made of the scale, with critical implications for the theory.

First, the scale is based on the premise that two main coping types exist; problem focused coping and emotion focused coping. Yet a significant correlation has been found between problem focused and emotion-focused coping strategies (r=+.44) (Folkman & Lazarus, 1980). This could mean simply that both approaches are used in almost all episodes. Alternatively, more important to the theory, it could be that the categories are not dichotomous (Stone & Neale, 1984), or it could indicate that coping strategies actually used, do not correspond with those delineated by the theoreticians (Amirkhan, 1990).

Second, some items are ambiguous, that is they combine conceptually distinct qualities such as illustrated in the following item: "I did something which I didn't think would work, but at least I was doing something". Clearly there is ambiguity about which part of the item is more important, doing something, or that the respondent thinks the act is not going to work (Carver et al., 1989).

Third, it is too simple and research on the scale generally uncovers several factors rather than two (e.g. Carver et al. 1989, Parkes, 1984). Also, the factors themselves are diverse and

require scrutiny. For example some items reflecting emotion focused responses are very different and may therefore have very different implications for a person's success in coping, e.g. denial versus positive reinterpretation of events. The same difficulty applies to problem focused coping items (Carver et al., 1989).

Fourth, coping and psychological symptoms may not be independent. For example, a longitudinal study of adults who completed the revised Ways of Coping Scale for a self-named stressful episode found coping and psychological symptoms to be interrelated, each variable affecting the other, raising some doubts about the independence of the variables (Aldwin & Revenson, 1987).

Although the Ways of Coping Scale has been selected here for criticism, other existing measures (e.g. Billings & Moos, 1981, 1984; Stone & Neale, 1984) have also been similarly criticised by Carver et al., (1989). Additional criticisms include that the scales lack clarity or clear focus, are ambiguous, and use one or two item scales (Carver et al., 1989; McCrae, 1984).

Efforts to develop an appropriate scale are described as preliminary:

> "Efforts to classify coping responses into clusters or categories are at a preliminary stage, and no consensus has yet emerged" (Billings & Moos, 1984, p. 879) and
>
> "Several conceptual schemes have been proposed, but the development of reliable and valid empirical measures is still in its infancy, though progress has been made by Folkman and Lazarus (1980), Pearlin and Schooler (1978), Moos and Billings (1982) and Osipow and Spokane (1984)" Payne (1988, p.121).

A number of scales were reviewed for their applicability to the study of chronic work stress: Amirkhan's Coping Strategy Instrument (1990) was derived from responses by subjects to event like stressors, rather than to chronic "hassles"; the appropriateness of Carver et al.'s (1989) multi dimensional coping inventory in the work context is not known; and a number of limitations of the Ways of Coping check-list have been outlined.

Latack (1986) provided three empirically derived scales with some construct validity evidence, but the scale was tested in only one sample (N=109). Newton (1989, p. 161) summarises the situation: "in sum, there has been limited prior evaluation of the range of coping responses people may exhibit across individuals and environments" and more recent criticism still laments that agreement on a clear-cut classification of coping is yet to be achieved (Dewe, 1992b). Newton (1989) argues that there is a need for fresh approaches to researching coping rather than relying on existing quantitative measures.

3.3.6 Conceptualisation of coping: Situational or dispositional (style)?

A number of criticisms of the both the conceptualisation of coping in the transactional approach, and the utility for the approach in occupational stress research have been made. Proponents of the cognitive-phenomenological approach, do not acknowledge the potential for coping style, or dispositional coping (what do you usually do to cope?). The coping style concept:

> "acknowledges that (1) people may have a tendency to cope in a certain way over time, and that (2) this coping style may result either because the person tends to appraise events in a certain way, e.g., is more susceptible to feeling time pressured, or because they have a tendency to behave in a certain way, e.g., to avoid rather than approach stressors, and (3) that the pattern may be conditioned/socialized by particular environments, or even be largely a product of the existence in a certain type of environment, e.g., a very high demand environment" (Newton, 1989, p. 454).

Rather, they suggest that the individual's *appraisal* of the situation is a determining feature of the type of coping response selected (Dewe, 1991; Lazarus & Launier, 1978). Proponents therefore endorse the assessment of situational coping, a response to a specific situation (ie what did you do in response to the situation?).

Their criticisms of dispositional coping or coping styles research include that: it may tap information about personality disposition, and not actual ways with which people cope in situations (Folkman & Lazarus, 1980); it "may ignore the multi dimensional and dynamic nature of actual coping responses" (Edwards, 1988, p. 236); it will not provide information about the specific demands (e.g. Pearlin & Schooler, 1978) that the person is dealing with (Folkman & Lazarus, 1980).

Coping styles research, in contrast, assesses coping that an individual exhibits over the longer-term, that could result from either semi-habitual behaviour which s/he employs, and/or the way the individual tends to appraise events. Newton (1989) argues that "while such long-term coping patterns might exist relatively independently of the environment, i.e., as personality/ behavioural "traits", they might also be conditioned or be products of particular environmental contexts" (Newton, 1989, p. 454). Gore (1987) also argues that:

> "while it is true that such research fails to track what goes on in specific stress situations and therefore misses the intraindividual and intrasituational variation that characterizes the study of single acute stressors, the approach has been popular precisely because it yields a matching of stressor and effective coping resource...which provides the middle level understanding we seek" (p. 89-90).

Many tests of situational coping (McCrae, 1984; Parkes, 1984, 1990) have used the Ways of Coping check-list (Lazarus & Folkman, 1984), and variations on a methodology described by Folkman and Lazarus (1980) and Folkman, Lazarus, Dunkel-Schetter, Delongis, and Gruen (1986). Subjects are usually asked to describe a stressful episode, appraise the event in terms of what made the event stressful, how much the situation mattered to them, whether they thought the situation was amenable to change, whether they had to accept the situation, or whether they were constrained from doing what they wanted (Carver et al., 1987; Dewe, 1992 a:b). Then subjects are required to assess each coping item in a list, indicating the extent to which they had used the strategy in the episode described.

A close look at some studies employing the methodology however reveals that while the coping assessment relates to a specific situation, assessments made of work stress are more *general* showing some obvious missing links in the ideology of some studies (e.g. Parkes, 1990).

In search for the middle ground, an improved methodology might be to define certain broad stressor areas then gauge reactions to these. For example, Latack (1986) asked subjects to

indicate how frequently they reacted in a given way in specific situations of role ambiguity, role conflict and role overload. Coping dimensions (escape and control) were assessed. Across the three role-related stressor situations, the dimensions were invariant, although there was some variability in cluster loadings within the dimensions. In other words coping reactions were similar despite the stressor, and this regularity supports the notion of coping styles.

Few studies have examined specifically the correlation between coping disposition and situational coping. Carver et al. (1989) studied students three weeks apart using essentially the same coping instrument. In the first test they used a dispositional methodology and in the second test they used a methodology based on the Folkman and Lazarus (1980) format. They showed that although associations between coping styles and coping behaviours were generally modest, they were significant for most scales and for some scales were quite strong.

Carver et al. (1989) concluded that preliminary evidence exists that the role of individual dispositions could be viewed more optimistically than suggested by earlier research of Lazarus and colleagues. Indeed it may even have been underestimated because there was no control by the researchers (Carver et al.) of the situation subjects elected to report, or over the stage of the transaction reported. They suggested that personality traits and coping dispositions *both* played a role in *situational* coping, which is contrary to the theoretical distinctions between the two coping responses proposed by Lazarus and Folkman (1984).

While Lazarus and Folkman (1984) recommend that researchers move away from the assessment of coping styles or traits of coping, they admit they are probably more predictive of long range outcomes:

> "The challenge for the coping theorist is to integrate the two approaches-the microanalysis of the coping process and the macroanalysis of styles of coping-in a way that leads to the most satisfactory understanding of short and long term approaches"(p. 318).

There are a number of other reasons for using the coping styles approach over the coping behaviour approach in work stress research. Specifically in the study of chronic work stress, the researcher is more interested in strain that builds up over time, rather than in the impact of a critical incident, or in the assessment of responses to specific situations. Further, there may not be any stressful episodes to report, but the ongoing demands from the work environment may be stressful (Newton, 1989).

For example, in their study, Augestad & Levander (1992) found that many subjects did not give any ratings of preferred coping strategy because they had not experienced any particularly stressful situation during the last year. Clearly the use of a methodology that requires studying the coping response to a particular situation would be inappropriate in chronic work stress studies. Moreover, the incident may not be relevant to the ongoing demands of the work environment.

Finally, Newton (1989) proposed that studying longer term patterns of coping (i.e. styles) over time would be a superior approach to monitoring situational coping as the latter would require more frequent repeated measures and, because of demand characteristics, could contaminate the findings.

A methodological implication of coping styles research, is that coping styles would not mediate the relationship between the original appraisal and its attendant emotion as suggested by Folkman and Lazarus (1988). Rather, the coping style would be (in part) an antecedent condition and would moderate the perception of the situation and how it is appraised (Harris, 1991). Indeed, as noted in the empirical work cited earlier in this section, the direct or moderating effects of coping have been more frequently assessed in the work stress literature as opposed to the mediational role of coping.

3.3.7 The unit of analysis

The focus of the cognitive-phenomenological model is on the dynamic interaction between the person and the environment. It really requires a research methodology that focuses on the individual transaction. Ideographic research would therefore be appropriate and would provide rich insights into the cognitive processes of stress and emotion for single subjects. However as Harris (1991) notes, problems of verification, and generalisability of ideographic findings are inherent in the method.

At the philosophical level the focus of the transaction between the person and the environment as the unit of analysis reduces work stress to an individual level phenomenon (Harris, 1991). As such a number of limitations of the utility of the approach to work stress research can be identified. These include: (1) understanding how individuals interact with various work situations does not necessarily provide insight into acute or chronic stressors or into ways of correcting the stressful circumstances; (2) guidelines to organisations in the management of stress, or the correction of stressful environments may be therefore limited; (3) the stress response and its attendant psychological and physiological effects may be de emphasised in empirical tests of the model; (4) emphasis on adaptation of the worker to stressful conditions as opposed to changing the work conditions may occur; 5) a lack of knowledge of the generalisability of the stress response and of particular interventions may result; and (6) an understanding of individual events rather than social patterns is likely (Harris, 1991). Obviously many of these limitations apply to other psychological models (i.e. P-E fit model).

3.4 Concluding remarks

Taken together the criticisms of the P-E fit model and the cognitive-phenomenological model, raise doubts about the utility of psychological models in guiding work stress research and intervention. As Ganster & Schaubroeck (1991) point out:

> "we still need to focus on the objective conditions that give rise to the appraisals and learn what accounts for the linkage or lack of linkage between these factors" (p. 251), and ....we do not discount the importance of subjective appraisal in mediating one's response to the work environment, but ultimately these must be anchored in objective assessments' (p. 262).

In a recent metatheoretical evaluation of psychological models Eulberg, Weekley, & Bhagat, (1988) reflected that:

> "If researchers are to make the best use of available resources, they must be guided by models that are exacting enough to provide both interpretable and valid results through rigorous empirical testing" (p. 333).

Neither P-E fit theory, or cognitive phenomenological theory are exacting enough to predict what work conditions are likely to result in stress. But the fundamental criticism of the psychological models is that they are based on constraining ideological presumption. "The workplace, more than the worker, must be modified to prevent occupational stress" (Baker, 1985, p. 379)

Chapter 4

4.1 The Job Demand-Control (JD-C) Model

The JD-C model has been described as the dominant influence in the work stress literature since the 1980s (Ganster & Schaubroeck, 1991). The JD-C model is based on P-E fit theory (e.g. Caplan et al., 1975; Kahn, 1981) and job redesign research (e.g., Hackman & Oldham, 1980). The JD-C model was not designed to replace the more complex P-E fit model or a recent refinement of the P-E fit model (i.e. Hurrell & McLaney, 1988). However, it emphasises the objective features of the work environment, and not solely individual perceptions (cognitive models) or person-environment fit (Schnall, Landsbergis, & Baker, 1994). It assumes a sociological causality because its applied aim is to change work structures rather than individual behaviour (e.g. coping responses) (Muntaner & O'Campo, 1993).

The aim of the JD-C model is to provide an important integrative conceptual framework for predicting the health and behavioural consequences of the structure of work, with the joint possibility of enhancing the quality of working life, and productivity. It has contributed significantly to the empirical foundation linking the psychosocial work environment to health (Muntaner & O'Campo, 1993).

The JD-C model is a content model, and specifies features of the work environment, that is, characteristics of the job itself, that are associated with strain (Baker, 1985; Ganster & Schaubroeck, 1991). The JD-C model is a two-dimensional model as shown in Figure 4.1. It isolates demands and control as the sources of stress rather than proposing that all job features are potential stressors (Schnall et al., 1994). Specifically, the model proposes that strain results from the joint effects of the work demands and environmental moderators, particularly the range of job control available to the worker facing those demands (see section 2.6.2, Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981).

Job demands refer to psychological demands rather than physical demands. Psychological demands refer to: how fast and hard the worker must perform necessary tasks; excessive work; work pressure or the hectic nature of the job; or conflicting demands. *Job control* (also called the *decision latitude* dimension) comprises two components: (1) skill discretion or skill variety which includes level of control over the worker's use of skill (Karasek, 1989) or time allocation (Baker, 1985); and (2) decision making authority which includes the worker's authority to make decisions about his/her own job (often called "autonomy", Karasek, 1989).

In the JD-C model, psychological demands represent the instigators of action whereas lack of control over the task represents a *constraint* on the individual's optimal course of action, or alternative actions (e.g. an effective coping response).

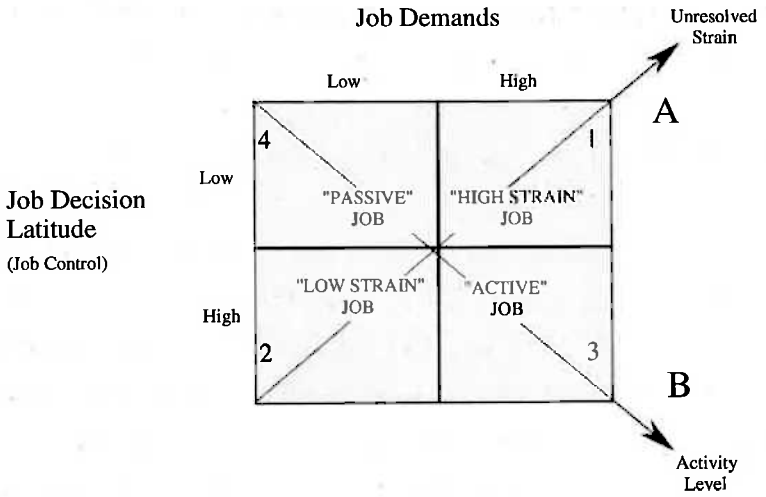


Figure 4.1 The Job Demand-Control Model (Reprinted from "Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign" by Robert A. Karasek Jr., published in *Administrative Science Quarterly*, 24, 2, 1979, p. 288, by permission of Administrative Science Quarterly)

The JD-C model describes four different kinds of psychosocial work situations, that result from all the possible combinations of demand (high, low) and control (high, low) (Karasek, 1979). These are depicted in Figure 4.1 as four different quadrants: (1) "high strain" jobs combine high demands and low control; (2) "low strain" jobs combine low demands and high control; (3) "active jobs" combine high demands and high control; and (4) "passive jobs" combine low demands and low control.

The model gives rise to makes two major predictions. The first, the psychological strain hypothesis, predicts that: "the most adverse reactions of psychological strain (fatigue, anxiety, depression, and physical illness) occur when the psychological demands of a job are high and the worker's decision latitude in the task is low" (Karasek & Theorell, 1990, p. 32). Following diagonal A in Figure 4.1, as the level of psychological demands increase a normal but elevated level of physiological arousal occurs, reflected in higher levels of heart rate and adrenalin secretion. This energising response enables the worker to cope with increasing demands. However if the options of the workers to respond is constrained (because of low decision latitude), and the demands exceed the control possibilities, the effects of the demands will be sustained. The arousal energy cannot be channelled into an appropriate coping response. Protracted normal arousal will result in unused residual strain, leading to psychological strain and in the longer term, to stress-related illness (e.g. heart disease).

The highest levels of strain would therefore be found in high strain jobs (quadrant 1 in Figure 4.1) where the demands of the job can not be moderated by the worker, for example, where bureaucratic rules rigidly limit worker responses (Karasek & Theorell, 1990). Lower than average levels of strain would be found at the opposite end of the diagonal, where demands are low, but control is high (see quadrant 2 in Figure 4.1).

The model attempts to account for the social psychological literature that deals with motivation and learning processes (Landsbergis, 1988) and which views taxing situations as

prerequisites for learning and development rather than merely contributors to psychological strain and physical illness (Karasek, 1989, p. 134). Along these lines a second major hypothesis is proposed.

The active learning hypothesis predicts that: increased motivation, learning and competency will occur, when the challenge of the situation (demand) is matched by the individual's level of skill or control in dealing with the challenge (Karasek, 1979) (follow diagonal B in Figure 4.1). This would occur in "active jobs" (quadrant 3) which would be the situation of most managers and nurses. "Passive jobs", (quadrant 4) at the other extreme, are typical of watch people and guards (Karasek & Theorell, 1990). They involve few demands and little decision latitude and therefore entail low skill acquisition. Karasek (1979) hypothesised that higher levels of satisfaction would occur in the active jobs compared to levels in the passive jobs.

The model predicts that passive jobs would be associated with non energetic responses, and would induce a decline in problem solving and activity generally, and may even lead to learned helplessness (Maier & Seligman, 1976).

In summary, the JD-C model is a dual outcome model, predicting both strain and performance, using two independent broad dimensions of work activity. The diagonal "A" (shown in Figure 4.1) represents psychological strain mechanisms, and the diagonal "B" dimension represents skill acquisition mechanisms. The psychological mechanisms proposed in the model may result in a range of outcomes: anxiety, depression, exhaustion, psychosomatic complains, heart disease, and absenteeism on the one hand, and learning, motivation, and job satisfaction on the other.

The JD-C model emphasises the objective environment and predicts that a work environment featuring high psychological demands and low control will be stressful for *all* workers because the primary source of stress lies in the characteristics of the job itself. The model also predicts that workers in the same organisation with the same level of demands, but with low job discretion will report greater physical and mental health symptoms, compared to workers with high discretion. The model can also account for the observation that environmental demands contribute to positive behavioural outcomes in some settings and negative behavioural outcomes in other settings (Karasek, 1989) because the level of discretion may vary.

4.2 Empirical evidence for the JD-C Model

Studies of the JD-C model can be generally categorised into two types, namely (1) multi-occupation (heterogeneous) studies and (2) single-occupational (homogeneous) studies. A number of reviews of empirical tests of the JD-C model are now available (Ganster & Fusilier, 1989; Ganster & Schaubroeck, 1991; Karasek, 1989; Karasek & Theorell, 1990; Kasl, 1989; Kristensen, 1995; Schnall, Landsbergis, & Baker, 1994).

Many of the earlier tests of the JD-C model were undertaken in large heterogeneous samples through secondary analysis of data from large surveys. The reviews generally conclude that

these studies have demonstrated evidence for the JD-C model particularly in predicting coronary heart disease (e.g. Alfredsson, Karasek, & Theorell, 1982; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981; Karasek, Theorell, Schwartz, Pieper, & Alfredsson, 1982a; Karasek, Theorell, Schwartz, Schnall, Pieper, & Michela, 1988; Theorell, Hamsten, de Faire, Orth-Gomer, & Perski, 1987).

Reviews however generally conclude that there is little evidence for the JD-C model within occupations. A number of tests of the model have been conducted in homogeneous groups of workers and have tested for the moderating effect of control on job demands. Samples include teachers (Payne & Fletcher, 1983); prison officers (Morrison, et al., 1992); steel pipe mill workers, (Perrewe & Anthony, 1990); in clerical workers (Spector, 1987a); and nurses (Hurrell & McLaney, 1989). None of these studies the found consistent interaction effects that would constitute support for the model.

This raises the question of whether the *lack* of interactive effects could be due to methodological inadequacies. For instance, each study employed a self-report cross-sectional methodology, where the lack of interaction effects could plausibly be attributed to strong method effects (Evans, 1985).

The problem of method variance is thought to be less pervasive in studies using time lagged measurement (Ganster, Mayes, & Fusilier, 1986) or by the use of objective assessments of strain (Brief & Atieh, 1987; Fox et al., 1993). Indeed using a longitudinal design, Bromet, Dew, Parkinson, & Schulberg, (1988) studied non-managerial male power plant employees and found some support (1 of 3 interactions tested) for the interaction model. Common method problems applied less in a study of nurses by Fox, Dwyer, & Ganster (1993) because of the physiological measures (blood pressure, cortisol level) used as criterion, objective measures of objective demands (patient load, patient contact time) and the temporal separation between independent and dependent measures. However Fox et al., (1993) showed some support (17.5% of all interactions tested) for the interaction model in their study. Together, the results of within occupational studies show improved support for the JD-C interaction model when studies have used time lagged measures, and/or objective indices of strain.

Other tests have been conducted at the individual level in heterogeneous samples: nursing home workers (Landsbergis, 1988) and bank employees (Beehr & Drexler, 1986). Both concluded in favour of a direct effects model for demands and control.

Finally, a number of other tests relevant to the JD-C model have been applied with mixed results. In an experimental test of the model, Perrewe and Ganster (1989) found a significant interaction of perceived job demands and perceived control in a letter-sorting postal service simulation for psychological anxiety but not in relation to physiological arousal or satisfaction in a sample of undergraduates. Main effects of perceived demands on satisfaction and anxiety, and main effects of control on anxiety were observed. No direct effects were noted for physiological arousal. The impact of objective demands and control (including interactions) on experienced strain was generally non-existent. The experimental simulation was however of short duration, so it is reasonable to argue that the simulation did not adequately represent chronic work demands.

Dwyer & Ganster (1991) did however find significant interactions between objective job demands and perceived control in male manufacturing employees. They found significant interactions, consistent with the model, in predicting sick days.

In a study of occupational stress among student nurses, Parkes (1982) found that when students moved between wards that varied in objective demands and discretion, significant differences in affective symptoms were noted. The longitudinal design of the study provided strong evidence of a causal role of the work environment in influencing mental health and well-being. In particular the amount of discretion afforded in work between wards and the associated change scores were significantly associated with changes in mental health scores. No support was found for the hypothesis that changes in work demands would be associated with changes in anxiety. The study did not test for the interaction effect suggested by the JD-C model.

In summary, tests of the model in homogeneous/heterogeneous samples using individual level measures, tend to provide support for a main effects model of demands and control, dimensions combining additively rather than interactively to predict work related strain. The lack of detection of an interaction effect may be due to methodological failures rather than theoretical failure of the model to predict strain. The apparent disparity in results of the epidemiological studies compared to the individual-level analysis has stimulated a number of criticisms of empirical tests of the model.

4.3 Criticisms of empirical tests of the JD-C Model

Several criticisms have been made of the empirical tests of the JD-C model. First, large-scale epidemiological studies tend to rely on occupational level analysis of the independent measures, demand and control. Many of the multi-occupation studies have used objective assessments of job characteristics obtained by an imputation method. This method involves assigning average scores on estimated occupational job characteristics to individuals in that job title, instead of using the individual's self-reported scores. Occupations can therefore be objectively categorised as "high strain", "low strain", "active" or "passive" job, and accordingly predictions can be made about their level of strain.

Occupational level derivations of demand and control are argued to be potentially confounded with other variables such as physical exertion, socioeconomic status, health behaviour, and age (Ganster & Fusilier, 1989; Kasl, 1989) which are also linked with heart disease (Dorian & Taylor, 1984). For example, Ganster (1989) argued that the sample used by Karasek (1989) comprised many different occupations, and that individuals with low socio-economic status (SES) may have been over-represented in jobs characterised by high demands and low control (e.g. Siegrist, Peter, Junge, Cremer, & Siedel, 1990). For example individuals with low pay, low satisfaction and poorer health may be over-represented in high strain jobs, leading to inflated associations between job strain characteristics and ill health in samples covering broad SES groups (Ganster, 1989). Variables like SES or salary level or

other variables may have co-varied with demand or discretion to produce the interactions noted by Karasek (Spector, 1987). Occupational differences that occur in heterogeneous samples may confound the relationship between demand, control and outcomes in many ways. Job factors that may differ between occupations may overlap with the constructs, or influence how they are perceived. Selection effects (workers entering occupations and leaving occupations) inherent in occupational groups may influence outcomes independently of how the work environment is perceived (Karasek & Theorell, 1990; Kasl, 1989; Parkes, 1991). Spector (1987) argued that the use of samples more homogeneous with respect to SES or other covariants (e.g single occupational samples), would be less likely to support Karasek's (1979) findings. Another problem is that multi-occupational studies can not account for the selection

Notwithstanding these important criticisms, classification of occupations by job characteristics and the use of imputation methods to estimate the level of the characteristics in jobs has enabled access to large data bases in Sweden (Alfredsson et al., 1982) and the United States (Karasek et al., 1988). Although Karasek argued that the method helps overcome the self report response bias which has been considered a major problem in stress research (see Chapter 5), he acknowledges the limitation of the method in estimating all the variance among the individual jobs and possibly underestimating the true strength of the associations between myocardial infarction and job characteristics (Karasek et al., 1988).

Second, only limited support would be found because of the limited variance that may exist on the variables in single occupational studies (Karasek, 1989). This Karasek argued could lead to Type II errors (i.e. retaining the null hypothesis when it is false).

However, Ganster and Fusilier (1989) showed that variance on a range of work demand variables in a single occupational sample was not appreciably different from that obtained in data from a large multi-occupational sample. They therefore argued that a considerable degree of variability in job characteristics *does exist* within occupations, and that characteristics such as workload, role conflict and hectic pace may be determined less by one's occupation than by the particular employment situation faced by the individual.

These methodological difficulties do not challenge the demand-control theory, but do raise doubts about its utility in homogeneous populations, specifically informing workplace intervention. As Ganster (1989) argues, when jobs are being redesigned within a single occupation, the model should be able to predict reduced strain as control increases, and predict differences between levels and within levels in an occupation.

Third, Karasek originally used composite (global) measures of control and demands which may have included domains of control or elements of job demands not included in subsequent studies of the model (Sauter, 1989). Karasek (1979) defined job decision latitude as "the working individual's potential control over his tasks and his conduct during the working day" (pp. 289-90). Ganster and Fusilier (1989) argued that although decision latitude was conceptually very similar to the traditional job design theorists view of autonomy (e.g. Hackman & Oldham, 1976), the operationalisation of the construct in Karasek's research was not like autonomy.

The initial formulation of Karasek's decision latitude scale, in addition to questions relating to decision latitude, included items relating to creative work, repetitious or monotonous work, and years of training/education. According to Ganster and Fusilier (1989) and Perrewe and Ganster (1989), the measurement of decision latitude combined control itself with conceptually different constructs, namely skill utilisation, variety, overall job complexity and possibilities for ongoing education as part of the job (Johnson & Hall, 1988). Kasl (1989) has questioned what has been learned theoretically or practically with such a broadly conceived construct of control. Sauter & Hurrell (1989) elaborate the problem from the measurement level to a theoretical level:

> "At present, we are lacking for theory to help define the conceptual boundaries of the control construct and to guard against the inclusion of job attributes which serve to simply increase the general competence of the worker. This poses the danger of a drift in the conceptualization and operationalization of job control toward the more global 'mastery of environmental demands' concept.....With such a broad formulation, the distinction between a control-demands stress model and traditional approaches emphasising the imbalance between individual resources/ capabilities and demands (e.g. McGrath, 1976) is blurred and, except for the new emphasis on controllability, it is unclear what has been gained theoretically or practically"(p. xvi).

When control is measured with a more precise instrument (Hurrell & McLaney, 1989; Payne & Fletcher, 1983; Perrewe & Ganster, 1989; Spector, 1987a) it appears that less support is provided for the JD-C model (Ganster, 1989).

Fourth, it is argued that multiplicative interaction terms implied in the model, and noted in several epidemiological studies, are in fact very close to additive linear effects (Ganster & Fusilier, 1989; Kasl, 1989). Karasek (1989) admits that a multiplicative effect "would strengthen the plausibility of the demand-control mechanism (a pre-potentiating effect for low control)" (p. 143). However it does not change the practical implications for job redesign if two separate linear effects for control and demand are observed (Karasek & Theorell, 1990). Karasek (1987) does point to the possibility that interactions are systematically underestimated because of the limited ability to detect interactions in many ordinary-least squares analytic techniques.

The problem of detecting an interaction effect is compounded by disagreement in the literature about just what exactly the term "interaction" means statistically. In the initial formulation of the job strain model Karasek rejected the multiplicative interaction centred at the mean of the independent variables "because it predicts a down turn in strain at low demands and low decision latitude" (p. 293). The interaction formulation described by Karasek was Job Strain=|Demands-Decision Latitude+c|, where job strain is determined by the absolute value of the discrepancy between job demands and decision latitude.

Karasek argued that in order to retain some of the original implications of the relative excess interaction, the constant term was used to place three quarters of the sample in the category where too many demands make the absolute value expression positive, and one quarter in the category where an excess of decision latitude makes the expression positive. Traditional tests for interaction terms based on partial product terms, (where cross product terms are entered into the regression analysis hierarchically following the corresponding first order terms), were rejected in favour of the demands-control difference term. However some researchers are

concerned that in using difference terms, it is not clear in tests by Karasek, "that the variables truly interact" (Ganster & Fusilier, 1989, p. 257).

Other statistical variations of the interaction term have been applied: the demands divided by control ratio variable (Sauter, 1989); multiplicative interaction terms with weighted scales for demands and control, with zero point set at one standard deviation above the mean on decision latitude and one standard deviation below the mean on psychological demands (Karasek et al. 1988); standardising the scores on demands and discretion and then taking the absolute values when discretion is subtracted from demands (Payne & Fletcher, 1983); and conventional hierarchical regression analysis using a multiplicative interaction term (Bromet et al., 1988; Hurrell & McLaney, 1989; Landsbergis, 1988; Morrison et al., 1992; Perrewe & Anthony, 1990).

Sauter (1989) used both the ratio term and the conventional multiplicative interaction term in a sample of video display terminal users. He found ratio interaction effects predicted illness symptoms and job dissatisfaction, but these interaction effects were not found for the multiplicative interaction term. However models which incorporated the special interaction term showed only a small increases in R^2 over the alternative model containing the multiplicative interaction term. Also using a variety of formulations Landsbergis, Schnall, Warren, Pickering, and Schwartz (1994) recently drew the broad conclusion "that the impact of job strain, at least on systolic blood pressure, is consistent and robust across alternative formulations" (p. 349). The evidence suggests that lack of support is probably not due to the statistical method used (see also Payne & Fletcher, 1983).

Even though a number of methodological limitations have been highlighted (Ganster, 1989; Kasl, 1989) and alternative explanations offered (Siegrist, 1991), as Ganster & Schaubroeck, (1991) point out, the same limitations could conspire against the theory. For example, ecological correlations from occupational-level studies can lead to spurious inferences about individual effects, but they may also mask true effects, in other words support for the theory.

4.4 Criticisms of the JD-C Model

As a whole, the methodological concerns about epidemiological tests of the model, the lack of consistent support from within occupational studies, experiments and natural studies, compound to raise doubts about the utility of the JD-C model. Apart from the apparent inability of the model to predict strain in homogeneous samples, two other major criticisms apply.

First, a common criticism of the model is that it accounts for too little variance in health outcomes or related measures of psychological strain (Beehr & Drexler, 1986; Payne & Fletcher, 1983). In tests of the interaction between demands and control, Baker (1985) noted that the multiplicative interaction term usually did not contribute to strain beyond the component measures. Beehr & Drexler (1986) for example, found moderator effects for support, autonomy and hierarchical level on a range of job stressors in 25 of 48 moderated regression

models but showed that the median per cent of variance accounted for by the interactions was one half of one per cent.

Karasek (1989) however, on the basis of the nature of health variables, has defended the trivial variance criticism as follows:

> "The maximum achievable R^2 is dependent on the frequency of the problem condition and therefore automatically low for conditions like serious depression or job dissatisfaction which affect 10-20% of the population (Karasek, Gardell, & Lindell, 1987). R^2 is extremely low for health outcomes like coronary heart disease (CHD) which affect only several percent of the working population. For example, even the very strong and well known associations of age and CHD only yield an R^2 of 2!" (Karasek, 1989, p. 142).

Second, it has been suggested that the model is too simple. Karasek (1989) partially agreed with what he refers to as the most serious criticism of the model. Karasek argued that the simplicity is designed for practical and interdisciplinary applications, "where the demand-control model might serve as a first step in a multi-step process" (p. 143). The simplicity and broad coverage of the model make it appropriate for interdisciplinary research (Karasek & Theorell, 1990). Some writers concur that the model may provide some integration in a field haunted by fragmentation and phenomenalism (Baker, 1985; Muntaner & O'Campo, 1993).

Karasek reminds us that social control and task specialisation are *general* factors in workplace design, and may *cause* a wide variety of other *detailed* job circumstances. Karasek (1989) agreed that detailed variables may be related to the decision latitude variable and that controlling for detailed variables in a single model would certainly diminish decision latitude associations with strain. Sauter (1983) found evidence of social support competing with decision latitude in a sample of clerical workers using visual display terminals. Karasek (1989) referred to initial investigations which show strikingly similar associations to those reported earlier (Karasek, 1979) but that subsequent analyses involving a larger number of variables tend to remove demands or decision latitude from the equation (also Sauter, 1989).

The advantage of the simplicity of the model may therefore be outweighed by the generality of the constructs. As Muntaner and O'Campo (1993) argue, the inherent vagueness of the constructs could lead to their extension far beyond their original domain: "indiscriminate application of the demand/control model across countries, periods, modes of production, work organizations would result in loss of explanatory power of the model" (p. 1511).

Finally, the model has been advanced as a sociological theory yet the reliance in so many tests of the model on self-report has led to the criticism that it shares more with cognitive theories rather than sociological theories (Muntaner & O'Campo, 1993). For example macro-level sources of control would be important in sociological models, and would consider organizational policies, union membership, membership in influential work groups, and participation in major production planning. These factors would have a direct effect on productivity and health and indirect effects on task control at an individual level. However, Karasek & Theorell (1990) argued that the original goal was to model the effects of individual level outcome measures.

To summarise, careful scrutiny of large-scale epidemiological studies initially thought to be supportive of the JD-C model have led to concerns about whether true interactive effects were shown, and raised concerns about the construct validity of variables, and confounding of other variables. Further criticisms include its lack of predictive ability and its simplicity. Conclusions have been mixed " as a whole these studies... have failed to provide convincing support for the model" (Fox, Dwyer & Ganster, 1993, p. 293) whereas "a body of literature has accumulated that strongly suggests a causal association between job strain and CVD" (Schnall et al., 1994, p. 405).

For scientific reasons and for compelling practical reasons related to work redesign strategies, the JD-C model was augmented to include social supports, physical exertion, job insecurity, and hazardous exposure in its framework (Karasek & Theorell, 1990). Kasl (1989) also argued that in the absence of evidence in support of the control buffer formulation, it seems reasonable to recommend that future studies explore the interplay of control with other dimensions, such as social support. The next section focuses on the role of social support in the expanded JD-C model. A discussion of the other variables is beyond the scope of the thesis.

4.5 The Demand-Control-Support Model

The expansion of the JD-C model to include a third dimension, workplace social support was largely due to the work of J. V. Johnson and his colleagues (Johnson, 1986; Johnson & Hall, 1988). Social support at work "refers to overall levels of helpful social interaction available on the job from both co-workers and supervisors" (Karasek & Theorell, 1990, p. 69). The role of social support in the work stress process has been given considerable attention for both its direct beneficial effect on well being and its potential to moderate the deleterious impact of demands on strain outcomes. Johnson (1986) first used the term "iso-strain" to describe a job with high psychological demands, low control and low social support. According to the "iso-strain" hypothesis, "iso-strain" jobs would show the greatest levels of psychological and physical health symptomatology.

At the same time, Fletcher (1988) also proposed an expanded JD-C framework. He argued that Parkes' (1982) finding that medical wards rather than surgical wards were associated with higher levels of affective disorders in student nurses, could be principally attributed to job discretion and higher levels of social support, rather than to differences in job demands. He argued that a Demands-Supports-Constraints framework may be more useful for the prediction of strain, than the JD-C model.

The Demand-Control-Support (DCS) model is the common name given to the extended JD-C model. As shown in Figure 4.2, it models the four different kinds of work situations at both high levels of social support (collective conditions) and low levels of social support (isolated conditions).

While the three basic job characteristics are thought to be orthogonal, the relationship between the variables is important in defining job structures. For example, the relationship between control and support reflects the participation level of workers in the work process (Karasek & Theorell, 1990). Several studies have reported moderate sized positive correlations between control and social support in both homogeneous (Sauter, 1983; 1989), and heterogeneous samples (Landsbergis, 1988; Moos, 1986). In practice Karasek and Theorell (1990) argued, when the DCS model is applied in job redesign "we find that changes in social relations between workers (such as initiation of autonomous work groups) and changes in decision latitude are almost inseparable strategies" (p. 69).

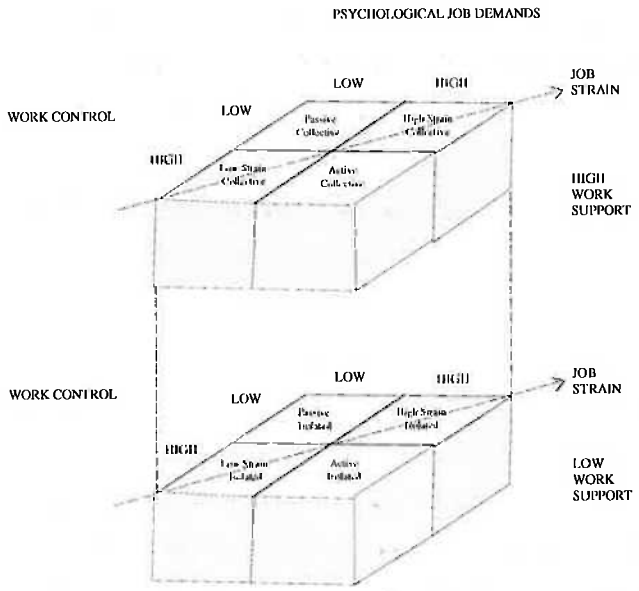


Figure 4.2 The Demand-Control-Support Model (Reprinted from "Job Strain, Work Place Social Support, and Cardiovascular Disease: A Cross-Sectional Study of a Random Sample of the Swedish Working Population" by Jeffrey V. Johnson and Ellen M. Hall, published in *American Journal of Public Health, 78*, 10, 1988, p. 1336, by permission of the American Public Health Association)

Karasek & Theorell (1990) showed in a large-scale, multi-occupation U. S. database that the correlation between support and control was much higher than between psychological demands and control. Also demands and support were negatively correlated (see also Landsbergis (1988). They argued that this finding is consistent with Fredrick Taylor's job design policies, "which left workers powerless in isolated but demanding jobs" (p.75). Karasek & Theorell (1990) point out that this prevailing arrangement in the workplace is inconsistent with the widely held contemporary belief that social support can act as a palliative to increasing demands in jobs.

In addition to the eight job combinations specified in Figure 4.2, Karasek and Theorell (1990) also attempted to define jobs that may result from the four combinations of high and low levels of control and support. Jobs combining high control with high support are labeled as "participatory leader" reflecting the notion that high support and high decision participation are an important force in environmental change (House, 1981). Workers in this situation, for

example, scientists, teachers, and nurses, are potentially able to participate in and influence collective decisions. Jobs combining low social support with high decision latitude are referred to as the "cowboy hero" because of the isolation and high level of skill required. Jobs included in the category are architect, lawyer, or engineer. Jobs that combine high support and low control are labelled "obedient comrade", integrating many social resources and obligations with little freedom for action. Examples of these jobs are workers behind the scenes such as delivery personnel, stock-clerks, mail workers and watchmen. Finally, jobs combining low decision latitude and low support are referred to as "isolated prisoner" e.g. assemblers and key punch operators.

4.6 Empirical evidence for the Demand-Control-Support model

Johnson and colleagues (Johnson, 1986; Johnson & Hall, 1988, 1994; Johnson, Hall, & Theorell, 1989) have tested the DCS model with some success using large scale, multi-occupational Swedish databases. Johnson (1986), for example, found that high "iso-strain" workers (high strain jobs/low control) also reported more mental fatigue, heart disease and physical health symptoms (digestive and back ailments) than low "iso-strain" workers (low strain jobs/high support) [after controlling for confounding effects due to age, gender, marital status, socioeconomic status, non-work social support, income, smoking, and physical job demands]. High "iso-strain" workers had an earlier onset of cardiovascular symptoms and death from cardiovascular disease occurred at a younger age compared to the workers lower on "iso-strain" (see also Johnson, Hall, & Theorell , 1989).

Some specific tests of the DCS Model have involved individual level cross-sectional studies of heterogeneous samples of health care workers (De Jonge, Janssen, and Breukelen (in press); Landsbergis, 1988; Parkes, Mendham, & Rabenau, 1994). Results are not clear cut. Social support acted as an independent predictor and combined additively with demand and control to predict job dissatisfaction, burnout, depression and psychosomatic symptoms (Landsbergis, 1988). It also combined additively with the Demand X Control interaction to predict job satisfaction (Parkes et al., 1994) and emotional exhaustion (Jonge et al, in press) and buffered the impact of jobs which combined high demands and low control in predicting levels of somatic complaints (Parkes et al., 1994).

In cross-sectional occupationally homogeneous samples, support for the three way interaction model for job dissatisfaction was found by Landsbergis, Schnall, Deitz, Friedman, and Pickering (1992) in a sample of men; no support was reported by Melamed, Kushnor, & Meir, (1991) in a sample of female social workers, showing only main effects for job satisfaction and burnout. Finally, De Jonge and Landeweerd (1993) in a secondary data analysis of five databases in Dutch health care showed little support for either the DCS model or the JD-C model. Only 4 of 24 possible interaction terms (only about 17%) were statistically significant. Consistent with the JD-C model a significant Demands X Autonomy interaction was shown for psychosomatic complaints.

Longitudinal studies of homogeneous samples, also show mixed results. Firstly, the D x C x S interaction reported by Parkes et al (1994) above, was confirmed in longitudinal data from a homogeneous sample of school teachers (Parkes et al., 1994). Time 2 somatic complaints were predicted by the three way interaction, controlling for time 1 levels of somatic symptoms.

On the other hand, Kawakami, Haratani, and Araki, (1992) showed in a three-year prospective study of male blue collar workers, that job overload and lack of control were not long lasting risk factors for depressive symptoms. In contrast job unsuitability (skill under utilisation) and poor human relations at work (social support) were significant predictors of depressive symptoms at three years.

Other relevant studies include tests of the Demands-Supports-Constraint model (Payne & Fletcher, 1983). Results also show equivocal support, although it should be noted that the measures used to test the model are quite different from those generally used in the DCS tradition. Payne and Fletcher (1983) showed only small effects of the hypothesised combination of high demand, low support and high constraint on psychological outcomes in a sample of school teachers. The analysis was based on clusters of combinations of the variables at different levels, and differences were analysed by analysis of variance. No direct assessment of interaction effects were undertaken.

Similarly, Janman, Jones, Payne, and Rick (1988) were not able to find the combination of work variables thought to be most psychologically damaging occurring *naturally* in their sample of psychiatric nurses. They did however find a modest effect of support/constraint on psychological well-being which they report is consistent with Payne and Fletcher's (1983) finding although they note that high demands was not part of the configuration.

Morrison et al. (1992) also examined the model in prison officers and found "weak support to the general notion that demands and constraints act in a way detrimental to health whereas supports provide some positive benefit, but this effect is inconsistent" (p. 25). No three way interaction effect was noted.

Similar to the JD-C model, tests of DCS model have used different ways to assess the interactions between the job characteristic variables. Studies have used the "iso-strain" measure, a product term for the standardised demands, control, and support measures (e. g. Johnson, 1986); a three way interaction term (Demand x Control x Support) in hierarchical regression analysis, where support would moderate the Demand x Control relationship (Parkes, et al., 1994); and cluster analysis of levels on the indicators (e.g. Payne & Fletcher, 1983). At this stage it is not know how these methods impact on the results.

While few studies have examined the combination of all three variables, some studies have assessed the role of work support as a moderator of work demands. The interaction has been shown in a number of studies (Cullen, Lemming, Link, & Wozniak, 1985; Ganster et al., 1986; Karasek, Gardell, & Lindell, 1987; Kirmeyer & Dougherty, 1988; Kobasa & Puccetti, 1983; Lombardo, 1981; Parkes, 1990). The results are not always consistent however. Only direct effects due to social support have been found in some studies (Ganster, Mayes & Fusilier, 1986). Bromet et al. (1988) for instance, reported that low levels of co-worker support combined with high levels of demand to predict alcohol related problems but

surprisingly high levels of co-worker support combined with low levels of job demand to predict reporting of an episode of affective disorder. Some research has found no consistent beneficial effect, either interactively or as a main effect (Morrison & Dunne, 1992; Parkes, 1990). Reviews however tend to favour a main effect or additive relation among social support and other work environment characteristics to predict strain (Kahn & Byosiere, 1992; Kaufman & Beehr, 1989; Kessler et al., 1985).

In an attempt to explain the conflicting evidence on the buffering role of social support following a review of the literature, Cohen and Wills (1985) proposed that buffering is most likely to occur when there is a reasonable match between coping requirements and support. Social support is more likely to buffer the negative effects of stress if the support is readily available and adequately meets the specific needs elicited by the situation. Specific, functional measures of social support (cf measures that assess availability), well matched to the stressful events under study, are predicted by the matching model, to show buffering effects (Cohen & Wills, 1985).

Despite the potential for the expanded DCS model to account for discrepant findings in the JD-C literature, empirical tests of the model have produced only weak support. However the practical importance of the DCS model is that if jobs are too rigid in levels of demand and control, the potentially negative consequences of jobs combining high demands and low control could be moderated by high levels of social support (Parkes et al., 1994). Certainly a number of theorists believe that support as a dimension orthogonal to both demands and control, (possibly combining interactively with demand and control to give rise to adverse outcomes), merits closer investigation (Johnson & Hall, 1988; Karasek & Theorell, 1990; Kasl, 1989; Payne & Fletcher, 1983). Karasek & Theorell (1990) noted in their expanded psychosocial model, that "support of co-workers and supervisors may be one of the most important factors ameliorating stress in the working environment" (p. 135). In their review of work stress and employee health Ganster and Schaubroeck (1991) concluded that "the better designed studies show a significant relationship between self-reported stressors (lack of participation, lack of social support, hectic job demands, and low decision latitude) and epidemiological meaningful outcomes "(p. 260).

4.7 Psychological and physiological processes

Although the JD-C model and the DCS models have been referred to as content models (Ganster & Schaubroeck, 1991) further recent expansions of the model have focused on process. Specifically, Karasek and colleagues have attempted to link the effects of personality (often overlooked) and physiology on health and behaviour to environmental causes. It is beyond the scope of the thesis to describe these processes in detail (see Karasek & Theorell, 1990).

Briefly, with regard to the physiological links, Karasek & Theorell (1990) hypothesise that the psychological strain mechanism of the JD-C model (diagonal A of Figure 4.1) has a

physiological analogue: a catabolic response. It is assumed that chronic stress (i.e. without control) results in chronic neuroendocrine and cardiovascular over arousal, peripheral catecholamine degeneration and cardiovascular degeneration (Schaubroeck & Ganster, 1993). On the other hand, the active learning mechanism (diagonal B of Figure 4.1) has a different physiological analogue: an anabolic response that is associated with physiological repair and regeneration, a health promoting response. Intermittent exposure to stressors with recovery periods can lead to physiological toughening that might occur in active jobs (Dienstbier, 1989). Further information regarding links between the psychosocial work environment and physiological processes is available from a number of sources (Dienstbier, 1989; Karasek & Theorell, 1990; Schnall et al., 1994; Schaubroeck & Ganster, 1993).

With regard to psychological processes it needs to be pointed out that psychological processes (e.g. personal orientations, coping and perception) are integrated into the model. Karasek & Theorell (1990) argue from the position that personality may have its basis in the environment: that accumulated environment exposure is dynamically associated with long-term personality evolution. Later, environmental effects are moderated by these previous developed personal orientations. These mechanisms are integrated and yield an important dynamic perspective on personality and environment (Karasek & Theorell, 1990). Some parallel research has investigated the role of individual coping styles, e.g. monitoring vs. blunting (Miller & Birnhaum, 1989) and personal disposition , e.g. locus of control (Parkes, 1991), and need for control (Siegrist, 1991) in the job control-health relationship.

The move toward invoking individual factors to explain inconsistent findings of the JD-C model of work stress is similar to the earlier trend to explain the inconsistent relations between job characteristics and outcomes in other models of stress. As Karasek & Theorell (1990) reveal,

> "the Michigan model has influenced almost every step of our expansion of the original demand/control model. It is responsible directly or indirectly, through the related contribution of a generation of other researchers, for our inclusion of measures of social interactions, of individual personality, of coping behaviours, of physiological responses, and even the emphasis on multifactor hypotheses" (p. 224).

This raises the question whether stress can be well explained by the objective work environment and that the emphasis of intervention should lie there. However, the critical difference is the policy implications of the models.

> "The Michigan model's focus on the multiple stages of individual response to stress implies clear pathways of intervention-medical or psychological-at the level of the individual. Our joint focus on productivity and health, however, allows us to go the further step of linking outcomes back to the management models that determine work organization" (Karasek & Theorell, 1990, p. 224).

4.8 Concluding remarks

The JD-C model has provided the theory and impetus for extensive research on occupational stress. Evidence accumulated over the past fifteen years strongly suggests to some reviewers a causal link between job strain and cardiovascular disease (Schnall et al., 1994) although for other reviewers the evidence is not convincing (Ganster & Schaubroeck, 1991). Results in single-occupational studies for psychological outcomes such as job satisfaction, anxiety, depression, absenteeism, have been mixed. A number of theoretical and methodological limitations of the model have been discussed (see Muntaner & O'Campo, 1993) yet their is overall agreement that the JD-C ideology holds promise for further empirical investigation and primary prevention, of psychological distress, hypertension, and CVD (Ganster & Schaubroeck, 1991; Schnall et al., 1994).

Chapter 5

FROM THEORY TO PRACTICE AND THE POLITICS OF INTERVENTION

5.1 Introduction

Theoretical models of occupational stress are important because they suggest a focus for intervention, and inform practice. This section[1] concerns the issue of intervention, and examines values, assumptions and the politics of applied research. Also, a critical review of intervention studies is undertaken, to assess whether individual vs. organisational level interventions (implied by psychological models and sociological models respectively) are the most helpful in reducing workplace strain.

5.2 Applied social psychology and work stress research

A contemporary call for psychologists to play a more central *applied* role in helping to reduce the adverse reactions to stress in the workplace has come from a number of sources. Terborg (1988) has urged applied social psychologists and organizational psychologists to respond to an urgent need to expand existing knowledge and to conduct good psychological research on occupational health issues. Offermann and Gowing (1990) observed that opportunities exist for psychologists to "gain insight into the basic processes of human behavior in the important domain of work and to contribute to making organizations both more productive and humane" (p. 95). Ilgen (1990) also argued that whilst the health of the worker is one of the most critical contemporary issues in psychology, "it is an issue that we, as industrial/organizational psychologists have for the most part ignored" (p. 273). Keita and Jones (1990) noted that during the past two decades "although organizational behavior specialists from a range of professions including epidemiology, public health, business, and medicine made significant advances in understanding, treating and preventing psychological disorders in the workplace, psychology and psychologists have paid little attention to this growing area of research and practice, despite its obvious relevance to the public interest" (p. 1137). They go on to argue for an expanded role for psychologists and suggest that "psychologists can apply their knowledge of research methods and treatments to occupational stress for the benefit of the nation's workers and their families" (p. 1137). In sum, there is a call for psychologists not only to engage in developing occupational stress theory, but also to contribute to the application of solutions to organizational problems and the treatment of occupational stress.

5.3 Values, assumptions, and politics of intervention

Far from being value free, applied social research in work stress, is laden with values that need to be acknowledged. It is critical to examine the values underlying the research process. As Oskamp laments, "In the past, when psychologists have done applied work, it has most often been in the service of the status quo and the establishment rather than aimed at social change. As a result many individually-oriented psychologists have unfortunately tended to 'blame the victims' of social ills rather than attacking the underlying problems" (Oskamp, 1984, p. 331).

A number of different values underlie occupational stress research. According to Levi (1990) these are:

> "(a) a humanistic-idealistic desire for a good society and a good working life; (b) a drive for health and well-being; (c) a belief in worker participation, influence, and control at the individual level; and (d) economic interest in competitiveness and profits of business organisation and the economic system" (p. 1144).

The knowledge base of occupational stress and the influence of stress research depends to a large extent on the priority of these values for the researchers and other stakeholders. Levi (1990) argues that knowledge about working life has usually been applied to problems of economic interest and organisational efficiency, e.g. the total quality control programs commonly applied in Japanese industries. In contrast less attention has been paid to research promoting the value of workers' health, well being and personal development as intrinsically important issues. When research has focused on the worker, Levi (1990) notes that it is typically to help the worker adapt to the existing conditions, rather than to approach the conditions as ones of *human construction* and therefore quite amenable to adaptation so as to meet the abilities and needs of the worker.

According to Baker (1985) the work-stress research field has been dominated with a clinical perspective of stress as a psycho-physiological phenomenon that arises from an individual's perception of the balance between environmental demands and response capabilities. This has led to an overwhelming number of person-oriented cures when "fit" does not occur, such as relaxation therapies, humour therapies, and various other psychotherapies.

For example, the P-E fit model discussed earlier suggests that the individual's background and capability should be matched to the demands of the job. While this strategy is very useful, Baker (1985) argues that it has been used primarily to assign persons to different jobs, where the individual bears the burden of adjustment, rather than changing the existing work context to meet the needs of the person.

The medical approach, similar to the psychological approach, also focuses on the individual. The implication is that change efforts by health professionals are centred on changing biological, psychological trait, or behavioural components of the individual to reduce strain. For example, the treatment of heart disease using the two approaches may involve changing the biological basis of the disease through lowering blood pressure with pharmaceutical drugs, or lowering cholesterol through dietary changes. Lifestyle changes may

involve moderating eating or smoking behaviour. Psychological traits may be changed through behaviour modification or rational emotive therapy (Duckworth, 1985; Karasek & Theorell, 1990). In both cases, intervention is individually focused rather than organisationally focused.

Entrenched in these influences, stress research has emphasised the role of the individual's perceptions and vulnerabilities in the stressor-strain process, and interventions have focused on enhancing coping strategies rather than being directed toward modifying specific work stressors in order to reduce strain (Baker, 1985). Workplaces that adopt definitions which emphasise cognitive appraisal, perception, "resistance", "vulnerable personality", or other personal phenomena are apt to employ stress management strategies which, it can be argued, are essentially victim blaming (Otto, 1985). Stress management as such has limited application when stressors are clearly related to work-related risk factors, or the control/power structure of the workplace (Karasek et al., 1981).

In the Australian context, Spillane (1986) has noted the consistent lag between discovery and application in the field of occupational stress which is often due to the politics of the problem: "when research moves from the laboratory to the work organisation it invariably becomes enmeshed in the politics of industrial relations...the reluctance of organisational leaders to promote stress research reflects (political and economic) concern that the consequences are ambiguous and potentially serious. Stress research has far-reaching consequences for it is concerned with the health and well-being of people at work " (Spillane, 1986, p. 529).

When undertaking applied research or evaluation in organisations, every step is a political process beginning with the way the stress problem is conceived, because different emphases result in different implications for various stakeholders in the organisation. If results are unacceptable to any interest group, change may be sabotaged (e.g. if the workers do not agree with the recommendations), or merely avoided (e.g. if management does not agree with the research findings) (Rossi & Freeman, 1989).

5.4 What type of interventions work?

To be effective in helping organizations and in developing stress policy, psychologists need to know, in addition to theories concerning the aetiology of stress, what interventions have been tried and which ones work. Interventions can be generally categorised as individual level interventions or organisational level interventions. The following section describes and evaluates the effectiveness of these interventions in terms of improving worker health and well-being.

5.4.1 Individual level interventions

Traditional stress reduction approaches have focused on the individual, to help the individual cope with stress and build resilience. Two major classes of intervention are: 1) stress management training, and 2) employee assistance programs (EAPs).

Stress management training programs are often implemented as preventative strategies to groups of employees at the work site, and may include the following strategies: 1) changing, augmenting, or enhancing coping resources and responses (Dewe, 1989); 2) teaching arousal reduction techniques, via training in progressive muscle relaxation, biofeedback, meditation, and breathing management (Benson, 1975); and 3) changing perceptions/appraisals of work stressors using cognitive restructuring (Meichenbaum, 1977).

Most techniques have demonstrated effectiveness in clinical or laboratory settings in terms of arousal reduction (Murphy, 1988). These strategies help develop a capacity to deal with and build resistance to the stress-related situation and provide a sense of inner well-being (Dewe, 1989). As programs are typically conducted with workers who are not stressed, Murphy (1988) argued that they have more in common with health promotion rather than stress reduction.

Firth and Shapiro (1986) evaluated cognitive/behavioural and relationship-oriented psycho-dynamic/humanistic psychotherapeutic interventions for individual workers already suffering from acknowledged distress. The latter intervention approach was more effective in reducing overall health symptoms, but not in relation to job-related problems. They suggested that treating individuals suffering from stress (outside of the organisation) may be a more useful way of approaching stress management than the usual preventative group approach for non-stressed workers.

The effectiveness of individual coping efforts in dealing with organisational stressors has been studied by a number of researchers. Pearlin and Schooler (1978) argued that individual coping efforts may be ineffective in dealing with chronic organizational stressors, because of worker's lack of control over the stressors. Consistent with this, Shinn, Rosario, Morch, & Chestnut (1984) found that group coping responses rather than individual coping responses were associated with a lower level of strain. Along these lines, Fried (1993) has emphasised the failure of work stress studies to recognise the potential value of union representatives as a source of social support.

While some researchers have found that individual coping efforts are associated with reduced strain (Folkman, Lazarus, Dunkel-Schetter, Delongis, & Gruen, 1986; Parkes, 1990) others have found that emotion focused coping is often linked to poorer levels of psychological functioning in the longer term (Billings & Moos, 1984; Terry, 1991).

Reviews of work-site stress management training evaluations suggest that some individual level interventions can temporarily reduce adverse responses to perceived stressors, but the long term benefits of these interventions are equivocal. This is especially so when such interventions are isolated from an overall integrated occupational health strategy. Murphy (1987) concluded that their use as a separate treatment strategy is not supported conceptually or empirically: they represent a "band-aid" approach.

The second major type of intervention involves Employee Assistance Programs (EAPs) where workplace counselling services are provided by external professionals, paid for by employers for employees. These programs received widespread favour in North America and more recently in Britain (Murphy, 1988). The EAPs were initially established to help workers

with alcohol related problems, but have been extended to include counselling for more general problems, in addition to health promotion components related to smoking, diet and general fitness. Evaluation of EAPs has revealed mixed results (Luthans & Waldersee, 1989). Cost-benefit analyses of some programs have emphasised financial benefits, with reduced absenteeism, and improved health and job satisfaction by EAPs that employ occupational clinical psychologists (Allinson, Cooper, & Reynolds, 1989). When reductions in absences due to sickness can be measured, an estimate of the benefits of intervention can be given a monetary value. Cooper (1993) and others have argued that cost/benefit analyses are the best way of persuading organizations of the advantages of stress reduction programs.

The rhetoric and motivation behind establishing EAPs and related programs, have been interpreted as an extension of corporate control over staff, a method of controlling staff performance, and maximising corporate gain (Handy, 1988). The danger of any individual intervention program is that it may "habituate" the employee to unacceptable pressures in the workplace, and could mean that stressful practices intrinsic to the organisation, or bad organisational policies go unchallenged (Wheeler & Lyon, 1992). Thompson and McHugh (1990) reflect that: "The role of the organization in producing unhealthy systems and conditions of work is in danger of being ignored. In its place we get systems reinforcing the self-attribution of stress and anxiety as personal problems to be coped with rather than structural issues to be contested" (p. 324).

Individual level interventions are much more common than organizational interventions. This could be because they are easier to implement, do not disrupt or conflict with production schedules or organisational structure (Landsbergis, 1988), can be evaluated more easily, and are congruent with the prevailing management view of stress as an individual problem (Hurrell, 1989; Murphy, 1987).

Karasek and Theorell (1990) insist that "these solutions seem to offer an easy alternative to complex and difficult labor/ management negotiations over workplace control. To avoid the more difficult underlying issues is to deal with symptoms instead of the causes, however" (p. 7). It is therefore more likely to be politically expedient to focus at the individual level rather than the organisational level.

The impetus for maintaining the status quo is not strictly management-driven. Psychologists and other health professionals with a strong belief in their own programs (perhaps even economically-driven) may sustain undue interest at the individual level.

5.4.2 Organizational level interventions

At present, no doubt due to some of the issues previously raised, there is a paucity of research and evaluation of organisational level interventions (Ivancevich & Matteson, 1987). In a study of 30 randomly selected British companies, Wheeler and Lyon (1992) found a lack of understanding of the causes and effects of stress among personnel managers, and fragmented company policies and practices for dealing with stress. Although the study was undertaken at a time of economic recession when it could be expected that some strategies would be put on hold, the researchers found that the personnel managers were more sympathetic to physical

health problems than to psychological problems, the latter considered to be "private" issues. Furthermore, there was little realisation that strategies such as EAPs, therapy or counselling for employees could have something to offer British companies.

An earlier study in the United States showed that divergent views of stress by management and labour groups led the two groups to advocate different types of stress reduction actions in predictable ways (Neale, Singer, Schwartz, & Schwartz, 1982). These studies show clearly how prevailing attitudes of management and labour lead to discrepant views of the problem and possible remedies, whereas the authors argue that a broader view of the issue is clearly required.

Stress reduction approaches stated explicitly by the Job Demand-Control model (Karasek, 1979) and implicitly in psychological models of stress, include increasing worker control. Intervention studies which focus on manipulating control and evaluating the effects on employee strain are lacking, in contrast to studies which have focused on increased control as it relates to job satisfaction, employees' attitudes and productivity outcomes (Spector, 1986).

Murphy (1988) reviewed three studies that attempted to manipulate worker control: by increasing participation in decision making through increased staff meetings (Jackson, 1983); by devolution of control over pace of work, organisation of rest breaks, allocation of work assignments and overtime from supervisors to work teams (Wall & Clegg, 1981); and by increased control over work arrival and departures (Pierce & Newstrom, 1983). Even though definitive conclusions could not be drawn from these few studies, Murphy (1988) found consistent benefits of organizational interventions that aimed to increase worker control.

In addition to these three studies of worker control, Burke (1993) reviewed 7 organizational level interventions to reduce stress at work: reducing role stress through goal setting; reducing role stress by increasing participation in decision making; increased job autonomy; work schedule autonomy; improving person-environment fit using problem solving groups; reducing psychological burnout by changing orientation practice; reducing work-family conflict; reducing the stress of staff reductions; reducing stress of mergers and acquisitions; organizational versus individual level interventions. Overall Burke (1993) concluded that these organizational-level interventions were "generally found to have positive effects, and given the limited success of individual-level intervention in addressing occupational sources of stress, should be encouraged" (p. 77).

Another recent evaluative study of twenty studies commissioned by the International Labor Organisation in Geneva, reached similar conclusions. Karasek (1992) evaluated stress prevention worksite studies which fell into five categories: programs which used individually based coping-enhancement programs run by experts; those that used task restructuring and work organisation using experts; those that tried to restructure tasks and work organisation using worker participation; those that tried systemic work-reorganisation projects guided by experts; and systemic work-reorganisation programs involving worker participation. In terms of overall work or organizational change achieved, and reduction of work stress, strategies employing worker participation were the most successful, relative to individually based coping programs guided by experts. Karasek concluded that multi-disciplinary teams, including union

leaders, management and employees, with broad skills, and using multiple methods, were the most successful ingredients of work-site stress prevention programs.

In summary, research suggests that individual level interventions should be included as part of an overall organizational stress reduction program (Ganster, Mayes, Sime, & Tharp, 1982; Murphy, 1987) which aims *also* to address the organisation/individual interface and the organisation itself (Burke, 1993; De Frank & Cooper, 1987; Dewe, 1989; Ivancevich & Matteson, 1990; Levi, 1995). However the overriding importance of organisational level approaches to work stress management is frequently emphasised in the literature (Karasek & Theorell, 1990; Levi, 1995). At the applied level, a multifaceted approach is implied by the theoretical view that the experience of strain is dependent on the objective environment, the perception or appraisal of the environment, and the coping mechanisms of the individual.

5.5 Towards a comprehensive organizational stress program

Evidence and opinion is beginning to converge on the importance of developing a comprehensive intervention plan that targets both the individual and the organisation. In the US, a national strategy formulated by the National Institute for Occupational Safety and Health (NIOSH) in Cincinnati to prevent work-related psychological disorders, proposed four categories of action: (a) job design to improve working conditions; (b) surveillance of psychological disorders and risk factors; (c) information dissemination, education, and training; and (d) enrichment of psychological health services for workers (Sauter, Murphy & Hurrell, 1990, p. 1149).

Taking an even broader view of the extent and ramification of the stress problem, Levi (1990) stated that the overall occupational environmental and health program/action should aim to be:

> "(a) *systems oriented,* addressing health-related interactions in the worker-workplace ecosystem; (b) *interdisciplinary*, covering medical, physiological, emotional, cognitive, behavioural, social, and economic aspects of these interactions; (c) *problem-solving oriented* and integrating complementary approaches; (e) *health oriented* (not only disease oriented), trying to identify what constitutes and promotes positive health and counteracts ill health even in the presence of noxious exposures; (f) *intersectorial,* evaluating health actions administered in other sectors (e.g.. work, housing, nutrition, traffic, education); (g) *international,* including multicenter collaborative projects carried out in different cultural and sociopolitical settings; and (h) *participative,* trying to involve not only occupational health professionals and management but the individual workers and their representatives as well " (Levi, 1990, p. 1144).

In this comprehensive response, Levi (1990)[2] reminds us of the complexity of the stress problem. The work stress researcher/practitioner needs to be alert not only to the interactions between the individual and organizational, but to the context and the systems in which the problem occurs. There are a number of studies showing that involvement of workers in organizational change leads them to be more committed and the change to be more effective (Scheflen, Lawler, & Hackman, 1971). Further, Karasek's (1992) evaluative study shows the importance of both the strategy of intervention, and the *implementation process.*

For any applied work to be linked to social change it must involve *participation* by the stakeholders and be *valued* and *utilised* by the stakeholders. It must therefore recognise the interpersonal and political contexts in which the research is undertaken (Rossi & Freeman, 1989). This is a major challenge for researchers to engage in research which is understandable and useable by a range of people, and meets the interests of stakeholders, and the rigours of scientific enquiry.

A principal mechanism for successful intervention, participation, is most likely to be achieved in action research paradigms (Karasek & Theorell, 1990). This methodology can be used for both theory development and implementation of change strategies. The reciprocal nature of the relationship between basic theoretical research and social action is a key premise of "action research" as proposed by Lewin (1951). The reciprocal nature of action research is captured in the following definition:

> "Action research aims to contribute to both the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework" (Rapaport, 1970, p. 499).

This was clearly the aim of university researchers in a 6 year longitudinal study of workers in an automobile manufacturing plant in Michigan (Israel & Schurman, 1993). The project was a collaborative effort between management, unions, and the University of Michigan. The phases of the project reflect the typical action research paradigm where the change agent assumes a collaborative role with the organisation. Described as "participatory action research" (see also Whyte, 1991) the project included both research and intervention goals to reduce employee stress. Israel & Schurman used this process to solve problems such as lack of system-wide information and communication, problems with supervisors, and lack of participation and influence over decision making. According to the researchers, evaluation showed improved health for employees (reduced cholesterol levels) and members of the committee felt they were co-equals in the decision making of the team.

Action research may be the most effective way for psychologists to achieve the twin criteria of successful implementation of interventions, and the opportunity for evaluation of the intervention. Research psychologists could be involved in collaboration with organizational clinical psychologists operating at the work site (Cooper, 1993) or as collaborative evaluation researchers (Ganster, 1993).

Further, the collaborative approach certainly reflects a devolution of control to workers over decision making, a tenet of Karasek's JD-C theory. Focus groups as a starting point to research would be useful, as a source of qualitative data and for enhancing ownership of the change process (Morgan, 1988). The chances of implementation of components of the program are enhanced by union involvement (Karasek & Theorell, 1990). Landsbergis (1988) argues that:

"collective (union) efforts to increase decision latitude can be the best guarantee against a 'change of heart' by top management, favouritism, or passivity resulting from paternalism, as well as assuring that the fruits of increased productivity will be equitably shared (e. g. through increased job security)" (p. 236).

Participatory action research approaches *with* strong union involvement have significant advantage over expert dominated or management dominated intervention programs (Landsbergis, Schurman, Israel, Schnall, Hugentobler, Cahill, & Baker, 1993).

A relatively new approach which offers an interesting insight into the nature of organizational relationships has applied the ideas of systemic family therapy to the organisation. Systemic analyses has been used to understand interpersonal interactions and how they contribute to occupational stress (Logie, 1995), and to understand interactions between workers and workplaces when the equilibrium of working arrangements become disturbed by workplace injury (Kenny, 1995). The application of the systemic family therapy model also provides valuable information on potential interventions when dysfunctional patterns of interaction between workers are uncovered.

5.6 Concluding remarks

The main contemporary theoretical approaches to work stress are articulated at two different levels. Sociological models involve an environmental stimulus that initiates a response and ultimately leads to pathological ends, whereas psychological models involve an organismic response to real or imagined environmental stimuli. There is sufficient evidence shown here that cognitive appraisal and individual difference variables play an important role in determining resultant levels of strain. It is also important to study the phenomenology of the stress experience to understand the cognitive processes that intervene between environmental exposure and eventual health outcomes. However, the focus of the research effort should also be on the working conditions that trigger the process (Ganster & Schaubroeck, 1991). This speculation is compelling for a number of reasons. First, since the problem is work stress, the sociological social psychological level of analysis which views the objective environment as casual seems appropriate. Second, the JD-C model has been the dominant model in work stress research in the past fifteen years, and reviews of the model are generally in favour of further development, (expansion and refinement) along the same ideological lines. Finally, intervention studies are in favour of organisational level interventions (although individual interventions are also necessary) because of potentially more far reaching change in health and well-being, and productivity (Levi 1990: 1995; Karasek & Theorell, 1990).

NOTES

1. Several parts of this chapter are based on: Dollard, M. F. & Winefield, A. H. (1996). Managing occupational stress: A national and international perspective. *International Journal of Stress Management, 3,* 69-83.

2. More recently Levi (1995) acknowledged the importance of individual focused approaches to stress management but reiterated the overriding importance of organisational level approaches: individual stress management is helpful here and now, but structural components of the equation should not be forgotten (increasing participation/ control, providing meaningful jobs, increasing skill utilisation, modifying work schedules to avoid conflict with demands and responsibilities unrelated to the job and providing stable and predictable shifts in a forward rotating direction, modifying workload to match capabilities of the worker, defining and harmonising work roles and responsibilities, improving the social environment, and avoiding ambiguity in job security and career development).

Chapter 6

METHODOLOGICAL ISSUES IN STRESS RESEARCH

6.1 Introduction

There are a number of references which provide methodological criteria and design guidelines for the work stess research (Kasl, 1986; Mackay & Cooper, 1987; Ganster & Schaubroeck, 1991). Stress researchers have been very concerned with methodological issues. These usually relate to issues of measurement, rather than to the primary methodological and more difficult challenge, causal-etiological problems (Kasl, 1986). The aim of this chapter is to review both measurement and research design issues. As will be seen in the following discussion, the issues are inextricably linked. Moreover, each of the major models of work stress requires different measurement procedures.

6.2 Measurement issues: Independent and dependent variables

Measurement depends to a large degree on the conceptual framework in which the research takes place. In cognitive-phenomenological frameworks it makes theoretical sense to use a phenomenological approach such as self-report to measure, or infer the construct. Self report can provide a rich source of patterns of thoughts and emotion and according to Lazarus and Folkman (1984) "self-reports allow us to learn more about coping and adaptational outcomes, than any other source, despite the difficulties in validation" (p. 322).

Lazarus and Folkman (1984) argue that cognitive appraisal is an outcome of the interaction between the objective environment and personality factors. When the environment is unambiguous, for most people, they argue, perception and appraisal follow the objective environment quite well.

Assessing the appraisal process could be achieved directly by asking such questions as: "To what extent is X a problem for you?" (Newton, 1989). One advantage of cognitive theories is in the operationalisation of stress which requires a single measurement from the subject rather than commensurate measures (i.e. P-E fit theories, see Chapter 3 for a more detailed discussion on this point).

There are many well known problems with self report including problems of memory, language ambiguity, social desirability and demand characteristics. The questionnaire method has particular problems including central tendency bias, response acquiescence, and consistency artifact that can lead to a variety of systematic response distortions (Porac, 1990).

Nevertheless, within psychological frameworks that emphasise qualitative processes, self-report is defensible on theoretical grounds. Subjective-objective measures are theoretically plausible in cognitive phenomenological frameworks (Glick, Jenkins, & Gupta, 1986). In contrast objective measurements of the work environment in psychological models are generally unacceptable (Lazarus & Folkman, 1984).

In sociological paradigms that emphasise the objective environment as the source of stress there are potential problems with self-report, not only on methodological grounds but also on theoretical grounds (i.e.. self-report measurement of an objective phenomenon).

But self-report is the most common measure of objective work conditions even in tests of sociological models. The predominance of self-report in sociological tests is probably a result of convenience and potential to tap core job characteristic concepts (Karasek & Theorell, 1990).

While most researchers would view "subjective" as originating within or dependent on the mind of the individual rather than an external object, not all insist that objectivity exists totally independent of the mind of the individual. Frese and Zapf (1988) define subjective as "tied to one's cognitive and emotional processing (e.g. perceptions and appraisals)" whereas objective "means that a particular individual's cognitive and emotional processing does not influence the reporting of social and physical facts"(p. 378-9).

Frese and Zapf (1988) argue that "some researchers seem to suppose that all subjects' responses lead to a subjective bias because of cognitive and emotional processes. We disagree-because it depends on the wording of the item whether there is high cognitive and emotional processing" (p. 382).

They argue that self-report can vary in level of objectivity depending on the level of cognitive and emotional processing required by question instructions. For example "How much do you feel stressed by the burden of this job?" is high on cognitive and emotional functioning in comparison to "How many overtime hours do you work?" which is much less so. Psychological models that assess subjective appraisal (stress), theoretically are tied to the high cognitive/emotional processing assessments.

Conversely, empirical tests of sociological models that link stressor to strain, would use assessments low in cognitive/emotional processing. The measure would ask "does this work condition exist?" This is in keeping with the Karasek methodology that rarely measures the intermediate state of stress directly in job research (Karasek, 1989). A number of work environment measures seem to fit the criterion of low level of emotional and cognitive processing such as the Work Environment Scale (WES), (Moos, 1986) and Hackman and Oldham's Job Diagnostic Survey (JDS) (1975).

Use of the self-report method in sociological models is based on the assumption that self-report can provide an adequate assessment of *objective* conditions. There is some experimental evidence that confirms the objective validity of verbally reported task measurements (Griffen, Bateman, Wayne, & Head, 1987). Fried and Ferris (1989) recently concluded after a review and meta-analysis of a number of studies, that the problems potentially associated with self-rated data of job characteristics are less serious than initially believed: "the present review seems to increase the confidence in the substance of this data" (p. 299), that objective and perceived job characteristics are related. Fried and Ferris (1987) found that in general there is a "trend toward similarity in the relationships of incumbents' job ratings and others' job ratings to potential criterion variables" (p. 289).

Although a relationship appears to exist between objective work conditions and job perceptions, the strength of the correlation varies. For example, Kirmeyer and Dougherty

(1988) reported a correlation of r=.35 between objective workload and perceived workload, whereas Griffin (1983) reported correlations from r=.65 to r=.75 between the subjective perceptions of job components (autonomy, task variety) and their objective manipulation.

Fried and Ferris (1987) note that "because not all of the reliable variance in job perceptions is explained by objective job conditions, however, other factors (e.g.. social cues, method variance, etc.) must be acknowledged as potential sources of variation" (p. 309). Even so they conclude that perception of job characteristics is *largely* unaffected by irrelevant cues (Fried & Ferris, 1987).

In general, most social psychological stress research proceeds with the assumption that the job conditions lead to affective states, via job perceptions. A plausible alternative explanation for self-report cross-sectional correlational data is that the affective state of the individual making the assessment, influences the perception of the work environment. If this is the case then the perception can not be regarded as an independent variable against which to examine the affective state of the individual (Parkes, 1982). This is particularly problematic in stress research where the hypothesised independent variable can conceivably be either the cause of strain or the effect of strain.

James and Tetrick (1986) addressed the possibility of cognition preceding affect and/or affect preceding cognition and found support for a post-cognitive, non-recursive model to represent the relationship between job conditions (as measured by supervisor ratings), job perception (measured via employee questionnaires) and job satisfaction (assessed by job satisfaction questionnaires). Essentially this means that job satisfaction occurs after job perceptions in the causal order and job perceptions and job satisfaction are then reciprocally related.

They did not find support for the precognitive position that job perceptions serve to explain or to justify affective reactions to objective job characteristics as suggested by Zajonc (1984): "I am satisfied; therefore the job must be challenging" (p. 77). This provides good preliminary evidence that the perception of the objective situation is largely unaffected by affective processes (helpful to the self-report sociological model), and provides empirical support for the expected causal ordering among cognitions of jobs and affective responses to jobs. This is also consistent with psychological model that emotional responses in humans are elicited by cognitive processes, and that "cognitive appraisal is a necessary as well as sufficient condition of emotion" (Lazarus & Folkman, 1984, p. 275).

Another problem for stress research is the extent to which questionnaire measurement can be used to assess affective states. As noted earlier, Frese and Zapf (1988) argued that the level of affective and cognitive processing involved in self-report could be influenced by questionnaire instructions. Porac (1990) further suggested that questionnaire measures of affective states require complex cognitive processes, involving complex verbal memories and self-reflection, and that such "reflective experience" is the product of second-order affective processes rather than the first-order "lived experience". Porac's commentary on "the job satisfaction questionnaire as a cognitive event" cogently argues for the recognition of first- and second-order affective processes and disputes that research using questionnaires can measure first-order affective states. Any test for "pre-cognition" responses to job satisfaction questionnaires is a

contradiction in terms, according to Porac (1990). For example, Staw and Ross (1985) found in a longitudinal study that job satisfaction was stable, even though work conditions had changed, suggesting that job satisfaction was in part a dispositional trait.

Porac (1990) argued that whilst the construct validity problem existed with all questionnaire studies it did not make them useless but rather, they required validation against direct nonverbal measures of first-order appraisals (Porac, 1990). Such first-order assessment might entail measuring the arousal component of the first-order affective reaction with the galvanic skin response, or measuring the memory structures activated during an affective state via reaction times.

The objective measurement of dependent measures in both the psychological and sociological models would be theoretically consistent. Lazarus and Folkman (1984) explain that there are problems with indexing emotions objectively using physiological indications, such as hormonal or physical responses, or facial responses to certain emotions (Ekman & Friesen, 1975): "we are in a sense entrapped by the need to verify one unknown, the experiences of emotion, by reference to other unknowns such as the meaning of the person's actions in a particular environmental context" (p. 323).

Lazarus and Folkman (1984) recommend persisting with self-report data to derive empirically based principles and check these out with other methods, such as experimentation, and the use of more objective measures such as behaviour indicators, and physiological measures. While they do not argue against multi-level measurement, they provide a strong argument for the retention of the self report method despite its scientific deficits.

Latack (1986) argued that multitrait-multi method evidence is a challenge in stress coping research, with possibilities for behavioural observation by others as a method of assessing some coping strategies. However, she noted some limitations. The first related to the inappropriateness of objective assessment of intrapsychic modes of coping. Further, she questioned the appropriateness of sources of objective assessment. For instance she wondered whether evidence from supervisors concerning subordinates coping behaviour might come from more appropriate sources (e.g. spouses, relatives or close friends).

The use of observers in research has been used as a methodological strategy for ascertaining objective measurement of independent and/or dependent variables (Kiggundu, 1980; Kirmeyer & Dougherty, 1988). But the strategy itself is not beyond rebuke with claims that observers also show distortion and bias. This problem is amply highlighted by Frese and Zapf, (1988), Glick, Jenkins and Gupta (1986), and Karasek and Theorell (1990).

Problems include: (1) limited time observation; (2) unobservability of mental processes; (3) effects of observation on work behaviour; (4) representativeness of workplaces to be observed (Frese & Zapf, 1988); and (5) human inferences of non incumbents, e.g. inferring affective states from job characteristics (Glick et al., 1986). Further, observers own cognitive and emotional processing can produce noise, which in turn is likely to lead to conservative correlations between independent measures and psychological dysfunctioning (Frese & Zapf, 1988).

Other less problematic objective measures recommended for work stress research include actual days lost to sickness, accidents, health care utilisation costs, actual illness and physiological measures, including, diastolic and systolic blood pressure, heart rate, skin temperature, and stress hormones, i.e. adrenalin and cortisol (Schaubroeck & Ganster, 1993).

In summary, it may not be appropriate in psychological theoretical paradigms to measure objective job characteristics because the researcher is interested in the perception or appraisal of the environment, and in such cases self-report may be a valid and useful source of information.

When objective information is considered ideal as in sociological models it is important to ascertain the approximation of self-report to objective assessments. Despite the short comings of the self report method, empirical evidence has provided support for the accuracy of self-report measures of the objective environment. While some concerns have been raised about the influence of irrelevant cues on perception, these do not appear to rule out the potential influence of objective characteristics of the job.

In the assessment of strain, calls for more objective assessments have been made. The measurement of affective states by questionnaire is a cognitive event, an event likely to be in common with perception of the work conditions and likely to lead to a common method effect.

6.3 The influence of negative affectivity on the work-stress process

There are important methodological reasons for assessing negative affectivity (NA) in work stress research. Most work stress research has relied on self-report assessments of work related influences on individual stress outcomes. In addition to the sources of the common method effect already mentioned, it is also proposed that NA may also underlie observed relationships between self-reported stressors and self-reported strain (Watson & Clark, 1984). It has been asserted that NA spuriously inflates the relationships between the variables because of a tendency for high NA individuals to perceive higher levels of job stress because they focus on the negative aspects of other people and the world in general. Further, as NA is the disposition to experience negative affect across time and regardless of the situation, high NA subjects would be likely to report higher levels of distress than low NA individuals (Watson & Clark, 1984). On this basis, Brief, Burke, George, Robinson, & Webster, (1988) have raised concerns that results from self-report work stress research which have not assessed dispositional influences, may be spurious.

Another supposition is that NA might contaminate the measures of stressors and strain, in that it might share variance with the measures (Watson & Pennebaker, 1989). An individual high in NA will experience high levels of subjective distress that may be tapped by subjective measures of stress and well-being (Watson & Pennebaker, 1989). For example, Watson, Pennebaker, and Folger (1987) using 150 healthy adults to complete tests of NA, stress reactions, and reports of physical symptoms, found support for the hypothesis that NA might be the construct underlying perceptions of stress, symptoms, and negative moods, because of

the high intercorrelation among the measures (mean intercorrelation among the measures=.50). Watson et al. (1987) commenting on current tests of the hypothesis, "we continue to find that all of these measures reflect the common influence of NA" (p. 145).

A recent test of both these suppositions found evidence that NA inflated the relationship between work stressors and strain, but using improved methodology (confirmatory factor analysis) failed to establish that NA measured a factor in common with measures of subjective strain (Schaubroeck, Ganster, & Fox, 1992). The results did however corroborate the first supposition and similar to other studies (Brief, et al., 1988; Morrison et al., 1992; Parkes, 1990; Terry, Nielsen & Perchard, 1993) found that NA acted to inflate the relationship between work-stress measures and subjective strain symptoms. However, even when these studies controlled for the effects of NA, work stressors remained significant predictors of strain.

Although evidence has been uncovered regarding inflated relationships between work stress measures and subjective measures of strain, some researchers have been unable to determine the extent of the effect as confounding or as one of substantive influence. This is partly because only self-report measures of strain were used (Parkes, 1990). However, a recent study that did use objective physiological assessments of strain was unable to draw definitive conclusions, because the work stressors themselves failed to correlate with the physiological indicators (Schaubroeck, Ganster, & Fox, 1993). More research is required on this issue.

Despite evidence that NA affects perceptions of health there is little evidence that NA is predictive of long-term health status, or objective indices of health status, such as number of visits to the doctor during the past year, or number of days missed due to illness (Watson et al., 1987; Watson & Pennebaker, 1989). NA had no relationship with six objective measures of strain used by Schaubroeck et al. (1993), but was correlated with all subjective measures of strain. Costa and McCrae (1985) however found that neuroticism was a very strong predictor of chest pains (i. e. angina pectoris) but it was unrelated to objective indicators of coronary heart disease (CHD), including death from CHD or myocardial infarction which involves actual damage to the heart. Neuroticism has been shown to increase the risk of diseases such as gastric ulcer (Friedman & Booth-Kewley, 1987). Self-reported ill health (probably influenced by NA) also has been shown to be a risk factor for ischaemic heart disease mortality (Orth-Gomer, Johnson, Under, & Edwards, 1986).

Because of its general lack of correlation with objective indices of health and performance it may be that NA acts rather as a nuisance factor-"a major source of variation in measures of stress and symptoms that is ultimately unrelated to long-term objective health status" (Watson et al. 1987, p. 148). Furthermore there appears to be little evidence according to Watson et al., (1987) to suggest that high NA, although personally distressing and affecting perceptions of stress and job satisfaction, impacts negatively on performance and should therefore be of concern to employers. However there does appear to be a number of discrepant findings, to the extent that Watson and Pennebaker (1989) and Costa and McCrae, (1987) in their comprehensive reviews were not prepared to rule out the role of NA in stress etiology (Schaubroeck et al., 1993).

Measurement of NA therefore appears to be a critical methodological requirement in empirical tests of the work stress process (Brief et al., 1988). Despite some evidence to the contrary (Watson et al., 1987) a number of studies have found that NA is not linked with job satisfaction (Chen & Spector, 1991; Janman et al., 1988; Schaubroeck et al., 1992). The use of job satisfaction as an index of strain in work stress research would be a methodological improvement in the sense that observed relationships would not be due to NA. Other methodological improvements would be the use of more objective measures of stressors (a problem for psychological models) and strains.

6.4 The relationship between independent and dependent measures

6.4.1 Trivial correlations and common method effects

Most stress research attempts to examine the relationship between stressors, or stress appraisals, and outcome measures (strain). This presents another potential problem for self-report stress research within psychological paradigms, and to a lesser extent sociological paradigms: that of trivial correlations between subjective stress measures and ill-health (Kasl, 1978). This could occur because of the overlapping content that may exist in the measures, or because of variance that is due to the common method used to measure both the independent and dependent variable. Relationships could be due to a similar cognitive event (Porac, 1990) or underlying dispositions.

Methodologically, the way out of the problem of similar method variance and trivial correlations is to use multiple methods in assessment and/or objective measures of the independent and/or dependent measures, or psychometrically validated measures (Spector, 1987b).

The use of subjective judgements of stressors may lead to an over-estimation of the correlation between stressors and dysfunctioning that may be due to common method variance; there is also evidence that objective (observers) judgements of stressors may lead to an underestimation of the "true" correlation (Frese & Zapf, 1988). When researchers have used both objective and subjective measures, the latter have been found to better predictors of outcomes (Kiggundu, 1980; Kirmeyer & Dougherty, 1988; Parkes, 1982). Because of the range of methodological problems it is difficult to know if these findings are methodologically based or whether subjective assessments are really more important in the work stress process.

Many researchers talk about the common method variance problem as a limitation of their research design that typically features the self report method. With a few exceptions (see review by Fried & Ferris, 1987; Glick et al., 1986), researchers rarely try to assess the extent of the problem. Inferences are usually made by drawing evidence from studies which have used multi-methods (e.g.. interviews, card sorts, and observations), to establish the accuracy of the self-report method (Morrison et al., 1992). The argument is that if accuracy is established, variance due to method effects will be trivial.

Taken together the results of Fried and Ferris (1987) and Glick et al. (1986) suggest that although empirical relationships exist between self-report job characteristics and outcome, they are only in part due to common method effects. Researchers are advised to be concerned about methodological problems but Fried and Ferris (1987) and Spector (1987b) instil confidence that problems with self-rated data of job characteristics (not job stress) are *less serious* than initially believed.

6.4.2 Theoretical perspectives on common method effects

Common method effects are generally interpreted in concrete terms such as single method, similar formats or similar situation or in abstract terms such as affirmative responses, halo effect and central tendency (Frese & Zapf, 1988). Some view them as problems to be eradicated, whilst others view them as interesting phenomena to be explained in their own right. For example they may be a function of personality, or cognitive effects of situational frames created to anchor meaning in ambiguous question interpretation. Response effects may be considered as a particular cognitive dynamic occurring at the time of questionnaire completion, not as biases but inherent elements in the description of feelings about work (Porac, 1990). Substantive processes like these could account for consistency effects and common method variance in stress research.

The issue of whether method versus substance underpins observed relationships in stress research has matured beyond a simple concern with methodological artifacts into a strong theoretical debate (Glick et al., 1986). Different theoretical positions have emerged to predict different levels of common method effects.

For example, the job characteristics approach (sociological) emphasises objective job characteristics as major antecedents of relevant perceptions and responses. This approach predicts only minor method effects even when the data are primarily self-reported (Glick et al., 1986). Even if different methods are used, substantive relationships should still be found.

On the other hand, social information processing approach (Salancik & Pfeffer, 1978) which has its roots in social comparison theory (Festinger, 1954), social learning theory (Bandura, 1969), and cognitive consistency theory (Abelson & Rosenberg, 1958), emphasises social and cognitive processes, and assumes that these processes will result in strong method effects when data are primarily self-reported. It hypothesises that: (1) perceived job characteristics and affective responses are related to each other primarily because they share antecedent cognitive and social processes; (2) these effects may be reflected in common method variance (Roberts & Glick, 1981); and (3) objective job characteristics are only marginal determinants of both perceived job characteristics and employee responses" (Glick et al., 1986, p. 443). One of the central tenets of the theory is that job characteristics are defined through the set of informational cues received about the job from others. The theory questions whether job characteristics are fixed and objective and suggests instead that they are socially constructed (Weick, 1979).

Some studies have demonstrated the impact of a vocal minority on task perceptions. For example, a simulation study, showed that "griping" co-workers contributed significantly to perceptions of whether a clerical task was enriched or not (White & Mitchell, 1979). Other

experimental studies have also demonstrated the impact of social and informational cues on perceptions of task characteristics (O'Reilly & Caldwell, 1979). A study of correctional officers tended to overestimate their peers' alienation and to assume that the majority of officers were more custody oriented (less job-enrichment oriented) than they were (Toch & Klofas, 1982).

Both the job characteristics approach and the social information processing approach recognise that job characteristics *and* individual cognition affect employees' perceptions of their jobs and their response to job characteristics. Both also propose a direct link between perceived job characteristics and outcome. The theories however vary in *emphasis*.

In addition to those identified in social information theory, other psychological processes such as attributional processes, may also be reflected in common method effects. According to attribution theory, attributions of causations for one's own behaviour are generally attributed to situational or external influences, whereas the behaviour of others is generally attributed to dispositional or internal influences. The tendency to exaggerate the dispositional causes of behaviour for others and underestimate its situational causes is referred to as the fundamental attributional error (Jones, 1979). The phenomenon has been shown experimentally, to provide an alternative explanation to organisational characteristics determining performance. Staw (1975) showed that knowledge of group performance was used as a cue to attribute characteristics to self, group members and organisations, rather than organisational characteristics.

In stress research, some workers who experience stress may view causation differently from others who experience stress, and from those who do not experience stress. Along these lines Kasl (1986) has argued that the existence of a mental or physical disorder could influence the perception of the work environment, either as a direct result of the disorder, or indirectly through the psychological process of attribution. This poses the problem of casual reversal (especially for cross-sectional research) and raises questions about whether the attribution effect constitutes a plausible alternative interpretation of correlations between organisational characteristics and strain. The attribution hypotheses posits that health status is an independent variable and that correlations between strain and self-report data may be described by the following causal sequence: Strain --> Attribution of causations --> Self-report of job concerns.

In sum, it is expected that method variance would be greater in psychological models than in sociological models because of the psychological processes that influence measurement of job stress in the former, and the use of more objective methods of measurement of job stressors in the latter.

To summarise this section, although self report methods have several limitations they are recommended on theoretical grounds in empirical tests of psychological models. "Self-reports allow us to learn more about coping and adaptational outcomes, than any other source, despite the difficulties in validation" (Lazarus & Folkman, 1984, p. 322). Although the problem of common method variance is "ubiquitous and vexing" it needs to be faced and the benefits of self report need to be considered in relation to other sources of data (Lazarus & Folkman, 1984). The relationship between subjective stress and strain found in psychological models will be based on both substance and method.

In tests of sociological models, self report can also be employed (Karasek, 1979) using measures with questions framed more "objectively" (Frese & Zapf, 1989). Theoretically the relationships between stressors and strain in cross-sectional models will be based on substance and method, with method accounting for less variance than in the psychological model. Although the problem of overlap in content between independent and dependent measures is more likely to be an issue for empirical tests of psychological models, it could also occur in sociological models but it can be overcome by the objective assessment of dependent measures (Karasek & Theorell, 1990).

6.5 Research designs

A major limitation with much of the work stress research is that mainly cross-sectional designs have been used to test the relationship between the work environment and strain. These involve taking observations at only one point in time, and this can only establish correlates between the variables, not probable causes of strain (Kasl, 1986). The longitudinal design can reduce this problem by empirical validation of causal inferences (Frese & Zapf, 1988). As this thesis is mainly concerned with non-experimental applied research the advantages of the experimental design in this area will not be discussed (see Ganster & Schaubroeck, 1991).

There is no question that the preferred research design in assessing the onset of occupational strain, is a prospective research design where initial levels of strain, biological risk factors, and other potential confounding variables are included in the initial data collection, along with the work stress predictors (see Kasl, 1983). A number of stress theorists have recommended longitudinal designs in stress research (Edwards, 1992; Frese & Zapf, 1988; Ng, Jenkins, Dixon, & Cram, 1992). However the design is costly, time consuming and inevitably a considerable loss of data will occur over time. Sometimes, for political reasons the design may not be appropriate (as we shall see). Nevertheless the use of the prospective design offers a range of possibilities in occupational stress research.

First, the design can be used to evaluate the impact of environmental change that may come as a result of entering the work environment (Cherry, 1978), changing work contexts (Parkes, 1982) or planned organisational change (Ashford, 1988; Wall & Clegg, 1981). Second, the design may be used to evaluate the impact of accidental change such as job loss or retrenchment, or industrial accident (Cobb & Kasl, 1977; Linn, Sandifer, & Stein, 1985). Third, the design may be used to examine the evolution of the coping process in response to stress (Aldwin & Revenson, 1987). Fourth, the design may be used to study the longer term impact of stress on strain symptomatology at a later point in time (Bromet, Dew, Parkinson, & Schulberg, 1989; Miles, 1975; Parkes, 1991). Most stress theories are based on the premise that exposure to chronic stress will be manifest in increasing levels of strain symptomatology, that the effect of stressors accumulate over time. One way of assessing this assumption is with the use of a prospective design.

Fifth, prospective models can provide information about the stability of measures used. When dependent measures are selected they need to be potentially reactive to the work environment. Some measures would be expected to remain fairly stable, such as personal disposition variables, whereas other variables, such as state measures would be expected to change according to external circumstances.

A practical implication of the longitudinal design concerns the timing of tests: when to test for impact? Various time frames have been used: two months (Parkes, 1991) four months (Miles, 1975), six months (Ashford, 1988; Parkes, 1991), and one year (Bromet et al., 1988). Others have recommended 10 years of shiftwork for the development of psychosomatic problems, whereas stressors related to mental load may have an impact on dysfunctioning within some months (Frese & Zapf, 1988). According to Frese & Zapf (1988) the type of stressor and its intensity are important in determining time course. For example, the outcomes of psychosomatic complaints, depression and anxiety, should develop quicker than psychosomatic illness. Some time ago Miles (1975) noted that there was no articulated theory specifying time lags for causal models and this observation is still relevant today.

This concludes Part I of the thesis on the conceptualisation, measurement, operationalisation, and intervention issues in work stress research. Three theoretical models of work stress and their empirical evidence were reviewed. Each of the theoretical models proposed a particular ideology for conceptualising workplace stress, its antecedents and consequences. The implications of these ideologies for workplace intervention were explored. Further, intervention studies were also assessed for their impact on psychological and physical health and well-being. Finally, measurement issues that arise from assessment of the theoretical models were discussed.

In Chapters 3, and 4, it was concluded that the P-E fit model, the cognitive-phenomenological model, and the JD-C and DCS model all had limitations as models of work stress. This also means that in an applied context (i.e. workplace assessments and intervention studies) the theories have practical limitations. Until recently the psychological models, and the interventions they implied dominated the work stress literature. However in the past fifteen years the JD-C model and the DCS model have been most influential. These models seem to hold the most promise for further empirical investigation and prevention, of the adverse effects of the workplace on psychological and physical health and well-being.

Further in Chapter 5, it was shown that the results of intervention studies tend to support the finding that although individual interventions are important, organisational level interventions (as implied by the job strain models) may provide more far reaching change in health, well-being and productivity. Other key points were that: (1) different values underlie work stress research; and, (2) the priority of these values for researchers and stakeholders will influence the theoretical orientation research will take and how influential the research will be (Levi, 1990).

The best course of action for applied researchers, may be to consider a broad range of potential sources of work stress (see Chapter 2), without being tied to a specific orientation (theory). This is reasonable as the preceding chapters demonstrated that all theories have

limitations, and this could lead to omissions of important phenomena. Also, a current emphasis in the literature is on a comprehensive approach to occupational environmental and health program/action that is participative and involves occupational health professionals, management, individual workers and their representatives (Levi, 1990). This should result in outcomes acceptable to a broad range of stakeholders (because a broad range of possibilities has been considered and either accepted or rejected). These considerations influenced the approach adopted in the following study.

PART II

A Study of Stress in Correctional Officers

Chapter 7



7.1 Introduction

This section of the thesis is concerned with applied research in the work stress area. Specifically it is an ideographic study of the specific sources of stress for correctional officers (COs). The study[1] includes both workplace assessment and intervention components (recommendations for intervention).

This chapter provides a background to the problem, the approach from the organisation and terms of reference, and a review of the literature as it relates to levels of strain and sources of strain for COs. Next, the literature relating to the effects of work role socialisation and education level on behaviour is reviewed. Finally, background information derived from departmental records, and relevant to the work stress issue, is discussed.

7.2 The problem

In 1991 a study into the nature and causes of stress amongst correctional officers was commissioned by the South Australian Department of Correctional Services to make recommendations to the department to reduce the level of strain for officers. The incidence of stress related workers' compensation claims in the Department of Correctional Services increased significantly in the three years to 1990/91. The highest incidence of stress claims per 1000 employees within South Australian Government Departments was found within the Department of Correctional Services in 1990/91. Relative to other government agencies the department reported the third highest number of total worker's compensation claims.

In response to the high level of stress claims, the department implemented a number of initiatives as preventative strategies, including: (a) a restructured Occupational Environment and Welfare Section (the appointment of two Rehabilitation officers whose primary role was to assist staff return to work following injury, and a Coordinator of Corporate Health with responsibility for development of a range of lifestyle management programs); (b) the implementation of new structures as the department moved towards unit management of prisoners; (c) a Critical Incident Debriefing Service; and (d) an improved recruitment selection process and staff training.

Although there was a slight decrease in the incidence of stress claims in 1991/92, concern continued over the number of stress claims received. The on-going costs of stress claims in the department in 1990/91 was $3,201,890 (see Table 7.1). The cumulative effect of on-going claims since 1987 resulted in extremely high on-going costs which threatened to continue escalating. Weeks lost per stress claim appeared to be a significant contributing factor to the cost of claims. Occupational health and safety personnel were concerned that although stress

claims were high they were merely the tip of an iceberg: that the level of strain for officers was suspected to be high whether or not officers had made a stress claim.

Table 7.1 *Ongoing Stress Claims in Department of Correctional Services in 1990/91*

Year Stress Claim Lodged	1987-88	1988-89	1989-90	1990-91	Total
Cost in 1990/91	$605,711	$1,590,317	$365,779	$640,083	$3,201,890

7.3 Approach from the organisation

In March 1991 tenders were sought from the South Australian universities and private practitioners to conduct a study into the nature and causes of stress among correctional officers in the South Australian Department of Correctional Services. Terms of reference were provided and the purpose of the study was to make recommendations for organisational change or program intervention to reduce the level of strain experienced by the officers. A research team was formed and a research tender was developed to address the problem.

Roles in the research process were as follows: Principal Researcher, the present author, in collaboration with the research team and the organisation, was responsible for the literature review, questionnaire construction, data analysis, recommendations and conclusions. Consultants were: Associate Professor Dr. Tony Winefield, University of Adelaide, the author's Ph. D. supervisor, to provide critical oversight of methodological issues and statistical analyses; Mr. Terry Mc Guirk, MDR Management Consultant, to provide advice on strategic planning and specialist occupational issues, and Techsearch, the business arm of the University of South Australia, to manage the intellectual property agreement, other legal responsibilities and financial transactions. The tender was successful and the research commenced in July 1991.

7.4 Terms of reference

The terms of reference for the study were prepared by the Occupational Environment and Welfare Services branch of the Department as follows:

1. Ascertain the aspects of the work environment which have adverse effects on Correctional Officers (COs).
2. Ascertain the external forces which have impact on stress amongst COs (e.g. industrial climate, family, education).
3. Identify key personal characteristics which enhance or reduce COs' ability to cope with the job, and which should be taken into consideration in recruitment processes.

4. Identify any aspects of lifestyle/health and fitness that impinge upon the ability of officers to perform their duties and cope with the responsibilities of their positions
5. Ascertain officers' perceptions of the ability of the organisation to provide services to support staff who experience difficulties coping with work, and to measure those perceptions against reality.
6. Determine any relationship between work practices, patterns, locations, hours worked, and perceived ability to cope.
7. Review sick leave, recreational leave, and overtime patterns to ascertain if there are any early warning indicators for worker's compensation claims.
8. In full consultation with management, make recommendations for organisational change or program implementation to address the identified issues.
9. Compare research data materials and findings with work undertaken in similar occupational groups: Police, other Correctional jurisdictions, and Unions.

The research was to be carried out across all institutions and all classifications within the Department. Officers on stress related worker's compensation and those who had left the organisation following a stress claim (since 1987) were also invited to participate in the research. The time frame for the study was six months.

In addition to a general literature review of occupational stress (presented in the first part of the thesis), a specific literature review of CO stress, and a review of departmental documents were undertaken. The information and ideas from these sources influenced the theory and methodology of the study. A review of this information is given below.

The aim of the CO literature review was to provide information about the nature of stress in a correctional setting, to ascertain the level of stress compared to other occupations, and to identify the potential sources of stress and possible theoretical conceptualisations of the problem.

7.5 Correctional officer work: Level of strain and sources of stress

The role of COs has traditionally involved responsibility for the humane custody of prisoners, rather than the rehabilitation of prisoners. A substantial body of research from America, Britain, Sweden, Finland, New Zealand and Australia has shown the role of the correctional officer to be stressful. A number of studies have found that indices of strain exhibited by COs, such as measures of psychological distress (Lasky, Gordon, & Srebalus, 1986; Webster, Porritt, & Brennan, 1983), divorce rates and health problems (Cheek & Miller, 1983), sick leave rates (Harenstam, Palm, & Theorell, 1988), blood pressure (Kalimo, 1980) blood cortisol levels, cardiovascular and hypertensive conditions (Harenstam et al., 1988), and risks of cardiovascular heart disease (Webster et al., 1983) are high among the correctional officers compared to other occupational samples.

Not all studies have found elevated levels of strain indicators in COs. Lindquist and Whitehead (1984) analysed data from a representative sample of Alabama COs and found that 20-30% reported problems with burnout, 16% reported job dissatisfaction and 39% reported job stress. Rutter and Fielding (1988), in a study of British prison officers found that only 27% of respondents described their jobs as "stressful" or "very stressful", while 65% felt fairly satisfied. Kalimo (1980) in Finland found that measures of blood pressure were higher than normal, although electrocardiograms obtained for some subjects were normal when compared to other Finnish working populations.

Although the results are not entirely consistent, in general most studies have demonstrated elevated levels of strain in COs compared to other samples. Local evidence is also consistent with this view. Statistics from the Government Worker's Rehabilitation and Compensation Office, (personal communication, July 1991) showed that the Department of Correctional Services had the highest incidence of stress claims per 1000 employees of all South Australian government departments. Relative to other government agencies the department reported the third highest number of total worker's compensation claims (see table 7.2).

Table 7.2 *Relative Performance 1990-1991: Correctional Services vs. all Other Govt. Agencies*

	Correctional officers	All Govt agencies
Worker's Comp. Claims per 1000 Staff	287 (3rd. Highest)	131
Stress Claims per 1000 Staff	57 (Highest)	9
Cost of all Claims per 1000 Staff	$3,808,090 (Highest)	$707,590
Cost of Stress Claims per 1000 Staff	$2,384,130 (Highest)	$241,650

Empirical studies of occupational stress in COs have identified numerous sources of stress. They include job pressures, behaviour patterns such as Type A, a lack of job rewards (Webster et al. 1983), relationships with inmates (Cheek & Miller, 1983; Gernstein, Topp, & Correll, 1987; Rutter & Fielding, 1988; Voges, Long, Roach, & Shouksmith, 1982) lack of autonomy, having too little influence/participation in decision making and too little authority to carry out assigned responsibilities (Cheek & Miller, 1983; Lasky et al., 1986), years of continual employment, (Dunne & Morrison, 1991; Lasky et al., 1986), responsibility for others (Lasky et al., 1986), high proportion of drug abusers in the prison (Harenstam, et al., 1988), role ambiguity (Digman, Barrera, & West, 1986; Gernstein et al., 1987), role overload (Shamir & Drory, 1982), role conflict (Lasky et al., 1986; Lindquist & Whitehead, 1984; Shamir & Drory, 1982), lack of management support (Shamir & Drory, 1982; Voges et al., 1982), lack of societal support (Shamir & Drory, 1982), work time concerns (Voges et al., 1982) and shift work (Dunne & Morrison, 1991). Officers are found to be better off psychologically in rural than in urban prisons (Toch & Klofas, 1982), in country districts and small town locations than in larger cities (Harenstam, et al., 1988), and in maximum-medium, than minimum security, prisons (Dunne & Morrison, 1991).

7.6 Explanations for CO stress

There are a number of reasons why the level of stress claims and strain are higher in COs: (1) due to occupational selectivity effects, COs are more likely to experience/ and or report strain; (2) COs select themselves into stress studies; (3) COs may use stress claims to get out of unsatisfactory jobs; and (4) the differences are due to the intrinsic nature of the job.

With regard to the first point, this aspect does not seem to have been specifically addressed in the literature. Evidence could be derived by personality assessments of the COs as they apply for the job (i.e. compare COs accepted, COs rejected, and normal population characteristics). There is, for example, a common assertion that COs are black and white thinkers and that lack of tolerance for ambiguity may lead them to experience greater strain in ambiguous situations.

With regard to point two and three, Inwald (1982) has cautioned that COs might want to politicise the process in work stress studies, and select themselves into stress studies, or make stress claims. If this is the case, the question needs to be posed, as it was in the RSI debate sketched in the Chapter 1, "what is it about the work place that makes these workers want to escape?" (Kiesler & Finholt, 1988).

The work of COs is often perceived as meaningless, and COs often complain that they have a very low level of skill discretion, and authority over decisions (Karasek & Theorell, 1990). In a study of four Swedish prisons, COs with the lowest levels of decision latitude showed the highest levels of mean urinary excretion of noradrenalin, particularly after night work (Harenstam et al., 1988). This finding is particularly important as it would be difficult for the COs to influence neuroendocrine activity. Notwithstanding, it would still be very important to verify representativeness of samples used in stress studies because of the selection issue raised by Inwald (1982) specifically relating to COs. Moreover, it would be fair to mention a view, not necessarily dominant, that the level of stress claims from the COs is in part a rort.

Finally, with regard to point four, the intrinsic nature of the job might be expected intuitively to explain differences or at least stressfulness. However, even though certain occupations may appear more stressful because of the incidence of stress claims or health differences, Kasl (1978) cautions that "facile a posteriori judgements of stressfulness should not be routinely invoked to 'explain' morbidity or mortality differences by occupation" (p. 10). For example, in police officers (often compared to COs because of the assumed similarity of organisational demands), it has been shown that it is not always the intrinsic nature of the job that underpins police stress. Organisational and management stressors have been more frequently identified, rather than routine operational duties or life threatening events as might well have been intuitively expected (Brown & Campbell, 1990; Kroes, Margolis, & Hurrell, 1974).

For COs, it could be inferred that stress arises from day to day concerns and difficulties in dealing with inmates, an intrinsic aspect of the occupation (job content). Empirical studies however provide a mixed picture of the relative importance of stressors related to the intrinsic nature of the job (guarding inmates), organisational/ administrative aspects of the job, personal disposition, or styles of coping with the job.

For example, Shamir and Drory (1982) in a study of Israeli custodial personnel found most officers (75%) agreed with the statement "there is always some fear that inmates will try to hurt prison officers". However they found no significant correlation between perception of danger and tedium (physical, emotional and attitudinal exhaustion). Similarly, Cheek and Miller (1983) in a study of New Jersey COs found that officer-inmate interaction was the major cause of stress. However the officers attributed their problems in this area to administrative malfunctions. Finally, Voges, Long, Roache and Shouksmith, (1982) in a study of New Zealand COs ranked scores on six stress factors reported by COs, in order of severity as: management issues, relationships with inmates, working hours, promotion, physical environment and village life. However, unlike Cheek and Miller (1983), they did not report a regression analysis aimed to determine which factors best predicted psychological strain. Overall, these studies show the relative importance of organisational components of the job rather than the intrinsic nature of the job as sources of stress for COs.

On the other hand there does seem some support for the intrinsic stressfulness of the job. For instance, Gerstein et al. (1987) found that "staff relationships with inmates" was the best predictor of burnout among correctional staff, followed by role ambiguity (although other management issues were not measured). They concluded that environmental factors accounted for more of variance in measures of burnout than personal characteristics, (measured in terms of age, length of employment, number of children, job classification and reason for current job).

In a study that attempted to account for relative importance of job content versus organisational sources of stress for COs, Rutter and Fielding (1988), found that lack of staff and resources were ranked as the most likely source of stress. However, when sources of stress were factor analysed and used to predict overall job stress, the single most important predictor of job stress was "confrontation with inmates". They drew the conclusion that stress was predicted by factors intrinsic to the job.

The authors interpreted the seemingly incongruous ranked stressor and predictor variable as evidence of the *John Wayne Syndrome*. The syndrome they argued was a manifestation of an unconscious form of denial. They reasoned that it would be more difficult for officers to acknowledge "confrontations" as the real cause of stress, because of fear of appearing afraid of physical violence, whereas identifying lack of staff and resources would be more acceptable.

Cheek and Miller (1983) in fact, proposed links between the socialisation hypothesis and the experience of stress for COs, in a double bind theory of correctional stress. On the one hand they argued that the job *required* a macho working personality, but on the other hand the officers were in a powerless situation in relation to rule enforcement. Therefore in "crisis situations" officers were less worried about the possibility of harm from inmates, than the possibility of doing something wrong, because of a lack of clear guidelines for job performance.

The problem of contradictory directives has been discussed much earlier. Cressey (1959) outlined three different responses of COs to contradictory directives. These included apathy, failure to report inmate misconduct, or engaging in misconduct themselves. The behaviours,

Cressey argued were attempts to resolve conflict in the prison officer's directive "maximum discipline with minimum conflict" (p. 489-90).

More recently, conflict between the theoretical aims and the practical aims of the prison have also been discussed in the literature. Specifically, Thomas (1974) argued that the conflict between deterrent and rehabilitation approaches, has been caused largely by chronic persistent ambivalence of society toward the functioning of the prison system. Johnson (1977) suggested that prison stress may be ameliorated when officers learned to counterbalance the custodial role with a helping role.

The experience of stress for COs seems to have a negative spiralling effect. Higher levels of stress for COs have been associated with the tendency to react to new stressful situations by intensified commitment to the custodial role (Poole & Regoli, 1980), and a greater desire for more emphasis on control and security of inmates (Rutter & Fielding, 1988). This poses a potentially vicious cycle for the officer, especially when adherence to the custodial role itself can be stressful (Rutter & Fielding, 1988).

The "macho style", to be described in Section 7.7, is thought to be a personal style that results from socialisation on the job. Rather then resulting in higher levels of strain though, manifestation of this style would surely result in an *under representation* of reporting stress symptomatology. Indeed, perhaps the presence of the macho style might be a better indicator of stress.

In summary, a range of possibilities have offered regarding the high levels of occupational strain observed in the department. Notwithstanding, that selectivity of subjects into stress studies needs to be carefully scrutinised, the way the job is organised, and the socialisation that occurs for COs on the job seem to be important themes regarding why COs show higher levels of strain.

7.7 Environmental exposure

If the COs have elevated levels of strain in relation to other workers is there any evidence that chronic exposure to the job leads to strain? In other words, is there a process of strain development that can be identified? Some studies have reported on the relationship between length of employment and levels of strain. These studies might provide a clue. For example, Dunne and Morrison (1991) found that the most severe problems, poorer physical and psychological health, and lower job satisfaction, were found among the longest serving COs. Given that length of employment effects may be due to selection bias because the more ill-health prone officers may have left the service, their result may even underestimate the severity and impact of stress in the organisation.

Other researchers have reported a curvilinear relationship between length of employment and strain: with alienation (Toch & Klofas, 1982), and with job satisfaction (Rogers, 1991). Toch and Klofas (1982) argued that senior officers develop a comfortable level of social distance and relatedness with inmates over time and evidence to this effect is also reported by Lombardo

(1981). Rogers (1991) found that workers with lower employment years tended to score highest on measures of job satisfaction, followed by officers with the greatest length of employment (over five years).

Gernstein et al. (1987), however, found that years on the job did not influence CO burnout but concede that their finding may be masked by the fact that "seniority and burnout may operate in a curvilinear rather than linear fashion" (p. 362), and found no correlation between seniority or number of months on the job and tedium.

The hypothesis that different stressors may be greater at different times in an officer's career has received partial support in one study (Shamir & Drory, 1982) but not in another (Rutter & Fielding, 1988).

As the empirical evidence shows, the use of employment length as an index of exposure in the development of strain is complex. First, it could reflect the impact of an accumulation of stressors over time. Second, it could reflect selective attrition or turnover, but the impact of this could go either way. Length of employment may reflect self-selection of workers who are able to reduce the strain associated with their jobs (Blau, 1981). Individuals with poor health, perhaps an outcome of inability to cope with the job, may leave the organisation, and find alternative employment or even retire (Kasl, 1978). Alternatively, the most affected workers may stay on because of a lack of alternative job opportunities. Third, it may reflect the development of coping styles, or behaviours over time, which in turn could directly affect strain or could moderate the stress-strain relationship. In the job strain tradition, coping behaviours may be an outcome of occupational/ organisational stressors, or work role socialisation. The next section examines the literature for evidence of the influence of the job in shaping behaviour, which may have detrimental or positive effects on psychological and physical health.

7.8 The effects of work role socialisation on behaviour

Evidence has been documented about the macho, tough, authoritarian style of the CO (Cheek & Miller, 1983). If a "working personality" (Skolnick, 1966) exists, is the macho style a product of role shaping on the job or job selection, and if it is, how could it be related to the experience of stress and strain?

Considerable evidence indicates that the macho style is, at least in part, a result of socialisation (Crouch & Marquart, 1980; Skolnick, 1966). Further evidence of the power of a subculture to shape authoritarian behaviour was dramatically demonstrated in Zimbardo's classic prison simulation exercise (Haney, Banks, & Zimbardo, 1973). College students volunteered to participate in the study and were randomly assigned to one of two roles by the experimenters. Only those judged to be the most stable, most mature and least antisocial of the volunteers were selected and were assigned to be either "guards", or "prisoners". The study was terminated within six days following increasingly aggressive and authoritarian behaviour of the "guards" including arbitrary commands to prisoners to do push-ups and refusal of requests to go to the toilet. Furthermore development of symptoms of physical and emotional distress in

the "prisoners" was also noted. The really interesting points about this study are the *random* assignment of students to either role, and the *increasing* aggressive and authoritarian behaviour over the course of the study. The conclusion that the role caused the behaviour seems inevitable.

On the other hand, Toch and Klofas (1982) found that very young COs were more custody oriented than older officers and that human service orientation increased with age. Given that length of employment is assumed to be a rough indicator of prison work role socialisation (Jurik, Halemba, Mushens, & Boyle, 1987) and assuming the possibility that young officers served less time, this finding is not congruent with the conception that the macho style develops over time on the job. Nevertheless it does reflect a socialisation effect.

It is difficult to draw firm conclusions when comparing studies on this issue and indeed on many others because different personnel selection effects no doubt operate from one jurisdiction to another. For example, in recent times some correctional institutions have attempted to enlarge the role of the correctional officer, and have selected personnel accordingly. Consequently workers with less experience could differ from workers with greater experience, a difference that may not be due to experience or exposure.

7.9 Level of education and job attitudes

A significant focus in the literature was in relation to level of education and well-being of COs, in the context of job enrichment for COs. The theory is that corresponding with the aims of job enrichment, officers should have a higher level of education. Education is envisioned to afford the officers prerequisites to handle the more complex contemporary role of officers, and provide an increased understanding and use of skills in human relations, required with greater interaction between officers and inmates. Education may broaden horizons and foster new and flexible ways of thinking about the job definitions and goal redefinitions. New skills can be learned, old ones can be improved and attitudes can be shaped (Poole & Regoli, 1980; Rogers, 1991).

Attempts to enhance educational attainment of officers could conceivably lead to three different outcomes with regard to job attitudes, specifically job satisfaction (Jurik et al. 1987). A *reform perspective* would predict that more highly educated officers would relate better with supervisors and co-workers, would select their job for preferences relating to human service/inmate rehabilitation type work and would be more satisfied employees. Poole and Regoli (1980) for example, found that increased education among officers in a Midwest maximum security facility lowered their adherence to a custodial orientation.

A second competing perspective, the *status inconsistency perspective,* draws from concerns that the labour force is demanding more highly educated workers, and that when these workers enter the work force, their education may exceed the functional requirements of the job and may lead to dissatisfaction with work because of unfulfilled expectations and career aspirations (Rogers, 1991). Within this perspective it is argued that simply improving the educational

qualifications of individual front line staff would not "resolve the fundamental contradictions in the goals and tasks of correctional (that is security versus rehabilitation orientations) agencies" (Jurik et al. 1987, p. 108).

Furthermore it may be that working in a paramilitary, hierarchical structure that typifies many correctional organisations is incompatible with normal expectations of highly educated professional staff (Jurik et al., 1987; Swanson, 1977). The expectation within this framework is that the more educated the front line COs, the more likely they are to experience dissatisfaction and hold more negative attitudes toward their supervisors and co-workers (Swanson, 1977; Wicks, 1980).

Finally, the third perspective emphasises the role of the work environment in shaping attitudes towards work. Within this *work-environment* perspective it has been argued that the security role demands on officers are so embracing and restrictive that all officers regardless of educational background, gender or social background will develop similar (negative) attitudes towards their work (Gruenberg, 1980; Haney et al., 1973).

In an empirical test of these three competing explanations regarding the relationship between educational attainment and job satisfaction, Jurik et al. (1987) analysed the impact of administrative efforts to enhance the professionalism of COs employed in a medium security facility in the western United States. The cornerstone of the professionalising efforts was to upgrade educational prerequisites with preference to hiring those who had completed their four year B.A. degree. Concomitant with these changes was an increase in salary, an increase to 60 hours per year for in-service training, strong departmental encouragement to complete the B.A. degree and an official job description change to incorporate new service/program related duties (for example supervision of inmates' program participation and para-professional counselling).

In support of the *status inconsistency perspective*, Jurik et al. (1987) found that when other important determinants were held constant, education continued to exert a significant negative impact on job satisfaction; that is higher education led to increased dissatisfaction.

However, in support of the *work-environment* model they found that perceived intrinsic job conditions (autonomy, variety, learning opportunities) were the strongest predictors of general job satisfaction and exerted a larger impact than education. This finding is in keeping with prior research which argues that perceived working conditions are major determinants in general job satisfaction (Gruenberg, 1980; Karasek, 1979).

In line with the expectations of the *reform perspective*, Jurik et al. (1987) found that the more educated officer showed more interest in human service/inmate rehabilitation than in the security dimension of the job. But they also found that taking the position primarily because of interest in security work was positively associated with general job satisfaction.

In conclusion, Jurik et al. (1987) found that individual characteristics (education and reasons for taking the job) and environmental conditions were both important determinants of job satisfaction. Their conclusions were highly critical of attempts at professionalisation directed at increasing education levels without parallel structural changes to increase autonomy, opportunities to influence institutional policy making, limited opportunities for promotional

advancement and frustrated attempts to change the image and introduce program related duties of the "new CO".

A study of minimum security southern/northern American facilities, Rogers (1991) showed no support for the status-inconsistency hypothesis: that college educated individuals would have higher aspirations and expectations and that these would not be fulfilled while working in a blue-collar occupation as a CO. High school educated officers were more satisfied than college educated officers but those least satisfied were officers who had attended college but had not graduated. Those who did not graduate, however, did show greater commitment and willingness to pursue a career in corrections than the college graduates. It seems therefore that the actual educational experience may influence attitudinal outcomes.

Grossi and Berg (1991) also reported that officers in a medium/minimum security facility in Kentucky, with more education reported greater satisfaction and less stress . However only 4% of their sample had completed a four year college program, compared to Jurik et al.'s sample of 54% with degrees and a further 23% with associate degrees.

In accord with the *status-inconsistency* view other studies (Cullen, Link, Wolfe, & Frank, 1985; Lombardo, 1981; Martin & Sheehan, 1989) and a recent review (Philliber, 1987) also concluded that COs with more education were less satisfied with their jobs. Overall these studies show that individual characteristics (education, personal job preferences) and work conditions, and the fit between these, have important implications for job satisfaction.

7.10 The organisation

The following information was derived from the Department of Correctional Services 1989/90 annual report and other internal documents, and a paper submitted by the department to the Conference of Administrators of Corrections, June 1990. The role of the organisation is:

> "The Department of Correctional Services contributes to the administration of justice and to the protection of society by exercising safe, secure and humane control of all persons referred to the department while providing opportunities to assist offenders to become law abiding members of the community. -The Charter, 1988.

The department is a large bureaucratic hierarchical structure which in June 1990 employed a total of 1160 people in a range of positions. The department is responsible for community corrections, providing support and supervision to offenders placed in the community on conditional liberty (probation, parole, community service orders) via the programs administered by the department. The department is also responsible for safe, secure, and humane incarceration of offenders, and this is the main role of the COs.

There are eight correctional institutions located throughout the state, with varying security ratings, providing accommodation for sentenced and unsentenced prisoners. During 1989/90 daily average number of prisoners in custody continued to grow. South Australia's imprisonment rate was approximately 62 per 100,000, which was lower than the national average of 74 per 100,00 and lower than the rates of New South Wales, Queensland, Northern

Territory and Western Australia. The average number of prisoners in custody for 1989/90 was 888.

The 1990 annual report refers to the stress problem in the organisation. The Executive Director's report stated that:

> "the issue of workers compensations has become an increasingly important one for staff and management. On 1 June 1990 a Workers Compensation Forum was conducted by the department which presented an opportunity to talk to officers on stress-related workers compensation and also enabled officers to relate their experiences and to ask questions. Members of the Executive, representatives of the Correctional Officers' Legal Fund, Department of Personnel and Industrial Relations and the Public Service Association attended the forum." (pp. 2-3).

The problem is also referred to in the support services division report. A goal (among others) in 1990/91 for the occupational health, safety and welfare section, was to develop a research proposal on stress in the role of the CO, and develop a range of programs on stress awareness and management for staff and supervisors. A major corporate strategy for 1990/3 was to improve the management of the human, financial and physical resources of the department. A reference was made to increased sick leave: "the pressures of managing prisoner unrest and high prisoner numbers have contributed significantly to unusually high staff absenteeism and turnover" (p.16).

7.11 The changing role of the CO

From 1990 a major focus for the department was to enlarge the role of the Correctional Officer to ensure that "skills are fully utilised, functions enhanced and decision making capacity delegated as far as possible" (internal document). Emulating developments in Scandinavian and northern European prisons, the strategy was to provide a more professional and fulfilling career for officers through optimal utilisation of officers skills and aptitudes, to facilitate professional interaction with prisoners and in the process, increase delegated authority to the officers. It was hypothesised that this would lead to greater job satisfaction, a reduction of incidents, and more harmonious relationships between staff and prisoners. Both the department and the Public Service Association believed that the key to changing the culture within the South Australian prisons was to change the way COs related to prisoners, to give them appropriate authority to enable them to undertake their tasks.

Juxtaposed with these beliefs, was the observation that the a "cumbersome middle management hierarchy" within the prisons was causing a degree of confusion in relation to the decision making process and was slowing the resolution of issues. The perceived overall effect was to attenuate the significance of the role of the CO in regard to the management of prisoners.

The idea of changing the culture of the organisation coincided with structural efficiency changes in the wider public sector work force in South Australia, and a timetable determined by the Industrial Commission. The objects of restructuring were to reduce significantly the number of classifications which existed, with a focus on broad banding, multi skilling the workforce, and generally reducing unnecessary management levels within organisations.

To meet the requirements of the restructuring process, management, labour, occupational health and safety, and unions engaged in active consultation (weekly meetings since the middle of 1990). Each prison developed its own model, and on June 1991 all positions in the Public Service were translated into four new streams, Administration, Professional, Technical or Operations with new interim awards. All CO positions were translated into the Operations stream. This resulted in fewer levels in each stream than there were in the old award. The technical translation of old positions into new was implemented on 1 October 1991 with new prison structures, characterised by fewer management and supervisory levels, and the integration of Correctional Industry Officer and Correctional Officer functions. As part of the new structures, it was intended to manage prisoners in Units, to provide COs with the greatest possible opportunity for managing the prisoners and the environment in which they were located.

Despite these initiatives at the time of the study (July 1991), the major role for the CO was to provide safe, secure, and humane custody for the inmates. In minimum security prisons it was inevitable that officers related closely with prisoners in a professional way, but the role generally was not concerned with rehabilitation. The CO industrial officer role was more involved in providing an opportunity for prisoners to participate in training and the development of specific work skills. It was the case that significant changes occurred around the commencement time of the study, specifically translation of jobs to the new structure.

The imperatives of organisational change historically have been linked with improved productivity or organisational outcomes, rather than improved health for workers. The rhetoric of the proposed changes seemed to be for the dual outcome of productivity and worker well-being, but explicit links to worker health are not made.

7.12 Investigations

An interesting aspect of Departmental operations is the Investigations Unit. It provides advice on and investigation of incidents and matters of concern to the Executive Director (ED) and reports findings and recommendations directly to the ED. The decision to refer a matter to the Crown Solicitor or the Police Department or to handle the matter internally is based on these investigations. Such procedures ensure the department's accountability to the Minister and the Government for its operations under the Correctional Services Act, 1982 and the Government Management and Employment Act, 1985. A total of 67 investigations were conducted during 1989/90. Eight officers appeared before inquiries, and two were found not to be liable. The remainder were subject to reprimands and salary reduction.

7.13 Summary

In summary, the majority of studies suggest the level of strain is higher for COs than in other comparison samples. There are many possible reasons for this, including organisational

and operational aspects of the job, situational factors, and personal disposition, and self-presentation biases. Although studies tend to support a multi-factorial model, there is a good deal of empirical evidence linking work environment stressors to strain. Moreover, some studies (including quasi-experimental designs) have demonstrated socialisation effects of the CO role on the individual. COs generally work in large bureaucratic structures and experience low levels of decision latitude, and low organisational support. A recurring theme for COs is the experience of conflicting directives, conflicting philosophies, and ambivalence from society.

Most studies are cross-sectional in nature, and therefore inferences can not be conclusively drawn regarding what causes strain for COs. Studies that can make a contribution to the debate, have assessed the relation between length of tenure and strain, have not produced entirely consistent results. Indeed the results of many of the studies reviewed may be specific to the selection, and role requirements of the COs in different jurisdictions. The generalisability of the results to new situations therefore must be viewed with caution. For this reason, idiosyncratic research by CO organisations is required to provide detailed information on their own internal environments.

At the time the study was commencing the department was embarking on organisational change around the concepts of role enlargement, to enhance utilisation of skills and decision making responsibility of the COs. Substantive implementation of the new roles was expected to commence after the survey data had been collected.

NOTES

1. Chapters 7, 8, 9 and 10 are based on Dollard, M. F., Winefield, A. H., & McGuirk, T. E. (1992). *Study into stress among correctional officers,* Adelaide: Techsearch: Dollard, M. F., & Winefield, A. H. (1994). Organisational response to recommendations based on a study of stress among correctional officers. *International Journal of Stress Management, 1*, 81-101.

Chapter 8

METHOD

8.1 Introduction

As applied research is typically conducted in response to the needs or requests of a client or sponsoring agent, a number of constraints are imposed on the process. These may include influences on timing (when to start, when to finish), method, and on which variables to examine (Oskamp, 1984). Moreover, the applied nature of the study requires implementable solutions for the problem. As no one theory could provide an integrative framework for examining occupational stress in COs, an *inductive* method was used (see conclusions in Chapter 6). This chapter outlines the procedure used to involve the organisation in the process to obtain data from the COs, to inform an intervention plan.

In addition the chapter deals with the measurement instrument used. Specifically, the definitions, operationalisation, and the response formats for the variables will be given. Additionally, information regarding previous empirical use of the measures and psychometric information is provided.

8.2 Procedure

8.2.1 The consultative process

There are good reasons for using an action research paradigm to investigate occupational stress in an organisation such as Correctional Services (see also Chapter 5). The primary purpose of action research is to implement change strategies that are successful (in reducing the problem) because of the involvement of the organisational members in problem definition, and intervention.

Action research offers an alternative approach to the traditional positivist paradigm, which has been criticised for its emphasis on value neutrality, and treating subjects as objects. Research objectives and design of traditional approaches are viewed as well-specified, unchanging and controlled. It is argued that the traditional approach is at odds with the nature of the organisational context, which is dynamic and changing, with diverse members with conflicting values (Israel, Schurman, & House, 1989). Moreover, traditional research methodologies parallel traditional management roles and power structures, which serve to reinforce passivity on the part of the workers (Argyris, 1968).

Participatory action research has been described and used effectively in a number of studies (Israel, Schurman & House, 1989; Pasmore & Friedlander, 1982). It is considered a cyclic process with five phases: diagnosing the problem, action planning, action taking, evaluating, and specifying learning (Susman & Evered, 1978). The process is participatory in that the problem, the research, and the action stage of the process are generated by the organisation in collaboration with the researchers, rather than driven by the theoretical interests of the

researchers. The process results in empowering workers to increase control over their lives. It also results in co-learning where researchers involve workers in developing local theory that explains their own situation. This knowledge in turn can be used by workers to change the organisation and by researchers to refine work stress theory (Susman & Evered, 1978).

The study presented a challenge for the researchers to meet the twin criteria of rigorous scientific research with useful practical outcomes for the amelioration of an urgent organisational problem. This dual focus is in contrast to most of the research in the occupational stress area which has a theoretical focus.

In determining the methodology to be used in the study, a number of important issues were considered. First, the study was commissioned by the department, rather than initiated by the researchers. It was clear from the terms of reference that at least some stakeholders in the organisation held the belief that: (1) stress was a problem; (2) that it had multiple sources; and 3) something had to be done (i. e. recommendations were required). We were led to believe that negotiations had taken place between management, the officers and the union in the development of the terms of reference and in obtaining funds from the South Australia Department of Labour to conduct the study. Our prior knowledge of the historical unrest in the department, and the division between labour and management led to a proposal that suggested a widespread survey of everybody in the organisation by questionnaire, and interviews of workers on stress leave, health and welfare personnel, management, and union representatives. This approach was viewed by the research team as cost-effective, would probably be acceptable to management (whom we assumed would heavily influence the tendering process), and if managed well, could result in valuable recommendations to the organisation.

Within the constraints and specifications (e.g. time frame and budget) of the terms of reference of the study, only the diagnostic phase and components of the action planning phase (through to the development of recommendations) were undertaken. The complete second phase and the third phase, action taking, were not part of the mandate for the researchers. The researchers were involved on a short term rather than a long term basis. We considered that our primary goal was to present accurately the issues of the officers to the organisation, and ensure through the development of the recommendations, an ongoing effort by the department to understand and ameliorate the adverse health consequences of stress for COs. In this way the department could enter the action phases after the researchers had withdrawn.

Interventions have reportedly failed on the basis that they did not obtain an "inside" understanding of participants' attitudes and needs, or where the change agents were perceived to be different from the participants themselves (Elden, 1986) To enhance involvement by the correctional officers and maximise the ultimate utilisation of the results by all stakeholders, participatory actions were used, in three important dimensions, cognitive, affective and political (Greene, 1988).

Firstly, at the political level, stakeholders (and emerging stakeholders) in the study were identified: departmental administrators and policy makers, the correctional officers, occupational heath and welfare personnel, and the Public Service Association (union). External to the organisation were other stakeholders including the South Australian Department of Labour, the

Minister for Correctional Services, and of course the public. It was difficult to understand the extent of interest groups, their complexities, and the relations between them. For example, just as initial interviewing of key health and welfare personnel, management and union representatives began, the secretary for the Correctional Officers' Legal Fund (an ad hoc organisation set up to provide funds to support officers involved in investigations and litigation with the department) wrote to all of its members:

> "What worries me is whether this exercise will just end up as another exercise in expediency, where the results will be carefully juggled to produce the answers the department wants, rather than the truth of the matter. You do not need to carry out research to know that most of the stress originates with management and their poor attitude to staff. They might argue that they have changed many aspects in the past few years, but have these changes really been effective? We still find the department will bend over backwards to protect the "rights" of the inmates while ignoring the most basic rights of officers...until the department is prepared to openly involve representatives of the officers in the design and distribution of the questionnaire, I will *not* be answering any questionnaire, and I would strongly recommend that every officer do the same thing".

The interest group was immediately contacted and asked to be part of a review committee. It did raise questions for the researchers regarding why this powerful group was omitted from the initial negotiations (they were not mentioned in the 1990 annual report). After several meetings, the secretary retracted his objections and urged officers to support the study by writing a cover note (6th. September 1991) which was attached to the survey (see Appendix 2).

A research review committee was established by the department to consult with the researchers in the development of methodology and recommendations. The final committee had broad membership and comprised: Director, Support Services, later replaced by Acting Director, Support Services; Manager, Occupational Environment and Welfare Services; Acting Coordinator, Research and Planning; representatives from the Public Service Association; and representatives from the Correctional Officers' Legal Fund. Meetings between the committee and the research team took place at least on a monthly basis, and informal contacts were made more frequently with the Manager, Occupational Environment and Welfare Services. All officers were represented by this diverse membership that gave voice to the officers and elicited the interest and attention from the more powerful to the issues being investigated (Greene, 1988).

Secondly, at the cognitive level all stakeholders were consulted regarding their views of the stress problem and possibilities for intervention. Discussions were held with the research review committee about the research approach and framework the researchers thought could be used to assess the stress problem, given the terms of reference. The terms of reference showed a balanced framework for investigating the stress problem in that both the person and the environment were identified as potential sources of stress for correctional officers

Regular meetings were held with the research review committee to share information regarding the progress, issues and findings of the study. These interactions were critical for reciprocal learning where new information was shared between the researchers and the committee, and new meaning was given to the stress problem from both the organisation and the researchers.

Thirdly, at the affective level, where possible the researchers met with prison officers to explain the purpose of the study and emphasise the importance and value of their participation. An unintended consequence of rigorous conventional research is that workers may be unwilling to participate or misrepresent their opinions because they associate researchers with the existing hierarchical management structure (Argyris, 1968). The independence of the researchers from the Department was emphasised to the COs and feedback from the study was promised. Further, COs were urged to follow-up the results after the researchers had left. It was also expected that the level of trust and mutuality could be conveyed by meeting with the COs at their musters and on the job. Moreover, the researchers made assurances that the study would accurately reflect their concerns, and recommendations would be made to reduce the level of strain.

8.2.2 Sample procedure

The pros and cons of different research methodologies were considered, including survey, face-to-face, and telephone interviewing(e.g. Dillman, 1978). It was proposed in the research tender to interview by telephone, all officers on stress leave, and survey the COs at work. The CEO of the department asked the team to consider the cost of face-to-face interviewing of officers on stress leave. There was however a strong reaction against this strategy by the union. They claimed that many of the officers on stress leave were still highly agitated, and that the strategy would place the researchers at risk, and it was not the role of the researchers to "smooth things over" on behalf of the department. There were strong union concerns that the participation rate would be adversely affected if officers could be identified in any way, even by code. The officers could be identified (at least to the researchers) in interviews and telephone surveys, so these were viewed as less favourable options (compounded by their cost).

After a lot of discussion the idea of interviews was abandoned. A survey methodology was chosen as the main mechanism to provide wide ranging views about the stress problem and prevailing levels of strain from the officers at work (see Israel et al., 1989). Further information from the off work officers would be viewed as a bonus. We viewed the survey as an instrument that would indicate to the officers by way of content that we "understood" many of the prevailing issues, and possible health effects. If we could conduct a successful survey, and represent the issues, and develop intervention recommendations that were agreed to by all parties, it could be a mechanism on which to build trust between management, the officers, and the research team.

This led to the researchers agreeing to totally anonymous survey responses, which was a major methodological loss in terms of the potential to assess the work stress process prospectively, and to evaluate the impact of any intervention. With a different time-frame it might have been possible to develop the required level of trust.

8.2.3 Conduct of research

Uncoded questionnaires and information regarding the study (see Appendix 2 and 3) were sent in personally addressed envelopes to officers and delivered through internal departmental mechanisms or mailed externally. Each officer received a stamped addressed return envelope.

The initial response was slow. Evidently we still underestimated the level of antipathy, anger and trust within the Department. Anecdotal evidence from officers for non-participation was along the lines: "if I fill in all the questions I may be identified", "I filled it in but my wife would not let me send it in", "I may be identified", "nothing will come out of the study, we've had this kind of thing before, even a Royal Commission". Two follow-up letters were sent directly to the officers, and at the recommendation of the research review committee, internal networks including the union the Legal Fund and occupational health and safety networks were also used to encourage officers to participate.

Despite assuring anonymity and confidentiality many officers refused to participate. Reasons offered for non-participation were chiefly fear of being identified (which would have been inevitable in a face-to face interview), and scepticism that any positive change would occur. In order to boost the response rate, researchers visited the prisons and spoke directly to COs, again strongly encouraging the officers to participate, explaining the purpose of the study, and what it hoped to achieve. We made assurances that they would receive feedback and that we would try to make a difference. Clearly our involvement was not value free. The date that the original survey was sent out was the 9th. of September 1991, and the closing date was the 21st. November 1991.

8.3 The population and sample

All correctional officers, including those at work (N=820) and those on stress leave (N=30), as well as former officers who had been transferred to other government departments following stress leave (N=80), were invited to participate in the survey. The at-work group returned 403 questionnaires, representing a response rate of 49.15%. The off-work group returned 16 questionnaires, representing a return rate of 53.33%. The transferred group returned 24 questionnaires, representing a return rate of 30.00%. Due to the sensitivity (and hostility) of the latter two groups no follow-up to the return of questionnaires was undertaken.

Altogether, 443 officers responded out of a possible 930, representing an overall response rate of 47.63%. Of those currently employed in the department (850), 419 replied, representing a rate of 49.29%.

8.4 The proposed model of stress among COs

The key variables to be considered in a model of stress in COs arose from a number of sources: (1) extensive face-to-face and telephone interviews with key internal and external

health professionals (psychiatrists, rehabilitation providers, occupational health and safety) who had experience with the officers, all key administrators and all prison managers, union delegates, Correctional Officers' Legal Fund and social scientists[1]; (2) an extensive literature review; (3) my previous work experience in the Department of Correctional Services as a probation and parole officer; (4) the terms of reference; and no doubt (5) stereotypical common knowledge about what causes stress (Ganster & Schaubroeck , 1991).

Taking account of these influences and the "local theory", a model of stress among COs was proposed to the committee. Figure 8.1 presents a stressor-strain model of the role of occupational factors in the development of psychological and physical strain in COs based on similar conceptualisations proposed elsewhere (Fletcher 1988; House, 1981; Hurrell & McLaney, 1988). The model simply represents predictor variables, but makes no *a priori* assumptions about the level of stress expected, or possible interaction effects of stressors. It does however provide conceptualisation of important *occupational stressors* (work environment; general and specific) and *strain symptoms* (affective, physiological and behavioural responses) (see Chapter 2). A number of factors that may lead to differences in the way workers exposed to the same job stressors perceive and/or react to them are incorporated in the model and include *demographic/ control measures, social support, personality variables* and *coping strategies.*

8.5 Instrumentation

The variables from the model were operationalised in a survey instrument. Existing measures with good psychometric properties (i.e. reliability and validity) were used where possible. Not all the important variables/ issues could be operationalised by existing scales, and two new scales (sources of stress for COs, and coping scales) were constructed. Where possible, questions were specifically tailored, in both language and content, to the CO situation. This was the strategy used by Israel et al., (1989) and is in accord with the idea of increasing control over the research process, and improving the chances of learning and utilisation of the results if it is written in the language of the organisation members, and reflects the issues they consider to be important (Elden, 1986). Pretrials of the instrument were given on a small sample of COs at different levels in the organisation, and modifications were made accordingly (Dane, 1990).

The next section provides a description or definition of the variables, followed by the corresponding operationalisation, and the response scale formats used in the questionnaire.

To assess the quality and adequacy of the measures, psychometric data are also provided. Specifically, information regarding reliability coefficients for the measures are given, for both existing scales and for scales used in the study. Reliability refers to the consistency, dependability, stability, accuracy, and predictability of the instrument (Kerlinger, 1973). It is that part of a measurement instrument that is free of purely random error (Jonge, 1995). There are different ways to measure reliability. Cronbach's alpha is the most commonly used measure of reliability, and is based on the internal consistency of a test (Cronbach, 1951). It assesses

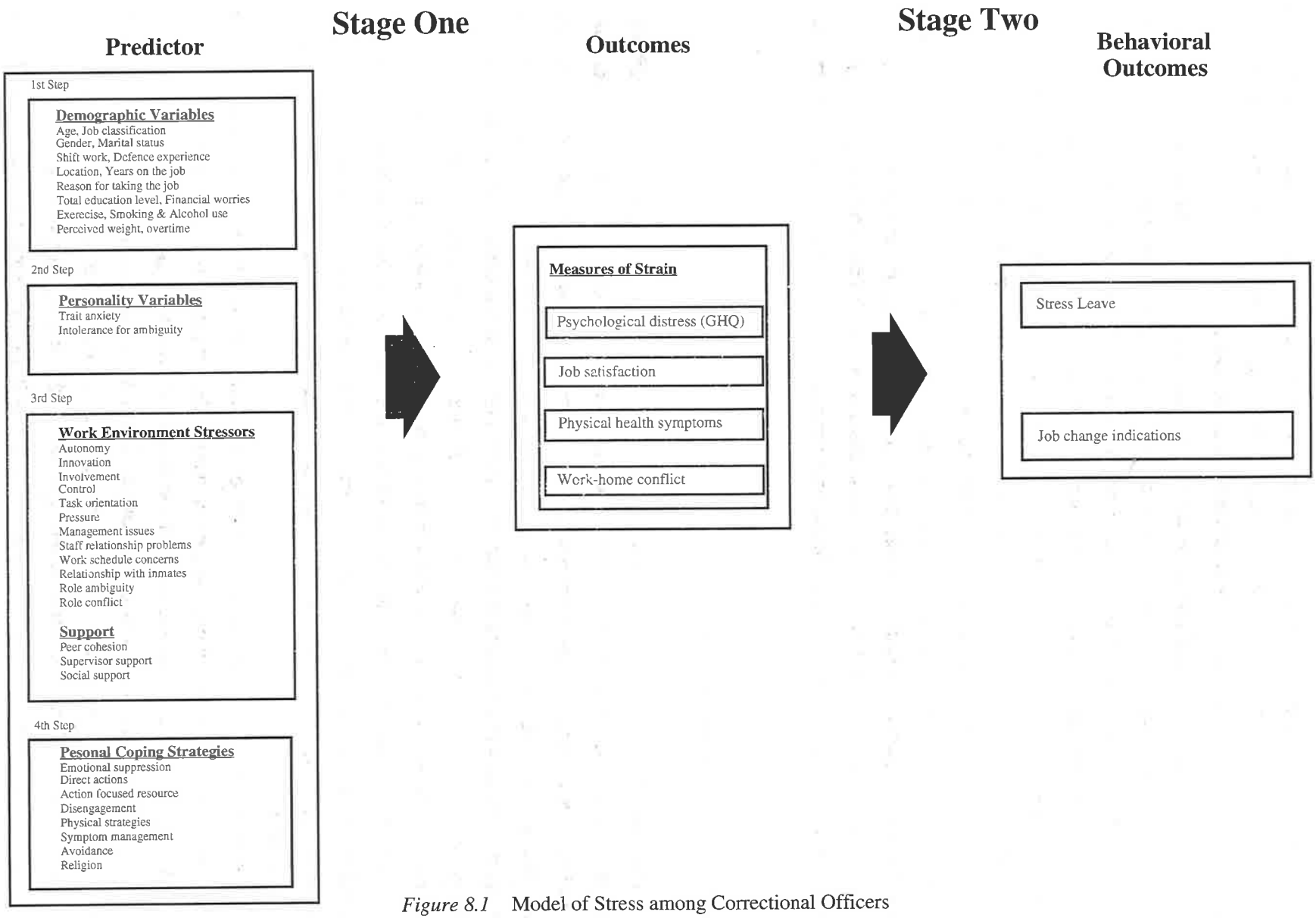


Figure 8.1 Model of Stress among Correctional Officers

the correlations of items on a single scale, and accordingly, the error factors that are associated with different items in a scale. Cronbach's alpha depends on the length of the test and the correlation of items in the test. Therefore large reliability coefficients can be found even when the average inter-item correlation is small, if the number of the items in the scale is large enough (Norusis, 1990). Further, Cortina (1993) points out that in a uni dimensional scale, with at least three items an average inter item correlation of .50 yields alpha coefficients that are acceptable by convention (i.e. greater than .75). No doubt as a result of these influences, there appears to be no metric for assessing adequate levels of reliability, although most recent studies that have used the alpha coefficient imply that alphas of .70 or better will be adequate (Jonge, 1995; Polit & Hungler, 1987). Cronbach's alpha coefficients were obtained for multi-item scales used in the study and are reported in this chapter. Only a few scales used in the study showed unacceptable reliability: control (.54), friends support (.40), and symptom management (.35).

The other main reliability measurement used in assessing reliability is test-retest reliability. Other relevant psychometric data available on the measures such as test-retest reliabilities, (stability of the measure over time) and validity (whether the scale measures what it purports to measure) may be reported for standard measures.

8.5.1 Independent measures

DEMOGRAPHIC VARIABLES

Single item measures were used to obtain demographic or background information (Furnham, 1992). A number of variables shown in the literature to be linked to health symptomatology were included as controls (Schaubroeck & Ganster, 1993). Officers were asked about age, gender, marital status, financial worries, length of service, classification, shift work status, defence employment experience, perceived weight, alcohol use, cigarette use, exercise level, reason for taking the job, overtime hours, education level and prison location.

Age was measured using an ordinal scale, 1=*18-30 years*, 2=*31-40 years*, 3=*41-50 years*, 4=*51-60 years*, and 5= over *60 years*. *Length of employment* was measured in years. *Relationship*, was coded, 1=*single*, 2=*married or defacto*. *Gender*, was coded as 1=*female* and 2=*male*. *Perceived weight*, was measured on a seven point scale ranging from 1=*very underweight*, to 7=*very overweight*. Body mass index has been used as a control in many occupational stress studies because of the relation between BMI and strain. However it was not possible to measure weight and height in this study (identification issue), and so a perceived weight scale was used.

To enable comparisons with national data, measures for alcohol use, cigarette use, and exercise level were all derived from the National Heart Foundation (NHF)1989 Risk Factor Prevalence Study, Survey No. 3.

Alcohol use (quantity of alcohol consumed daily), was measured by an interval scale: the quotient of quantity divided by the frequency of drinking. A number of studies suggest that workers under stress may consume more alcohol (Emery & Phillips, 1976). Among Australian

policemen elevated levels of alcoholism were predicted on the basis that the work has unique occupational stress factors, and the Australian population in general has high levels of alcohol consumption (Davidson & Veno, 1979). In their analysis of Australian Prison Officers, however, Webster, Porritt, & Brennan (1983) did not find elevated levels of alcohol consumption although they did find that reported use was related to job stress after controlling for age. More recent studies suggest that substance abuse by workers is not as much due to conditions of the workplace as to attributes of the worker or recent stressful life changes and employment insecurity (Mensch & Kandel, 1988; Steffy & Laker, 1991). Alcohol, like smoking, could therefore conceivably be a source of health symptomatology independent of the work environment, or could be an outcome of psychosocial stressors (i.e. coping). In the present study alcohol use, smoking, and exercise level were all controlled for, to assess the separate impact of the work environment on other strain indicators. In addition the direct effect of the use of these strategies in coping with work stress were assessed for their direct effects on measures of strain.

Smoking (daily cigarette intake) was assessed using an ordinal scale, 1=*don't smoke*, 2=*1 to 5 cigarettes*, 3=*6 to 10 cigarettes*, 4=*11 to 20 cigarettes*, 5=*21 to 40 cigarettes*, and 6=*more than 40 cigarettes*. In their study Webster et al. (1983) found that 44% of prison officers smoked on average 21 cigarettes per day. It could reasonably be expected that this rate would have been smaller in the present sample, as non-smoking work environment policies had been introduced in the department.

Exercise, (frequency of exercise for more than 30 minutes or more) was rated on an ordinal scale reflecting frequency of exercise for 30 minutes or more: 7=*every day*, 6=*5-6 days per week*, 5=*3-4 days a week*, 4=*1-2 days per week*, 3=*once a fortnight*, 2=*less than once a month*, and 1=*less than once a year*. Webster et al., (1983) found that lifestyle factors of overweight and smoking were determinants of deviations in physical health from the national norm in COs. They could not, however, on the basis of their analysis, rule out the possibility that work stress was linked to poor physical health.

Financial worries, was a single item: "thinking back over the past month, how often have you had serious financial worries?" (Jackson & Warr, 1984). Responses were given on a five point scale 1=*never*, 5=*all the time*. Financial worries were measured rather than objective financial status, as previous studies in the job loss literature have indicated that perceived financial strain rather than objective financial status may be more salient in giving rise to psychological distress (Kessler, Turner, & House, 1988).

Education level was measured on an ordinal scale, and derived by adding years at high school, (1=*less than 3 years high school*, 2= *completed 3 years high school*, 3=completed 4 years high school, 4=*completed 5 years high school*) with years of subsequent courses. The latter were assigned scores according to the typical length of study (e.g. TAFE certificate=1 year, diploma=2 years, degree=3 years)

Classification, was coded as 6=*Chief CO*, 5=*Assistant Chief CO Grade II*, 4=*Assistant Chief CO Grade I*, 3= *Senior CO*, 2= *CO*, 1=*CO Industrial Officer*.

Shift work status, was coded as 0=no shift *work*, 1 =*shift work*.

Defence employment experience, 1=no 2=*yes.*

Reason for taking the job, was coded as 4=*very important*, 3=*important*, 2=*not sure*, 1=*not important.*

Overtime was measured in hours. Webster et al. (1983) found that 85% of officers had worked overtime in the previous two weeks.

Prison location, was assessed using a nominal scale.

PERSONAL FACTORS

Trait anxiety. The State-Trait Personality Inventory (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983) was used as a measure of NA (cf. Watson & Clark, 1984: Watson & Pennebaker, 1989). A shortened 10-item version of the 20-item STAI-Y State-Trait Personality Inventory (STPI) was employed to measure trait anxiety as an index of NA (as recommended by Spielberger, 1992, personal communication). The scale's reliability coefficient (Cronbach's alpha) for this study was .89 within the range (.88 to .93) reported by Spielberger (1980).

Tolerance for ambiguity. This scale assumes that intolerant and authoritarian persons tend to seek unambiguous solutions for complex problems, tend to show rigid categorical thinking and tend to perceive dimensionalised stimuli as absolutely dichotomised (Martin & Westie, 1959; Robinson & Shaver, 1980). The role of prison officers is a position of authority requiring flexibility for effective decision making, therefore rigid thinking may be related to the stress levels that they experience. Two irrelevant items were deleted from the scale. High scores equal high levels of tolerance. Cronbach's alpha coefficient for the study was .81.

WORK ENVIRONMENT MEASURES

Aspects of the work environment were assessed by a general work environment measure and a specific work environment measure.

Specific work environment measure. The most extensive measure of the specific correctional work environment available was an instrument designed by Voges, Long, Roach, & Shouksmith (1982). The 123-item questionnaire was used to identify appraised sources of occupational stress in a study of New Zealand prison officers. The original questionnaire was reduced by factor analysis and item analysis to 53 separate variables. Varimax rotation of these variables yielded six factors which accounted for 92% of the variance. The six source factors were labelled: (1) institutional relationships; (2) working hours; (3) relationships with inmates; (4) promotion issues; (5) physical environment; and (6) village life. The New Zealand department is different from the South Australian department in that departmental housing is generally not offered. Questions pertaining to village life were therefore omitted.

The contents of this questionnaire were heavily influenced by the research review committee, and other external sources previously mentioned. Items were added or deleted according to their relevance. As the officers may have been facing uncertainty or ambiguity as a result of moves to change their operational tasks (move to unit management) questions specifically relating to work role ambiguity were added. These were obtained from a modified version of the 11-item scale developed by Shauer (1985), and derived from Rizzo, House, and

Lirtzman (1970) and Kahn, Wolfe, Quinn, and Snoek (1964) was used. Two further questions were included to reflect contemporary concerns about job task changes and training. Questions which were not relevant, such as those pertaining to living in villages were deleted. Some items that appeared to confound stress with outcome, such as "take home work attitudes", were excluded.

The response scale was changed at the request of the committee, to use the word "concern" rather than "stressful" (the latter was used by Voges et al., 1982). Officers were asked to indicate their level of concern about aspects of their job. The rationale for this was to tap aspects of the psychosocial work environment which caused arousal, or attracted attention, and were seen as important, as opposed to a reactive response to the word "stress". This change, it could be argued, should result in a more cognitive and less emotional reaction and therefore responses to the scale would be less likely confounded with affective dependent measures (Frese & Zapf, 1988). Subjects responded on a five point scale how often the aspects of their job caused them concern: 0=*does not apply*, 1=*rarely concerned*, 2=*sometimes concerned*, 3=*oftern concerned*, and 4=*very concerned*. This scale was subjected to exploratory factor analysis to derive underlying factors.

The use of the measure raised a number of issues. First, the construct validity of the measure was not known. Second, the scale asked for an appraisal of importance or concern for the issues by the officers, which may have led to subjective biases in recording the objective work environment. Third, the scale measured idiosyncrasies of the CO environment. This meant that the results could not be compared with those of other organisational contexts, reducing the potential to assess what it might be about the CO environment which leads to higher levels of strain. The solution was to find a generic work environment scale which used a response format which forced a more "objective" assessment of the objective work environment.

General work environment measure. The generic work environment measure selected was the Work Environment Scale (WES) (Moos, 1986). The ninety item self-report questionnaire measures the social environment of work settings. It has been recommended as an organisational stress inventory on the grounds that it is cost-efficient, brief, and can be used in nearly any work setting (Jones & Dubois, 1986). The WES can be used to describe or contrast the social environment of different work settings and to compare employee perceptions within the same organisation. An index of work stressors can be derived from the WES. Levels of work demands, supervisor support, control, clarity, autonomy, peer cohesion, involvement, innovation, physical comfort, and work pressure in a specific job can be determined by reference to normative data. An important consideration in its selection was that it contained measures [demand, control (autonomy), support] appropriate to test the expanded job strain model (DCS model) (see Chapter 11).

Moos (1986) reported good test-retest reliabilities (1 month) ranging from peer cohesion .71 to a high of .83 for involvement. In terms of validity, a range of studies (see below) have

shown that levels on the work dimensions are associated with levels of strain, in predictable ways.

The WES has been used in empirical studies to assess the impact of work stressors on depression and psychosomatic symptoms (Billings, Cronkite & Moos, 1983; Billings & Moos 1984; Holahan & Moos, 1983). It has also be used to evaluate and facilitate change and improvement in work settings by providing relevant baseline data (Moos, 1986). Jackson (1983) (see Chapter 5) used the WES to monitor organisational development based on increased levels of participation by workers.

Relevant subscales (each of nine items) were selected in collaboration with the research review committee: Involvement, the extent to which employees are concerned about and committed to their jobs; Autonomy, the extent to which employees are encouraged to be self-sufficient and to make their own decisions; Task orientation, the degree of emphasis on good planning, efficiency, and getting the job done; Work pressure, the degree to which the press of work and time urgency dominate the work environment; Control, the extent to which management uses rules and pressures to keep employees under control; and Innovation, the degree of variety, change, and new approaches. The subscales relating to the physical environment, and clarity (ie work role ambiguity) were covered in the previous questionnaire and were omitted. The items on the selected subscales were not altered.

The questions required subjects to answer "true" if the statement was "true" or "mostly true" and "false" if they thought the statement was "false" or "mostly false" of their work environment, as described by Moos (1986). Responses were scored as 1 or 0, and responses could range from 1 to 9 (see Moos, 1986 for specific scoring details). The coefficient alphas ranged from a low of .61 for autonomy, to .76 for involvement. Control had a much lower coefficient of .54.

The WES was also selected because, consistent with the assumptions of the DC/S models, the scale captures the more "objective" work environment rather than any subjective appraisal of it (Frese & Zapf, 1988). Subscales specifically relevant to the DC/S framework were as follows.

Demand. The subscale work pressure (the degree to which the press of work and time urgency dominate the work environment) was used to assess demand. In particular the scale measured time pressure, and included items such as "there always seems to be an urgency about everything" (positive loading) and quantitative overload including items such as "it is very hard to keep up with your workload" (positive loading).

Control. Consistent with Karasek's conceptual definition of decision latitude, the autonomy subscale was used to operationalise decision latitude, an index of control. The scale measures "the extent to which employees are encouraged to be self-sufficient and to make their own decisions". The scale includes items such as "few staff have any important responsibilities" (negative loading), and "staff are encouraged to make their own decisions" and "staff are encouraged to learn new things even if they are not related to the job" (positive loading).

Co-worker support. This was assessed using the subscale peer cohesion: the extent to which employees are friendly and supportive of one another, i.e."staff often talk to each other about their personal problems" (positive loading).

Supervisor support. This subscale assessed the extent to which management is supportive and encourages employees to be supportive of each other, i.e., "staff discuss their personal problems with supervisors" (positive loading).

The scales have been used in stress studies to operationalise the "functional" component rather than simply the "structural" component (availability) of support (Kirmeyer & Dougherty, 1988), and has been used by Bromet et al., (1988) to measure peer support, and Parkes (1982) to measure peer and supervisor support. Subscales of the Work Environment scales have been the basis of measures of demand and control (Sauter, 1989) and support (Bromet et al., 1988; Kirmeyer & Dougherty, 1988; Parkes, 1982) in other occupational stress studies.

Social support. A scale designed to measure the degree of support from friends and family was adapted from the Dunne and Morrison (1991) survey of prison officers. Respondents were asked about perceived support from friends or family "if you had a problem would there be at least one sympathetic person (friend or family) who would listen and care?" 1=*never*, 2=*sometimes*, 3=*many times*, 4=*always*, and the actual number of friends, 1=*no friends*, 2=*1 friend*, 3=*a few friends*, 4=*many friends*. Responses to these questions were added together to form the scale. The alpha coefficient was low, .40.

COPING STYLES

Dispositional coping was selected in preference to situational coping as the most appropriate way to assess responses to chronic work stress (see Chapter 3). A coping styles' instrument was developed to assess people's coping styles to monitor what people say they do in order to cope, bearing in mind three considerations.

First, was trying to make sense of coping within the *context of the organisation*, and the resources that were available to help workers cope. Context has been emphasised in cognitive theory of coping (Dewe, 1992a:b; Lazarus, 1991), but the context is usually the appraisal rather than the context of the coping (the organisation). This is surprising since the efficacy of the coping must depend to some extent on the availability of organisational resources and whether the worker would actually use them even if they did exist. A primary consideration was to be able to understand and help workers cope practically.

Second, was to minimise the size of the entire questionnaire used in the observation. Other researchers have complained about the length of existing instruments for day to day assessments of coping (Stone & Neale, 1984). The scale could not encompass all the potential strategies that could be employed to deal with work stress, and certainly there are no inventories that could possibly encompass all the possibilities (Carver, Scheier, & Weintraub, 1989).

Third, was to include items from the theoretically based categories, problem-focused and emotion focused coping.

Once the scale was constructed, a taxonomy could also be empirically derived from the responses to represent general *strategies* of coping in the organisation. This poses the potential dilemma of lack of generalisability of the taxonomy (Amirkhan, 1990). On the other hand the taxonomy could provide valuable *interventional* information about specific coping in a specific context with possibly greater predictive value (Dewe, 1991). The generalisability of the taxonomy could however be tested in another organisational context.

The process of coping could not be examined temporally without using a longitudinal design or interview schedules (Folkman & Lazarus, 1980). The present study does not address the transaction or negative feedback processes identified by some theorists (Edwards, 1992). Rather the study proposed to examine the typical coping strategies workers used, to provide a middle level understanding of workers' response to stress.

Items reflecting cognitive and behavioural responses were derived from the Occupational Stress Indicator (Cooper, Sloan, & Williams, 1988) and Ashford (1988) and further relevant items were added.

Subjects were provided with the following instruction: *This question lists a number of potential ways that you may deal with problems or worries that you may have at work. Please rate how often you do the following things in order to cope with worries or work issues you have*. The rating scale ranged from 1=*almost never* to 4=*almost always,* which allowed the possibility that those who experience little or no problems would rate "almost never". Examples of some items were "do physical exercises using Departmental facilities or sponsored programs", "speak to occupational, health and safety representatives", "seek support from my supervisor", and "try to look at work as a challenge"

The reason for using the term "worries" in the subject instructions was to depict an emotion likely to be experienced when a situation is appraised as threatening (Folkman & Lazarus, 1985). This method provides an objective and fixed definition of the appraisal rather than a subjective appraisal from the participants (Dewe, 1992a;b). McCrae (1984) found that subjects responded similarly to stressful situations defined subjectively and objectively (by the researcher) as threat, loss or challenge:

> "this does not mean that the process of appraisal is unimportant; instead, it probably means that cultural norms lead most individuals to appraise events in a similar fashion and that, at least for purposes of group comparisons, objective classifications correspond relatively well to subjective ones" (p. 927).

Although the notion of threat, loss or challenge is not specifically described in the instructions, the notion of context (work issues) is. In any case the main idea was to depict a scenario of appraised stressful situations by using common language. The scale was subjected to exploratory factor analysis.

MEASURES OF STRAIN

Mental health. The twelve item General Health Questionnaire (GHQ-12) (Goldberg, 1978), a self-administered screening test for detecting non-psychotic disorder, was used as a measure of psychological distress (Banks, Clegg, Jackson, Kemp, Stafford, & Wall, 1980).

The questionnaire is concerned with the inability to carry out one's normal healthy functions and the countenance of new and distressing phenomena. Questions include "have you recently lost much sleep over worry?" and "have you recently felt capable of making decisions about things?" with typical responses: "not at all", "no more than usual", "rather more than usual" and "much more than usual". It was scored from 0 to 3 respectively to obtain data appropriate for parametric analysis (Banks et al., 1980). A total score was taken by adding across the 12 items to obtain a total severity score. The higher score indicated greater psychological ill-health, in line with the assumption that "psychiatric disturbance may be thought of as being distributed throughout the population in varying degrees of severity" (Goldberg, 1978, p.6). Binary scoring was also used to identify "cases". The reason for selecting the 12-item version was because it was short, clinically validated (Banks, 1983) with well established psychometric characteristics (Banks et al., 1980). The GHQ-12 has been used extensively in Australian studies and is generally accepted as a valid and reliable measure of psychological impairment in Australian populations (Webster et al., 1983; Winefield, Goldney, Winefield, & Tiggemann 1989). Coefficient alpha was .93.

Job satisfaction. The final item on the scale proposed by Warr, Cook and Wall, (1979) was used to indicate overall job satisfaction; "taking everything into consideration how do you feel about your job as a whole?" Responses were scored on a seven point scale from 1=*extremely dissatisfied* to 7=*extremely satisfied.* It has been argued that a global index of job satisfaction is an inclusive measure of general job satisfaction (Scarpello & Campbell, 1983). Job satisfaction has been recommended as a dependent variable in work stress research to help overcome the confounding of independent and dependent measures produced by individual differences in neuroticism (Chen & Spector, 1991; Janman et al. 1988; Schaubroeck, Ganster, & Fox, 1992).

Physical health symptoms. A physical health index was used similar to the one used by Morrison et al. (1992), which was developed from the initial work of Cheek and Miller (1983) and a health census conducted by the Australian Bureau of Statistics (1983). Symptoms included headache, skin trouble, high blood pressure, heart disease/trouble, and some new items including neck tension, lower back problems and muscular aches were added. Symptoms that could overlap with the psychological distress measure such as "feeling run down or low", "nervous breakdown", and "sleep difficulties" were excluded from the measure. In total, 28 items were used. Respondents were asked how often they had suffered from the health problems in the last month. The items were answered on a 4-point scale, ranging from 1=*never,* 4=*always.* Cronbach's alpha for the scale was .88, although Spector (1987a) argued that internal reliability is not really meaningful for symptom checklists.

Work-home conflict. Based on Holahan and Gilbert (1979), the measure was designed to assess the "degree to which the job impacts upon and/or disrupts the individual's home life". Respondents were asked to indicate on a scale from 1=*seldom or never* to 4=*almost always,* how often: "do the demands of work interfere with your home/ family life?"; "does the time you

spend at work detract from (interfere with) your home/ family life?"; "does your work have disadvantages for your home/family life?"; and "do you have enough time for your home/ family life?" The scale has been used to assess the mediating role of work-home conflict in the impact of role stress on burnout and job satisfaction in nurses and engineers (Bacharach, Bamberger, & Conley, 1991).

As previously discussed it may be that officers underestimate the impact that their work life has on their home life. Following the approach by Voges et al. (1982) to include the impression of wives about the stress their partners experience at work, COs were asked about work hardening emotions. The following questions were included: "do you take home 'prison attitudes and behaviour' to the detriment of family relationships?", "does your work harden your emotions so that you become less sensitive to family needs?", and "does your partner ever comment that you are affected by your work?" These questions were used as stress source measures of COs by Voges et al., (1982) and of their wives by Long and Voges (1987), whowever this study viewed them as dependent measures. The items were summed to form a multi-item scale with Cronbach's alpha of .88.

Job change indications. This was a four item scale. Officers were asked how often they had considered resigning from the department, and how often they had considered a complete career change. Responses were coded, 1=*never*, 2=*sometimes,* 3=*often*, 4=*frequently*. To this was added a score for resposes to the following: in the past twelve months have you applied for a, *3*=transfer within your own department, *4*=transfer to another location, *2*=promotion, *5*=position outside the department, and 1=none of the above. Scores could range from 2 to 13, and Cronbach's alpha was .64.

Visits to the doctor. Officers were asked if they had visited a doctor in the last two weeks. Rcsponses were coded *1*=no, *2*=yes.

Stress leave. Officers were asked if they were on stress leave or had taken stress leave in the past. Workers were able to take leave due to stress if assessed by a medical practitioner. Responses were coded *1*=no leave, *2*=leave.

Analysis of Results. Quantitative data were analysed using the Statistical Package for the Social Sciences (Norusis, 1990). Qualitative data, was sorted into categories manually and frequency of categories were recorded. In some instances information was recorded verbatim to maintain the context and meaning of the communication.

8.6 Summary

This chapter has described the procedure used in the study, and provided information regarding the measures used in the study, and their psychometric qualities. The next chapter provides the results of the analyses used in the study.

Notes.

1. Some specific influences were: Dr. David Morrison. Murdoch University, who had conducted previous Australian research of CO stress; Mr. Noel O'Mara, Senior Egonomist/ Psychologist, Department of Labour, and local researcher of public sector stress; Mr. Rod Semmens, Snr. Rehabilitation Co-ordinator, Government Workers Rehabilitation and Compensation Office; Mr. Robert Tomlian, Psychologist, Sheppard Malkic, provider of counselling and post traumatic counselling to COs.

Chapter 9

RESULTS

9.1 Response rate

The response rate for the COs was low (49.29% of all officers employed by the department). Given the difficulties encountered in gaining the trust of the officers this result was not surprising. However it is very similar to rates reported in comparable CO studies in Western Australia (49.3%, *N*=274) (Dunne & Morrison, 1991), in New South Wales, (40.6% useable responses) (Webster, Porritt & Brennan, 1983) and in New Zealand (52%, *N*=575) (Long, Shouksmith, Voges, & Shannon, 1986).

Each of these studies also brought into sharp focus the difficulty of assessing the actual population size. For example, Webster et al. (1983) argued that at any one time the officer population may be decreased by 15% by persons on leave and away sick, and possibly by a further 3% for those officers on night and afternoon shifts. In this study these problems were also experienced. Departmental figures fluctuated over the data collection period. The response rates provided are therefore based on estimates.

Given the problems with gaining trust the response rate of 49.29% appears reasonable. Indeed, Senese (1991) commented that "in an organization in which employees are naturally resistant to outside examination a response rate of 49% appears quite acceptable" (p. 155). Moreover, a return rate of 50% is generally considered sufficient for analysis and reporting (Babbie, 1990).

9.2 Representativeness of the sample

As noted in Chapter 7, some commentators have argued that COs suffering the most stress and dissatisfaction will be more likely to participate in stress studies than those with less stress and dissatisfaction (Inwald, 1982; Webster et al., 1983). If this were the case it could be expected that a trend in responses would be observed: early and late respondents would show different levels of strain, and this finding would raise some doubts about the representativeness of the sample. On the other hand, COs who were more concerned about identification because of higher levels of stress and dissatisfaction, or fear of reprisals for information given, may be less inclined to respond. If this were the case it could be assumed that the late respondents would be more like the non-respondents. Wolfgang (1991) argued this point and compared early and late respondents to demonstrate the differences. There were no differences in this study sample between "early respondents" (*N*=347) (those who responded before more extensive visits to the work sites by the researchers) and "late respondents" (*N*=71) on any dependent measures. Given the similarity in levels of strain (including dissatisfaction) between the two groups it is tempting to conclude that the responses given are likely to be representative of the overall population.

Table 9.1 *Summary Information Relating to Classification of Respondents and Response Rate*

Classification	*Number of employees	Total Survey Returns	Response Rate (%)
Correctional Officer	623	293	47.03
Correctional Industrial Officer	69	43	62.31
Senior Correctional Officer	75	41	54.67
Assistant Chief CO I	59	20	33.89
Assistant Chief CO II	15	12	80.00
Chief Correctional Officer	8	2	25.00

Note. * Estimate only based on data provided on 19th March 1991, and 21st January 1992. Interim figures were not available.

The response rates for different classification levels (see Table 9.1) show an under representation of assistant chief CO I officers and chief COs, and an over representation of industrial officers and assistant chiefs CO II.

Table 9.2 provides summary information relating to location, security status, total surveys sent, total returns and response rate per location. The responses across the range of locations showed fairly good representation (38% to 65%).

Representativeness of the data could be further ascertained by comparisons with organisational data. Organisational data showed the proportion of men to women was 85:15, which is very close to the ratio obtained for the study sample (86:14). The mean number of years worked for the population was M=6.19 (SD not available) and for the sample was M=5.55, SD=4.77. The mean length of employment for women was M=4.46, SD=4.05 years and for men was M=5.73, SD=4.82 years (corresponding population values were M=4.19 and M=6.53 respectively). The mean number of years worked for the sample was M=5.55, SD=4.77, compared to M=6.19 in the population (SD not available). For all these variables, the sample data appears reasonably representative of the population data.

Table 9.3 compares the demographics of the sample with those of a recent CO Australian study (Morrison et al., 1992). The two samples were no different on a range of demographics (gender, age distribution, education level, marital status). COs in the present sample had a shorter length of service ($\chi^2(1)=8.71$, $p<.01$) and a greater number were employed at the base grade level ($\chi^2(1)=7.96$, $p<.01$) compared to Morrison et al (1992).

Table 9.2 *Summary Information Relating to Location of Respondents, Location, Security Status, and Response Rate*

Location	Security Status	Population Size	Total Survey Returns	Response Rate (%)
Adelaide Remand Centre-Metro	H	145	76	52.41
Yatala Labour Prison-Metro	H	309	137	46.28
Northfield Prison-Metro	H M L	66	34	51.52
Mobilong-Rural	M	116	44	37.90
Pt. Augusta-Rural	H M L	59	32	54.24
Port Lincoln Prison-Country	H M	31	20	64.52
Mount Gambier Gaol-Rural	H M	18	9	50.00
Cadell Training Centre-Metro	L	48	19	39.58
Courts Complex-Metro	-	21	11	52.38
Dog Squad-Metro	-	7	3	42.86
Unknown	-	-	13	-
Off work Group		30	16	-
Total		850	419	49.30

Note. H=high, M=medium, L=low. †, data supplied 9th Sept. 1991

Table 9.3 *Demographic Characteristics of Sample Compared to Morrison et al. (1992)*

	Morrison	*Present*		*Morrison*	*Present*
Majority Age Range			*Gender*		
(18-60)			Male	88	84
30-50	76*	73	Female	12	14
Marital Status			Missing		2
Defacto/Married	86	82	*Classification*		
Not in relationship	14	16	Base Grade Correctional Officer	59	80
Missing	NM	2	Higher level Specialist	34	18
Education Level			Probationary Officer in Training	7	NM
≥ 3 years High School	96	89	Missing	8	2
Further study			*Length of employment*		
Post secondary trade or	31	30	≤5 years	31	57
tertiary level qualification			>5 years	69	39
			Missing		4

Note. *All numbers are percentages. NM=not measured.

9.3 Quantitative data

9.3.1 Demographic characteristics

Table 9.4 shows the means, standard deviations, empirical ranges, missing cases, and alpha coefficient values for all variables. More detailed descriptive data on the demographic characteristics of the sample is summarised below (frequencies and percentages)

Age. Ages of the officers ranged from eighteen to over sixty. The most frequent age categories were 31-40 years (36.5%) and 41-50 years (36%).

Marital Status. Of the sample *N*=66 (16%) were single, *N*=302 (72%) were married and *N*=41 (10%) were living in a de facto relationship, and *N*=10 (2%) were missing. Fifty seven per cent (57%) of officers had dependent children (ranging from one to five in number) living with them.

Gender. *N*=352 respondents were male (84%), *N*=57 were females (14%), and *N*=10 (2%) were missing.

Education Level. Concerning educational level *N*=308 (74%) had completed at least four years high school. *N*=231 (55%) had completed further study and of these: *N*=62 (27%) had completed post secondary trade, *N*=25 (11%) had completed a diploma, *N*=7 (2%) a degree and *N*=6 (2%) were missing.

Classification. The most frequent classification in the sample was PO-1 Correctional Officer *N*=293 (70%) (lowest in the correctional officer hierarchy), followed by Correctional Industrial Officer *N*=43 (10%), and PO-2 Senior Correctional Officer *N*=41 (10%). Assistant Chief CO I, *N*=20 (4.6%), Assistant Chief CO II, *N*=12 (3%), Chief CO, *N*=2 (.5%), and missing *N*=8 (1.9%)

Length of employment. The mean length of employment was *M*=5.60 years, *SD*=4.77.

Shift work. *N*=327 (78%) respondents were involved in shift work.

Overtime. Hours ranged from 0 to 80 and the median number of hours overtime was 14.

Finances. *N*=122 (30%) of the officers reported "frequent", "nearly all the time", and "all the time" serious financial worries in the last month.

Reason for taking job. Officers took the job considering the following reasons to be "important" or "very important": job security reasons *N*=385 (92%); employment, salary and fringe benefits *N*=357 (85%); promotional opportunities *N*=216 (51%); for the capacity to transfer to other government agencies *N*=148 (35%); for prisoner rehabilitation-type work *N*= 142 (34%); and for security guard work preference *N*=75 (18%).

Table 9.4 *Means, Standard Deviation, Range, Missing Values and Alpha Coefficients*

Variable	M	SD	Range		Missing	Alpha
Demographic						
1. Gender	1.86	.35	1	2	10	–
2. Service length	5.60	4.78	0	36	17	–
3. Age	2.44	.89	1	5	7	–
4. Alcohol daily	.62	.78	0	6	0	–
5. Relationship	2.57	.75	1	3	10	–
6. Exercise	3.45	1.60	1	7	7	–
7. Shift work	.78	.41	0	1	6	–
8. Perceived weight	4.68	.87	1	7	8	–
9. Smoking	2.32	1.74	1	6	6	–
10. Overtime hours	7.69	11.08	0	80	0	–
11. Total education	5.41	3.48	1	19	10	–
12. Finances	2.05	1.12	1	5	4	–
13. Defence experience	.43	.50	0	1	14	–
Reason for taking the job						–
14. Employment,salary, benefit	1.20	.84	1	3	0	
15. Prisoner rehab. work	1.10	.92	1	4	0	–
16. Promotional opportunity	1.43	.92	1	4	0	–
17. Security/ Guard work	.60	.86	1	4	0	–
18. Transfer to other Govt depts	1.00	1.04	1	4	0	–
19. Job security	2.57	.74	1	4	0	–
20. Classification	.20	.84	1	5	8	–
Personal disposition						
21. Trait anxiety	16.11	5.52	10	28	9	.89
22. Tolerance ambiguity	21.05	5.52	7	35	8	.81
Work Environment & support						
23. Work role ambiguity	0	1	-2.18	3.20	0	.92
24. Management issues	0	1	-2.87	2.45	0	.87
25. Relationships with inmates	0	1	-2.91	3.17	0	.83
26. Work schedule concerns	0	1	-2.55	3.84	0	.80
27. Role conflict	0	1	-2.96	4.57	0	.67
28. Staff relationship problems	0	1	-3.27	3.59	0	.82
29. Pressure	3.61	2.33	0	9	11	.72
30. Autonomy	3.83	2.03	0	9	24	.61
31. Peer cohesion	3.56	2.21	0	9	18	.70
32. Control	5.18	1.64	0	9	14	.54
33. Involvement	3.24	2.42	0	9	15	.76
34. Innovation	3.17	2.19	0	9	20	.70
35. Task orientation	3.79	2.20	0	9	14	.70
36. Supervisor support	3.01	2.34	0	9	31	.75
37. Friends support	6.47	1.29	2	9	2	.40
Coping responses						
38. Direct action	9.65	2.61	5	19	6	.64
39. Action focused resource	5.10	1.53	4	11	9	.66
40. Religion	1.21	.60	1	4	8	–
41. Disengagement	8.78	2.44	3	12	9	.74
42. Emotional suppression	4.40	1.92	2	6	11	.71
43. Symptom management	3.40	1.61	2	6	13	.35
44. Physical exercise	4.13	1.80	2	8	7	.57
45. Avoidance	1.61	.82	1	4	7	–
Outcome						
46. GHQ-12	12.18	7.22	0	36	12	.93
47. Job satisfaction	4.20	1.60	1	6	3	–
48. Physical health symptoms	40.66	9.40	30	117	0	.88
49. Work-home conflict	15.51	4.01	7	28	19	.84
50. Job change indications	5.70	2.37	3	13	8	.64
51. Visits to doctor	.24	.43	0	1	5	–
52. Stress leave	.19	.40	0	1	3	–

Note. Gender, 1=female, 2=male; Relationship 1=single, 2=defacto, 3=married; All other variables, high scores indicates high levels on the variable. Dichotomous variables: Shift, Defence work experience, Stress leave, Visits to doctor, 0=no, 1=yes.

Defence experience. *N*= 180 (43%) officers had previous defence work experience.

Weight perception. For males: 12% perceived their weight to be somewhat or very overweight, 45% to be a little overweight, 36% to be normal, and 6% to be a little-very underweight. For females: 30% of officers perceived their weight to be somewhat or very overweight, 33% to be a little overweight, 30% to be normal and 5% to be a little underweight. Perceptions were fairly similar for men and women, across the broad categories overweight, normal and underweight. Both males and females tend to perceive themselves as more overweight than underweight.

9.3.2 Demographics: Comparison of COs with national data

Demographics pertaining to smoking, exercise and alcohol consumption were compared with national samples reported in the National Heart Foundation 1989 Risk Factor Prevalence Study, Survey No. 3 (NHF study).

Smoking status. For males, 135 (38%) were current cigarette smokers (NHF study 24%). For females, 29 (51%) were smokers compared to the NHF study (21%). Smoking was significantly more prevalent in the study sample compared to the NHF study, for men ($\chi 2$ (1)=4.58, $p<.05$), and particularly for women ($\chi 2(1)=9.76$, $p<.01$)

For COs consumption was higher (> 10 cigarettes per day) among men aged 18-30 years and lowest among the 51-60 year age group (10.5%). The NHF study found consumption to be higher among men aged 40-54. For COs consumption was highest (>10 cigarettes per day) for females in the 41-50 year age range (66.6%) and lowest among women in the range 51-60 years old (20%). The NHF study found consumption to be highest for women aged 50-59.

According to the NHF study, smoking one or more manufactured cigarettes and/ or "hand-rolled" cigarettes daily (cigar and/ or pipe smoking is not included) constitutes a risk factor for cardiovascular disease.

Exercise status. According to the NHF study three or more sessions of vigorous exercise per week at an average of 20 minutes or more per session is "the level of exercise commonly believed to confer a 'training effect' on the heart and lungs" (p. 103). For males, 135 (51%) exercised for thirty minutes or more for three or more days per week (33% for less vigorous exercise, NHF). For females, 21 (37%), exercised for thirty minutes or more for three or more days per week (29% for less-vigorous exercise, NHF). Healthy exercise levels appear more prevalent in the study sample than in the national sample.

Alcohol consumption. Of male COs, 33 (9.5%) said they did not drink alcohol (cf. 11.26% of males in the NHF study). Of the females, 11 (19.6 %) said they did not drink alcohol (cf 25% NHF study).

Data from frequency and quantity questions were combined and classified in terms of risk defined in the NHF study. Table 9.5 displays the classification of alcohol consumption and associated risks defined in the NHF study and percentages of males and females from the NHF study and the CO study in each category. Risk relates to harm from a wide variety of possible causes, not only heart disease. It is accepted that with identical drinking patterns, risks are

greater for women than for men. Indeed, "because of particular risks associated with pregnancy, it has been assumed that there is no risk free level of drinking for women" (NHF study, 1989, p.80).

For males and females, in the NHF study the pattern shown in the table showed little variation across ages. In comparison to the pattern of results in the NHF study, the CO samples were no different (CO male sample:$\chi 2(3) < 1$, *ns*; CO female sample: $\chi 2(3)=2.81$, ns).

Table 9.5 *Definition* of Risks of Alcohol Consumption: Percentages of Males and Females from the NHF study and the CO study in each Category.*

			%		%	
		Risk	CO	NHF	CO	NHF
Category/ Description	Male	Female	Male		Female	
Non-drinkers or Average daily intake less than 3 drinks	None	Low	79	80	89	95
Average daily intake of 4 drinks or 9-12 drinks in any day	Low	Intermediate	13	14	7	4
Average daily intake of 5-8 drinks or occasional excess	Intermediate	High	6	5	4	1
Average daily intake of 9-12 or more drinks or frequent or great occasional excessive intake- average daily intake of over 12 drinks	High-Very High	Very High	2	1	0	0

Note. * Definitions from the NHF study.

9.3.3 *Independent measures: Descriptive statistics and comparisons with other samples*

PERSONAL FACTORS

Trait anxiety (TA). Table 9.6 shows that the mean TA scores for COs were either less or not substantially different from data provided by Spielberger (1980) on a normative sample of adult workers. Females COs aged 18-30 years were not significantly different from Spielberger's 23-30 year old female subsample, $t(197)=1.74$, *ns*. Female officers aged 31 or older reported significantly less TA that Spielberger's 32 years or older female subsample, $t(171)=2.55$, $p<.05$. Male COs aged between 18-30 years reported significantly less TA than Spielberger's 23-32 year old male sample, $t(187)=2.42$, $p<.05$. Finally male COs aged 31 or over were not significantly different from Spielberger's sample aged 33 years or over, $t(420)<1$. Interestingly the level of TA for female COs was lower than for the male COs.

Table 9.6 *Comparison of CO Trait Anxiety Scores with Spielberger's Samples*

	M	*SD*	*t-values*
All CO (*N*=410)	16.12	5.51	
Female Subsample (*N*=55)	15.69	5.80	
18-30 years (N=10)	15.60	4.20	ns
31 years or older (N=44)	15.32	5.61	2.55*
Male Subsample (*N*=347)	16.16	5.35	
18-30 years (N=51)	16.24	4.58	2.42*
31 years or older (N=294)	16.16	5.48	ns
Working Adults Female Subsample (Spielberger (1980))			
23-32yrs (*N*=189)	17.99	5.03	
33 years or older (*N*=129)	17.98	5.45	
Working Adults Male Subsample (Spielberger (1980))			
23-32yrs (*N*=138)	18.08	4.77	
33 years or older (*N*=128)	16.27	4.70	

Note. Independent sample t-test between CO groups and corresponding Spielberger groups. *, $p<.05$.

WORK ENVIRONMENT MEASURES

Specific work environment measure. Table 9.7 reports the ten most frequently reported work concerns of COs.

Table 9.7 *Specific Sources of Work Concern*

Item		*M*	*SD*	Rank
CO71	Head office out of touch with the realities of prison admin.	3.36	.96	1
CO73	Head office does not seek advice from prison officers	3.22	1.08	2
CO25	Lack of concern for officers who have been assaulted	2.92	1.19	3
CO59	Use of drugs by inmates	2.87	1.19	4
CO70	General public ignorance of what happens in prison	2.83	1.20	5
CO6	An increasing number of inmates on drugs	2.83	1.10	6
CO26	Lack of appropriate management by senior institutional staff	2.80	1.17	7
CO38	Feeling that you are inadequately paid for the work you do	2.63	1.25	8
CO15	Inconsistent penalties given to inmates for misconduct	2.59	1.26	9
CO47	Insufficient departmental acknowledgment for good work	2.58	1.24	10

Note. Scale ranged from 0 to 4.

In order to reduce the data, and ascertain if a set of common factors might underpin the questionnaire, the 97-items were reduced to 42 composite items following Voges et al., (1982) (see Appendix 4). These items were then subjected to iterative principal factor analysis with varimax rotation. Following one rotation, the analysis converged in ten iterations. The eigenvalues were plotted against the eigenvectors, and the resultant curves were examined using the Cattell's scree test and the breaks criteria. The "first break" occurred immediately after the sixth factor resulting in six factors. All comprised items which loaded unambiguously on one and only one factor, satisfying Kaiser's (1958) notion of simple structure. The six factors derived were labelled: role ambiguity, management issues, inmate relations, work schedule concerns, role conflict, and staff relationship problems.

Table 9.8 shows the eigenvalues and percentage of variance accounted for by each factor. Nearly 55% of the variance in the items was accounted for by six factors. Table 9.9 shows the loadings for items on each factor, with loadings no less than 0.5 in absolute value displayed. Other summary statistics are shown in Table 9.4.

Table 9.8 *Principal Component Factor Analysis*

Factor	Eigenvalue	% of Variance	Cum. %
1	14.72	35.1	35.1
2	2.32	5.5	40.6
3	1.86	4.5	45.1
4	1.55	3.7	48.8
5	1.26	3.0	51.8
6	1.22	2.9	54.7
7	1.08	2.6	57.3
8	1.02	2.4	59.7

Factor 1 reflected concerns related to role ambiguity. Factor 2 was primarily concerned with management issues (in terms of communication and management processes), especially with senior staff and with Head Office. In addition, other components on this factor reflected concern about the lack of support from the Department, vulnerability in dealing with inmates should an incident occur, and the lack of concern for an officer after assault. It included concern about the lack of opportunity to defend complaints made by inmates, the need to justify actions after "explosive situations", and the fear of being placed under investigation by the Department. It also included the fear that officers may not provide support when needed. This factor also reflected concern about inconsistent practices for dealing with misconduct by inmates. Overall the factor reflected an imbalance of power, powerlessness, and low resources in terms of management support, to meet demands.

Table 9.9 *Loadings for Items on Each Factor*

		Loading
FACTOR 1 Role ambiguity		
WRA 9	I feel uncertain about what is expected of me	.825
WRA6	I don't know what my responsibilities are	.813
WRA10	I feel the explanation of what is to be done is unclear	.779
WRA3	I do not know just what the people I work with expect of me	.774
WRA7	I have to "feel my way" in performing my duties	.739
WRA4	I feel that the goals and objectives of my job are not very clear or carefully planned	.719
WRA5	I feel that there is a lack of policies or guidelines to help me	.703
WRA11	I have to work under vague directions or orders	.663
WRA1	I am unclear about just what are the scope and responsibilities of my job	.661
WRA2	I feel that I am not fully trained to handle my job	.604
WRA12	I feel that the job has changed and I have not been trained to deal with those changes	.598
WRA8	I receive assignments and training that are not within my training or capability	.583
FACTOR 2 Management issues		
AC22	Poor communications with senior officers	.727
AC10	Lack of appropriate management by senior institute staff	.725
AC29	Remoteness of head office	.695
AC19	No opportunity to defend inmate complaints	.668
AC13	Lack of concern for officer after assault	.644
AC32	Supervision and regulation	.639
AC8	Institution defined relationships with inmates	.612
AC20	Need to justify actions	.595
FACTOR 3 Inmate issues		
AC23	Problems with inmates, lack cooperation, threat assault	.750
AC28	Responsibility for work of inmates	.665
AC36	Partner's fear for safety at work	.659
AC9	Uncertainty in dealing with inmates	.564
AC25	Public duties with inmates	.562
AC3	Characteristics of inmates	.539
AC35	Public image of prisons, negative community attitudes	.536
AC33	Fear communicable diseases at work	.530
AC26	Relationships with public, ex-inmates	.520
FACTOR 4 Work schedule		
AC11	Irregular working hours	.745
AC21	Less time for social events	.707
AC12	Lack of breaks during shifts	.650
AC6	Difficulty in arranging annual leave	.581
AC17	Problems with roster system	.516
FACTOR 5 Role conflict		
AC39	Working with members of the opposite gender	.624
AC5	Dealing with feeling towards inmates	.605
AC7	Need to keep up a false front for other staff	.567
AC4	Conflict between controlling and helping	.500
AC2	Boredom with the constant routine of the job	
FACTOR 6 Staff relationship problems		
AC31	Staff job problems	.609
AC30	Staff relationship problem	.595

Factor 3 was principally concerned with relationships with inmates, particularly in terms of poor communication and the potentially violent nature of the work environment. Another aspect was the public interface, dealing with friends of inmates both at and off work, and forming friendships outside work.

Factor 4 was mainly related to work schedule, working irregular hours and problems related to shift work. Factor 5 reflected conflict with the role required on the job. It included feeling the need to keep up a false front for other staff, difficulty in controlling feelings toward certain types of inmates, boredom with the constant routine of the job, conflict between the custodial nature of the job and helping inmates, and working with the opposite gender. Factor 6 concerned staff relationship problems.

Table 9.10 displays the means of each factor results in rank order and shows that the highest level of concern related to management issues, followed by staff relationship problems, inmate problems, role ambiguity, role conflict and work schedule problems.

Table 9.10 *Mean Scores, Standard Deviations and Rank for the Six Sources of Work Concern*

Factor	*M*	*SD*	Rank
Management issues	2.61	.86	1
Staff relationship problems	1.99	.91	2
Relationships with inmates	1.81	.69	3
Role ambiguity	1.37	.85	4
Role conflict	1.34	.64	5
Work schedule concerns	1.31	.70	6

General work environment measure (WES). Means and standard deviations of the WES subscales for the CO sample (N=419), a representative general work group (not specifically including prison officers) (N=1442), and a health-care work group (N=1607) (see Moos (1986) for more specific details) are shown in Table 9.11). Students' t-tests showed many significant differences between the CO sample and the general work group (Moos, 1986). Specifically, COs reported significantly lower involvement, pressure, autonomy, task orientation, peer cohesion, supervisor support, and innovation. There was no significant difference between the samples on the subscale control, the extent to which management uses rules and pressures to keep employees under control. Perceptions of the organisational climate were much poorer in the department than in the normative sample. Moreover, bearing in mind that the scores from each subscale ranged from one to nine, even without comparative analyses, it is clear that officers' impressions of their work environment was intrinsically poor.

Table 9.11 *Work Environment Subscale: Means, Standard Deviations and T-test Results for COs and the General Work Group*

	Correctional Officer (N=419)		General Work Group (N=1442) (Moos 1986)		Health-Care Work Group (N=1607) (Moos 1986)		t-test CO vs General Work Group	
Subscale	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*
Involvement	3.24	2.24	5.95	1.41	5.56	1.54	-27.10†	1844
Autonomy	3.82	2.03	5.54	1.22	4.98	1.46	-12.21†	1835
Task orientation	3.79	2.12	5.90	1.29	5.63	1.31	-20.09†	1843
Peer cohesion	3.56	2.21	5.70	1.15	5.22	1.40	-18.77†	1841
Control	5.18	1.64	4.88	1.33	5.43	1.42	1.08	1843
Work pressure	3.61	2.33	4.40	1.38	4.87	1.57	-7.59†	1848
Supervisor support	3.01	2.34	5.68	1.38	4.99	1.40	-21.88†	1828
Innovation	3.17	2.19	4.42	1.54	4.37	1.82	-10.77†	1839

Note. † $p<.001$.

COPING STYLES

The means, standard deviations, and rank for each coping item is shown in Table 9.12. To facilitate the discussion of coping in relation to other theoretical and empirical work, an attempt was made to classify the coping responses into the dichotomy emotion focused (E) and problem focused coping (P) (see Table 9.12). To account for all the responses, these categories were enlarged to include strategies focused on using organisational resources (problem focused) and strategies which were not likely to change the work stress source (emotion focused). There were fifteen emotion items and nine problem items and each item ranged from 1 to 4. To conserve data, missing values were assigned a value of 1=*almost never*. A maximum of 9 missing values per item only was noted. To check that this procedure did not distort the data, the ranks of mean values were checked without missing value adjustment, and they were the same.

Table 9.12 *Classification, Mean, Standard Deviation, and Rank for each Coping Item*

Item		Class	*M*	*SD*	Rank
CS1	Seek support from my supervisors	P	1.80	.66	15
CS2	Hold back emotions and try not to let the stress show	E	2.33	1.06	6
CS3	Use my home as a refuge	E	2.02	1.12	9
CS4	Deliberately separate 'home' and 'work'	E	3.07	1.06	1
CS5	Expand interests and activities outside work	E	2.73	.99	4
CS6	Try to forget about work worries by focusing energies on other aspects of my life	E	2.93	.93	2
CS7	Try to look at work as a challenge	P	2.45	1.05	5
CS8	Accept the situation and learn to live with it	P	2.79	.99	3
CS9	Try to avoid the situation	E	1.60	.82	18
CS10	Use relaxation, meditation techniques	E	1.66	.88	17
CS11	Seek feedback on my performance	P	1.73	.81	16
CS12	Smoke cigarettes, pipes or cigars	E	1.86	1.20	12
CS13	Share my worries with my friends or spouse outside work	E	1.91	.91	10
CS14	Do physical exercise using Departmental facilities or sponsored programmes	E	1.87	1.11	11
CS15	Seek clarification on what I have to do in my job	P	1.81	.77	14
CS16	Eat	E	2.02	1.12	8
CS17	Use alcohol or drugs	E	1.51	.81	19
CS18	Seek religious support	E	1.21	.50	23
CS19	Seek counselling	E	1.14	.41	24
CS20	Speak to occupational health, safety and welfare personnel	P	1.21	.50	22
CS21	Speak to union officials	P	1.49	.69	20
CS22	Do physical exercise privately	E	2.23	1.05	7
CS23	Speak to Legal Fund	P	1.24	.52	21
CS24	Seek support from other officers	P	1.83	.77	13

Note: P, problem focused coping. E, emotion focused coping.

All E items were summed together to form the emotion focused coping (E) scale. The P items were summed to form the problem focused (P) scale. Table 9.13 reports the means, standard deviations and alpha coefficients for the classifications.

Table 9.13 *Mean , Standard Deviation, and Alpha, for Emotion Focused and Problem Focused Coping*

Variable	*M*	*SD*	α
Emotion focused	2.01	.35	.54
Problem focused	1.81	.37	.57

There was a small correlation between problem focused and emotion focused coping indicating that the strategies were conceptually distinct (r (417) =.28, p<.01).

A number of studies have been concerned that a two-factor model of coping is too simple. An exploratory factor analysis was conducted on the coping items to gain a better understanding of which coping measures were likely to used in conjunction with which others. A principal component analysis followed by varimax rotation, converged in eight iterations, with eight factors contributing to approximately 57% of the total variance in the Coping Styles Scale. After one varimax rotation twenty variables were identified underlying the eight factors on the Coping Styles Scale. Each scale had an eigenvalue of greater than one, and items loading .50 or more, on only one factor were retained. Table 9.14 shows the eigenvalues, and percentage of variance, accounted for by each factor. Table 9.15 shows the rotated factor matrix for the coping styles' scale, and item loadings above .50. Scale reliabilities are reported in Table 9.4 (alpha coefficients).

Table 9.14 *Principal Component Analysis of the Coping Styles Scale: Eigenvalues and Variance*

Factor	Eigenvalue	% of Variance	Cum. % of Variance
1	3.08	12.8	12.8
2	2.53	10.5	23.4
3	2.09	8.7	32.1
4	1.51	6.3	38.4
5	1.35	5.6	44.0
6	1.23	4.7	48.7
7	1.06	4.4	53.1
8	1.01	4.2	57.3

The factor structure was conceptually meaningful in that nearly all emotion focused items loaded together and problem focused items loaded together. The only response that did not conform to this was counselling which was initially construed as an emotion focused coping item. The scales so derived could be classified as emotion focused coping (Factor 3 to 8) or problem focused coping (Factor 1 and 2) (Folkman & Lazarus, 1980).

Factor 1, direct action, was mainly concerned with action focused strategies including behavioural and cognitive strategies workers may use to deal with worries or concerns at work, and included strategies to engage fully in work activities. It also included seeking feedback or support from others at work including supervisors or other officers. Factor 2, action focused resource, involved workers in using institutional resources including the union, Legal Fund and occupational health and safety.

Factor 3, disengagement, comprised various strategies workers may employ to disengage from work; by refocussing the way they think about work, deliberately separating work from home, and expanding interests outside of work. Factor 4, emotional suppression, involved holding back emotions and trying not to let the stress show, and deliberately using home as an escape/refuge. Factor 5, physical exercise, involved the use of exercise as a means of dealing with concerns. Factor 6, symptom management strategy, involved the use of alcohol, drugs, or cigarettes to cope with work concerns. Finally, Factor 7, avoidance and Factor 8, seeking religious support, were comprised of single factors. Means, standard deviations, range, and alpha coefficients are shown in Table 9.4.

This factor analytic procedure gave scales with generally more acceptable reliability coefficients than the two-factor dichotomy, even though the number of items per scale was reduced. The coefficients reported here are comparable to other stress research studies employing coping scales (Begley & Boyd, 1992; Parkes, 1990; Stone & Neale, 1984). Stone and Neale (1984) and Parkes (1990) have argued that internal consistency may be lower because the use of one coping response within the scale may obviate the need to use other similar strategies. But both researchers were examining coping responses to particular incidents and it is unlikely that all the items in a scale would be used to deal with a particular incident. By contrast, in the present study coping styles were examined and it could be expected, because of the assumption that the measure taps ways of responding over time, that more items would be checked on the scales and that the internal reliability of the scales would be higher (cf. Carver, Scheier, & Weintraub, 1989).

Further, the same factor structure was obtained using oblique rotation. Also a two factor solution was forced but only a few items were selected. Items within the scale were also examined. Removal of any item from direct action, action focused resource, and disengagement reduced the reliability of the overall scale.

Disengagement was the most frequently used coping strategy, followed by emotional suppression, physical exercise, direct action, symptom management, avoidance, action focused resource and religion.

Table 9.15 *Rotated Factor Matrix for the Coping Styles Scale*

		Loading
FACTOR 1 Direct action		
CS15	Seek clarification on what I have to do in my job	.7016
CS11	Seek feedback on my performance	.6655
CS7	Try to look at work as a challenge	.6188
CS1	Seek support from my supervisors	.5995
CS24	Seek support from other officers	.5223
FACTOR 2 Action focused resource		
CS21	Speak to Union Officials	.7258
CS23	Speak to Legal Fund	.7172
CS20	Speak to Occupational Health and Safety	.6694
CS19	Seek Counselling	.5816
FACTOR 3 Disengagement		
CS6	Try to forget about work worries by focusing energies on other aspects of my life	
CS5	Expand interests and activities outside work	.7698
CS4	Deliberately separate 'home' and 'work'	.7597
FACTOR 4 Emotional suppression		
CS2	Hold back emotions and try not to let the stress show	.7855
CS3	Use my home as a refuge	.7373
FACTOR 5 Physical strategy		
CS14	Do physical exercise using Departmental Facilities or sponsored programmes	.8300
CS22	Do physical exercise privately	.7795
FACTOR 6 Symptom management strategy		
CS12	Smoke cigars, pipes or cigarettes	.7362
CS17	Use alcohol or drugs	.6960
FACTOR 7 Avoidance		
CS9	Try to avoid the situation	.6134
FACTOR 8 Religion focused strategy		
CS18	Seek religious support	.8023

9.3.4 *Dependent measures: Descriptive statistics and comparisons with other samples*

MENTAL HEALTH

Results for the sample were compared with other CO samples and other occupations. Table 9.16 displays the means and standard deviations for GHQ-12 scores and shows that COs have significantly higher GHQ-12 scores than other comparison groups (psychiatric nurses, teachers, army, and U.K. normative sample) and similar scores to clerical administration workers and New Zealand prison officers (Voges et al., 1982).

Table 9.16 *GHQ-12 Scores (Likert Scoring): Means, Standard Deviations, and T-test: COs and Other Samples*

			T-test	
	M	*SD*	*CO vs Others*	*df*
Total CO Sample (*N*=414)	12.17	7.20		
Psychiatric Nurses (*N*=349) (Janman et al., 1988)	10.30	5.10	4.27†	761
STA Clerical Admin (*N*=176) (O'Mara, 1991)	11.25	5.20	1.77	589
Teachers (*N*=157) (Parkes, 1990)	9.13	5.21	5.63†	569
Prison Officers (*N*=332) (Voges et al., 1982)	12.46	5.47	<1	771
Ranking Prison Officers (*N*=108) (Voges et al., 1982)	12.77	5.27	1	502
Army Control (*N*=83) (Voges et al., 1982)	10.22	4.81	3.08**	495
U.K. Normative Sample (Engineering and Plant Workers) (*N*=552) (Voges et al., 1982)	8.80	4.02	2.98**	964

Note. † $p<.001$, ** $p<.01$.

To permit further comparisons with other samples, GHQ-12 scores were recoded using binary scoring. Webster et al. (1983) provided a breakdown of the GHQ-12 scores for New South Wales COs and a NHF study (1980) which used a random sample of males in the age range 25-64 (*N*=2765). Scores ranged from 0 to 12. Subgroups were defined according to the following criteria: 0 or 1=*low or no disturbance;* 2 or 3=*mild to moderate disturbance*; 4 or more=*high to severe disturbance*. Scores of two or three are considered transient responses to situational stress. Scores of four or more are regarded more seriously, justifying assistance from a mental health professional (Webster et al., 1983). A summary of data comparing results from the present study to the aforementioned is presented in Table 9.17.

There was a significant difference between the officers who had never been on leave and officers who had been on leave (current, past) in terms of their GHQ-12 scores, χ^2 (2)=21.00, p<.001. The latter groups were more likely to be in the high to severe range.

Table 9.17 indicates that the COs were over-represented in the high or severely disturbed range in comparison to the NHF sample (1980). Even though the reference group may not be highly appropriate since the present sample included women, the differences are remarkable. COs were nearly three times more likely to be in the high to severe range compared to the NHF study (1980).

Differences between the samples were statistically significant, χ^2 (2)=9.66, p<.01. Compared to the Webster et al. (1983) sample of COs, there was no significant difference on GHQ-12 scores, χ^2 (2)=4.32, *ns*.

Table 9.17 *Percentage of COs in Each Level of Psychological Disturbance (Binary measure), and Comparisons with Other Samples*

	Psychological Disturbance		
	None or Low (0 or 1)	Mild or Moderate (2 or 3)	High or Severe (≥4)
Prison Officers (*N*=262), (Webster et al., 1983)	68.2	14.2	17.6
National Australian Sample[a] (*N*=2765 males)	76.2	12.3	11.5
Total CO (*N*=414)	61.7	9.1	29.2
CO never been on Stress Leave (*N*=329)	67.5	9.1	23.4
CO on Stress Leave in the Past (*N*=62)	43.6	9.6	46.8
CO presently on Stress Leave (*N*=15)	33.3	6.7	60.0

Note. [a] Source Webster et al., (1983).

GLOBAL JOB SATISFACTION

Job satisfaction was reported by 59% of officers, whereas 35% of all COs reported overall job dissatisfaction. The results were as follows: *extremely satisfied* 3%, *very satisfied* 16%, *moderately satisfied* 40%, *not sure* 6%, *moderately dissatisfied* 18%, *very dissatisfied* 9%, and *extremely dissatisfied* 8%.

The 59% of workers who were fairly satisfied was less than the 65% in a study of British COs (Rutter & Fielding, 1988). The 35% reporting job *dis*satisfaction was higher than the 16% reported in a study of Alabama COs (Lindquist & Whitehead, 1984). In comparison to two samples of blue collar male workers (*N*=200, *M*=5.24, *SD*=1.46 and *N*=390, *M*=5.37, *SD*=1.44) in the United Kingdom (using the same measure Warr, Cook & Wall, 1979) the CO sample showed significantly lower levels of job satisfaction (*M*=4.20, *SD*=1.60, *N*=416) than either t(614)=8.00, p<.001 and t(804)=11.70, p<.001 respectively.

PHYSICAL HEALTH SYMPTOMS

Subjects were asked how often they had suffered from the physical health symptoms in the last month. Neck tension, lower back problems and muscular aches and pains, were the most frequently reported physical health symptoms. (Although not included in this analysis, because of an overlap with GHQ-12, consistent with Dunne and Morrison's (1991) study, feeling run down/low and sleeping difficulties were found to be the most frequently reported physical health symptoms).

JOB CHANGE INDICATIONS AND VISITS TO THE DOCTOR

Means, standard deviations and alpha coefficients are reported in Table 9.4.

STRESS LEAVE

As stress leave was of special interest in this study, preliminary analyses were conducted to ascertain whether stress leave was linked to strain indices, GHQ-12, job satisfaction, physical health symptoms, and work home conflict. Three stress leave groups were distinguished: Group 1, COs who had never been on stress leave (N=335); Group 2, COs who had been on stress leave in the past (N=65); and Group 3, COs presently on Stress Leave (N=16). Analysis of variance (ANOVA) was performed on the data to determine if there were significant differences between the groups on the dependent variables. Table 9.18 shows a summary of results.

Table 9.18 *Stress Leave Status of COs*

Variable	Group 1 Never SL *M*	Group 2 Past SL *M*	Group 3 Present SL *M*	F	df	*p*
Psychological distress	11.09	15.18	23.67	32.40	2, 403	.0001
Job satisfaction	4.39	3.74	1.88	24.37	2, 411	.0001
Physical symptoms	38.99	45.73	54.18	34.89	2, 413	.001
Work-home conflict	16.76	19.25	20.50	14.12	2, 398	.0001

Note. SL, stress leave.

Results show that for the variables psychological distress, job satisfaction, physical health symptoms and work-home conflict, there were significant differences in the means between groups in expected directions. This was confirmed using Scheffe's post hoc comparisons which showed: (1) Group 1 was significantly different from Group 2 and 3 on all measures except job satisfaction; (2) Group 1 was significantly different from Group 2 on job satisfaction; (3) Group 3 was significantly different from Group 2 and Group 1 on job satisfaction; and (4) Group 2 was significantly different from Group 3 on physical health symptoms and psychological distress.

Groups that had taken stress leave showed greater psychological distress, more work-home conflict, and a greater number of physical symptoms. Officers presently on stress leave indicated the greatest job dissatisfaction. The association between the subjective self-report measures of strain and the more objective measure stress leave provides support for the construct validity of stress leave as an index of strain.

9.3.5 Pearson intercorrelations of measures

Intercorrelations were assessed using Pearson product-moment correlations. Intercorrelations for all variables are reported in Table 9.19. To help describe the results, the product-moment correlation coefficients are defined as small, when r=.20, medium when r=.30, and large when r =.50 (Cohen, 1992). Because of the large N all values above r=.13 inclusive are significant at p<.01.

Table 9.19 *Pearson Intercorrelations of Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Demographic																												
1. Gender																												
2. Service length	.09																											
3. Age	.07	.52**																										
4. Alcohol daily	.14**	.19**	.09																									
5. Relationship	.25**	.01	.04	-.13*																								
6. Exercise	.11*	-.13*	-.17**	-.14**	-.01																							
7. Shift work	-.03	-.25**	-.23**	.07	.01	.07																						
8. Perceived weight	-.12*	.13*	.10*	.08	.03	-.13**	.05																					
9. Smoking	.07	-.07	-.10*	.15**	-.00	-.16**	-.05	-.08																				
10. Overtime hours	.02	.13	.06	.25**	-.05	.04	-.05	.01	.14*																			
11. Total education	-.06	-.03	.00	-.14**	-.02	.06	.10*	.07	-.08	.02																		
12. Finances	-.03	-.03	-.18**	.16**	-.16**	-.06	.12*	.08	.18**	.22**	-.04																	
13. Defence experience	.23**	.08	.06	.06	.12*	.03	.06	-.12*	-.03	-.02	-.08	-.03																
14. Employment,salary, benefits	.12*	.06	.01	.07	-.10*	.04	-.09	.00	.05	.07	.01	.04	.08															
15. Prisoner rehab. work	.17**	-.04	-.19**	.11*	-.04	.00	.06	-.03	.05	-.02	.07	.03	-.02	-.14**														
16. Promotional opportunity	-.04	.09	-.13**	.02	.05	-.05	-.09	.03	-.06	.09	.16**	-.08	.04	.13**	.13**													
17. Security/ Guard work	.01	-.14**	.07	.01	.01	-.01	-.07	.03	.01	.02	.02	.12*	-.07	.00	.13**	.21**												
18. Transfer to other govt depts	-.04	-.23**	-.28**	.01	.05	.07	-.09	.01	.03	.05	.08	-.01	.02	.08	-.11*	.15**	.09											
19. Job security	.11*	.02	.08	.06	-.10*	.03	.11*	.05	.11*	.00	-.06	.12*	.15**	.33**	-.11*	.19**	.02	-.15*										
20. Classification	.08	.42**	.20**	.04	-.04	.06	.03	.05	.03	-.04	.01	.01	.05	.09	.04	.14**	-.02	-.19**	.01									
Personal disposition																												
21. Trait anxiety	.03	.12*	.02	.19**	-.08	-.08	-.01	.09	.04	.07	.12*	.23**	.04	-.05	-.08	.00	.00	-.02	-.10	-.02								
22. Tolerance ambiguity	.02	.00	.07	-.07	-.04	.01	.08	.02	-.09	-.04	.13**	-.07	.03	-.02	-.07	.02	.06	-.11*	.06	-.04	-.07							
Work Environment & support																												
23. Role ambiguity	.07	.07	.05	.09	.02	-.03	.01	.02	-.05	-.04	.00	.10*	.01	.03	.00	.11*	-.10*	.02	-.08	.09	.23**	.15**						
24. Management issues	-.04	.02	-.03	.01	.02	.03	.12*	.07	.10*	.00	-.01	.02	.05	.04	.02	-.05	.01	.10*	.11*	-.14**	.06	-.12*	.00					
25. Inmate problems	-.06	.00	-.01	.03	.08	.00	-.04	-.08	-.02	-.04	-.12*	.04	.07	-.02	-.14**	-.01	-.05	.11*	.10*	-.06	.19**	-.12*	.00	.00				
26. Work schedule concerns	.15**	.01	-.18**	.18**	-.01	-.03	.45**	-.06	.05	.15*	-.03	.16**	.07	.16**	-.24**	-.06	.05	.13**	.05	-.09	.13**	-.16**	.00	.00	.00			
27. Role conflict	.02	-.05	-.11*	.00	-.05	-.05	.07	-.01	-.05	-.12	-.03	.08	.00	-.01	.03	.02	.07	-.02	.02	.14**	.30**	.01	.00	.00	.00	.00		
28. Staff relationship problems	-.16**	.07	.02	.09	-.06	.07	.01	-.03	.07	.08	.04	.06	.01	-.03	-.08	-.04	-.01	.07	.04	-.10**	.23**	-.06	.00	.00	.00	.00	.00	
29. Pressure	.04	-.05	-.06	-.03	-.02	.01	-.13**	.01	.10*	.06	-.02	.11*	-.02	.08	-.03	-.01	.10*	.00	.04	.02	.12*	-.05	.07	.04	.22**	.02	.00	.05
30. Autonomy	.03	.00	.08	.00	.01	-.07	.08	-.05	.00	.10	-.06	-.09	.09	-.08	-.06	-.01	.08	.06	-.05	.12*	-.19**	.01	-.29**	-.31**	-.05	-.16**	-.05	-.12*
31. Peer cohesion	-.10*	-.11*	-.02	-.04	-.03	.03	-.02	-.07	.03	-.09	-.01	-.09	-.12*	.01	-.04	-.06	.08	-.02	-.04	.16**	-.25**	.06	-.31**	-.29**	-.03	-.07	-.12*	-.20**
32. Control	-.02	.00	.07	-.13*	.02	.03	-.10*	.00	.06	-.19**	.00	.00	-.02	-.05	.00	-.09	-.05	.02	.05	.05	-.10*	-.05	-.19**	-.16**	.13**	.01	.00	-.12*
33. Involvement	-.06	-.09	.05	-.13*	.00	-.04	.00	-.08	.02	.02	.04	-.08	.03	.02	.15**	-.02	-.05	.06	.00	.15**	-.25**	.08	-.27**	-.29**	.00	-.17**	-.15**	-.17**
34. Innovation	-.07	.00	-.06	-.04	.01	-.06	-.08	-.05	.01	-.10	-.05	.01	.06	.09	.07	.12*	-.02	-.01	-.09	.19**	-.15**	.00	-.16**	-.19**	.03	-.03	.13**	-.10
35. Task orientation	-.04	-.10*	-.02	-.12*	-.07	-.05	.02	-.01	.03	-.05	.03	-.03	-.01	.02	.06	-.09	.12*	.03	.01	.11*	-.23**	-.02	-.30**	-.24**	.06	-.07	-.04	-.22**
36. Supervisor support	-.04	.05	.11*	-.03	.06	-.01	.04	-.03	.00	.03	.02	-.16**	.01	.00	.07	-.04	.06	.07	.02	.29**	-.28**	.03	-.24**	-.37**	-.04	-.16**	-.15**	-.17**
37. Friends support	-.02	-.05	-.02	-.15**	.09	-.11*	-.10*	.04	-.08	-.15*	.07	-.25**	.06	.04	-.07	-.03	-.07	-.06	.01	.02	-.28**	.05	-.21**	-.11*	-.02	-.11*	-.04	-.17**
Coping responses																												
38. Direct action	-.09	-.12*	.02	-.07	.01	-.04	.03	-.04	.01	-.04	.05	-.01	-.01	.11*	.21**	.15	.13*	.04	.02	.00	-.04	.11*	.10*	-.02	.10*	-.20**	-.08	.15**
39. Action focused resource	-.04	.01	.04	-.02	.01	-.02	.00	-.02	-.05	.04	.05	-.05	.04	.07	-.05	.03	.04	.12*	-.08	-.07	.22**	.04	.08	.21**	.10*	.02	.16**	.11*
40. Religion	.03	.11*	.03	-.07	-.01	.01	-.05	.04	-.15**	.03	-.03	.00	.03	.01	.25**	.10*	.01	.05	-.07	.08	.07	.05	.03	.07	.08	.03	-.02	.01
41. Disengagement	-.03	.00	-.05	-.03	.04	-.02	-.01	-.07	-.05	.04	.09	.02	.04	-.02	.03	.07	-.02	.08	.05	.02	-.25**	-.08	-.03	.14**	-.02	.05	-.05	-.03
42. Emotional suppression	.00	.15**	.02	.06	.00	.05	.04	.10	-.04	-.06	.00	.14**	-.09	.05	.02	.00	-.12*	.01	.06	-.06	.47**	-.03	.31**	.22**	.18**	.11*	.26**	.22**
43. Symptom management	.01	.06	-.03	.38**	-.03	.23**	.02	.03	.77**	.18*	-.07	.27**	-.07	-.13**	.07	.08	-.03	-.01	.14**	.00	.21**	-.12*	.05	.12*	.04	.12*	.05	.13**
44. Physical exercise	.15**	-.15**	-.22**	-.12*	-.04	.57**	.11*	-.12*	-.17**	-.09	.03	-.12*	.02	-.02	-.01	.10*	-.02	.08	-.01	-.02	-.08	-.02	.04	.03	.05	.11*	.04	-.05
45. Avoidance	.00	.09	-.01	.06	.06	.02	.04	-.04	-.07	.05	.09	.06	.08	.04	-.03	.09	.04	.06	.01	-.12*	.20**	-.18**	.13**	-.01	.09	.10*	.14**	.05
Outcome																												
46. GHQ-12	.02	.20**	.04	.12*	-.07	-.10*	.01	.10*	.08	.05	-.01	.21**	-.08	.00	.00	-.01	-.05	.00	-.02	-.02	.69**	-.07	.33*	.16*	.12*	.20**	.28**	.25**
47. Job satisfaction	-.04	-.17**	.05	-.11*	.04	-.02	.04	-.12*	-.00	.09	-.02	-.14**	.06	.05	-.05	.02	.09	-.10*	-.04	.07	-.38**	.03	-.29**	-.24**	-.08	-.26**	-.18**	-.09
48. Physical health symptoms	-.02	.28**	.13**	.20**	-.05	.09	.06	.13*	.08	.06	-.07	.25**	-.03	.00	.03	.06	-.07	.02	.04	-.08	.53**	.00	.33**	.17**	.18**	.14**	.13**	.22**
49. Work-home conflict	.09	.12*	-.08	.14**	-.06	-.02	.19**	.12*	.03	.09	-.04	.27**	.17**	-.03	.02	.10*	-.03	.03	.05	.03	.41**	-.06	.27**	.16**	.25**	.41**	.08	.11*
50. Job change indications	-.05	.25**	.02	.08	-.03	.04	.04	.09	-.10*	.11	-.11*	.10*	.00	-.06	.06	.02	-.11*	.22**	-.04	-.03	.32**	.00	.18**	.10	.08	.23**	.24**	.13*
51. Visits to doctor	-.05	.12*	.09	.02	-.03	.04	-.02	.05	.06	-.05	.02	.06	-.02	-.05	-.01	-.02	-.00	-.01	-.06	.02	.21**	.01	.10	.07	.08	.03	.04	.08
52. Stress leave	-.12*	.16**	.06	.08	.01	-.11*	.03	.10*	.05	.03	.02	.00	.08	-.02	-.03	.06	-.16**	.00	.00	-.08	.26**	.03	.05	.18**	.03	.04	.15**	.20**

Variable	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Work environment & support																							
29. Pressure																							
30. Autonomy	-.02																						
31. Peer cohesion	-.01	.48**																					
32. Control	.33**	.09	.16**																				
33. Involvement	.13*	.53**	.66**	.26**																			
34. Innovation	.09	.43**	.37**	.11*	.49**																		
35. Task orientation	.28**	.40**	.51**	.42**	.67**	.34**																	
36. Supervisor support	-.13*	.56	.56**	.04	.51**	.35**	.41**																
37. Friends support	-.07	.20**	.29**	.09	.25**	.15**.	.24**	.22**															
Coping responses																							
38. Direct action	.14**	.20**	.13*	.01	.24**	.17**	.15**	.13**	.17**														
39. Action focused resource	.05	-.16**	-.13*	-.13*	-.08	-.08	-.05	-.22**	.02	.23**													
40. Religion	-.05	-.08	.00	-.06	-.06	.02	-.02	-.06	.02	.09	.17**												
41. Disengagement	-.01	.00	-.02	.05	-.02	-.03	-.03	-.05	.13*	.14**	.06	.04											
42. Emotional suppression	.10*	-.31**	-.32**	-.02	-.33**	-.26**	-.24**	-.36**	-.25**	-.09	.21**	.10*	.01										
43. Symptom management	.11*	-.13*	-.05	.00	-.10	-.05	-.05	-.11*	-.11*	-.03	.01	-.09	-.07	.16**									
44. Physical exercise	-.01	.09	.00	-.03	.04	.08	.06	.00	.13**	.14**	.01	.10*	.16**	-.05	-.16**								
45. Avoidance	.00	-.09	-.09	.04	-.15**	-.04	-.13**	-.18**	-.02	-.07	.06	.08	.03	.22**	.02	.03							
Outcome																							
46. GHQ-12	.21**	-.32**	-.34**	-.06	-.35**	-.23**	-.26**	-.36**	-.29**	-.10*	.21**	.06	-.22**	.56**	.27**	-.14**	.17**						
47. Job satisfaction	-.13**	.34**	.35**	.12*	.44**	.20**	.27**	.35**	.21**	.21**	-.16**	.00	.00	-.42**	-.19**	-.02	-.11*	-.54**					
48. Physical health symptoms	.12*	-.26**	-.32**	-.09	-.27**	-.20**	-.24**	-.32**	-.26**	.00	.28**	.05	-.19**	.46**	.28**	-.08	.13**	.64**	-.41**				
49. Work-home conflict	.19**	-.21**	-.27**	-.06	-.30**	-.13*	-.20**	-.30**	-.30**	-.09	.18**	.07	-.16**	.50**	.19**	.02	.12*	.50**	-.45**	.46**			
50. Job change indications	.09	-.29**	-.19**	-.06	-.28**	-.21***	-.20**	-.22**	-.14**	-.08	.16**	.11*	-.02	.29**	.06	-.02	.13**	.41**	-.55**	.36**	.39**		
51. Visits to doctor	.03	-.12*	-.06	-.02	-.08	-.00	-.09	-.14**	-.02	.03	.13**	.11*	-.07	.12*	.13**	-.02	.08	.23**	-.13**	.25**	.15**	.06	
52. Stress leave	.03	-.15**	-.18**	-.05	-.14**	-.16**	-.14**	-.23**	-.10*	-.02	.41**	.14**	-.07	.37**	.16**	-.11*	.13*	.31**	-.25**	.33**	.26**	.27**	-.28**

Note. * $p<.05$. ** $p<.01$. Gender, 1=female, 2=male; Relationship 1=single, 2=defacto, 3=married; All other variables, high scores indicates high levels on the variable. Dichotomous variables: Shift, Defence work experience, Stress leave, Visits to doctor, 0=no, 1=yes. Reason for taking the job: High scores = important, low score= not important.

DEMOGRAPHIC AND CONTROL MEASURES

A number of intercorrelations were found between demographic/ control variables. Most frequent intercorrelations were found between age, taking the job for job security, service length, financial worries, taking the job for promotional opportunities, gender, and other demographic variables.

Overall demographic/control variables were not clearly linked with any of the personality measures. Two exceptions were financial worries, and average daily alcohol use were positively correlated with trait anxiety.

The majority of correlations of demographic/control measures with work environment and support measures were not significant. Shift work was positively correlated with work schedule concerns; financial concerns were negatively associated with support from friends; reason for taking the job was positively correlated with work schedule concerns; taking the job thinking that prisoner rehabilitation work was important and work schedule problems; and classification level was positively correlated with supervisor support.

In comparison to all other demographic/control variables classification was most frequently correlated with work environment/ support measures, followed by level of alcohol use, shift work, and finances, but these correlations were generally quite small.

Demographic variables showed some correlations with coping. Specifically a number of medium to large positive correlations were found: frequency of drinking alcohol with symptom management coping; frequency of exercise with using exercise as a coping strategy; and frequency of smoking and coping by the use of cigarettes, drugs or alcohol. These results show some consistency in the data. Finally, financial worries was significantly positively associated with symptom management.

Four control variables showed four or more significant correlations with the seven outcome measures. These were, in order of importance service length, financial worries, perceived weight and frequency of alcohol use.

PERSONAL DISPOSITION

Trait anxiety showed small to medium sized correlations with all work environment and support measures (except with problems with management), with five of the eight coping responses, and with all strain measures (medium to large correlations). In contrast, tolerance for ambiguity showed very few associations with work environment measures, and coping styles and was not associated with any outcome measure.

WORK ENVIRONMENT AND SUPPORT MEASURES

The relations between the work environment set and the coping set showed most associations occurring with emotional suppression, direct action, symptom management and avoidance.

Overall, the work environment measures and support from friends measure showed fairly consistent associations with strain measures. The most frequent associations were found in the following order: supervisor support, autonomy, involvement, task orientation, peer cohesion,

innovation, friends support, work role ambiguity, work schedule problem, staff relationship problems, role conflict, and pressure.

COPING MEASURES

Emotional suppression was associated with each measure of strain, showing medium to large associations, higher levels of suppression associated with higher levels of strain. Similarly action focused resource was also associated with each outcome, workers using organisational resources more likely to report higher levels of strain. Symptom management and avoidance showed six associations with outcome measures, and disengagement three.

In summary, the most important independent variable set in terms number of significant correlations with strain (%), were trait anxiety (100%), work environment (72%), coping (64%) and control variables (23%).

DEPENDENT MEASURES

Dependent measures showed high, medium and low intercorrelations. They were retained as separate measures of strain because of clear conceptual distinctions between them.

9.3.6 Multivariate Analyses

Although zero-order correlations suggested a number of important predictor variables, their relative importance in predicting strain is not clear. The predictor variables are correlated with each other and overlap to some degree. Multiple regression/ correlation analysis (MRC) (Cohen & Cohen, 1983) is a statistical technique that can be used to remove the effects of other variables to determine the variance accounted for by the variable uniquely, relative to what is accounted for by the other factors. MRC analysis can be used to identify multiple predictor variables.

Although the stress model depicted in Figure 8 1, suggests two stages, the analyses presented here treats all the independent measures as potential predictors of the outcome measures (reflecting a preventative focus).

TREATMENT OF DATA

Data were screened for compliance with the assumptions required by regression analysis procedures. Specifically, checks of the data were made for missing data, normality, multicollinearity, and homogeneity. The data revealed a relatively small number of missing cases per question compared to the sample size (maximum around 6%). Questions which required respondents to answer every question, even "not relevant", sometimes resulted in a higher number of missing cases. These cases were reassigned logically appropriate values.

To retain as much power as possible, and given the small number of missing cases per question, mean substitution was used in the regression analysis (see also Landsbergis, Schnall, Warren, Pickering, & Schwartz, 1994). The validity of this approach (i.e. model stability) was

verified by using a pairwise deletion procedure which compares cases with complete data on the pair of variables being correlated.

Skewness of variables may affect the results of analyses that assume that data are normally distributed (ie regression analysis). Outliers may affect the results of analyses, by producing misleading mean values. Data transformation may be used to reduce these problems. For severe skews, data can be transformed with reciprocals (1/score). For, medium skews, data may be modified by logarithmic transformation. Finally, for a small skew, a square root transformation is recommended. The problem of outliers can also be treated with logarithmic transformations (Dane, 1990).

Skewness of variables was assessed by comparing the value for skewness against the standard error for skewness (Tabachnick & Fidell, 1989). The following variables were considered skewed: smoking, overtime hours, classification, reason for taking job (employment, salary, fringe benefits; capacity to transfer to other government agencies; job security), financial worries, alcohol use, marital status, friends support, GHQ-12, supervisor support, involvement, physical health symptoms, action focused resource, symptom management, and total education. Transformations were tried and assessed according to whether skewness, and/ or outliers were reduced. Logarithmic transformations of the following variables were successful: smoking, reason for taking job (employment, salary, fringe benefits), financial worries, alcohol use, GHQ-12, supervisor support, involvement, physical health symptoms, action focused resource, symptom management, and total education. Reciprocal transformation of reason for taking job (job security), marital status, and friends support was also successful. When transformations failed to reduce the problem, the original variables were retained.

The transformation of data is a controversial procedure because it involves changing the original data. For this reason, Dane (1990) recommends to present the results from original and transformed data analysis. The results for the regression analysis will be provided first for the original data. Changes to the results with data transformations will be summarised in relation to these results.

Multicollinearity, refers to high correlations between variables. None of the correlations between any two variables reached the mean scale reliabilities (Campbell & Fiske, 1959). Therefore multicollinearity among the independent measures was not considered a threat to the stability of the analyses. Further, the squared multiple correlations between each work environment measure and the remaining work environment set were assessed and there was no evidence that the variables shared a large amount of variance with the other independent measures. Very high levels of multicollinearity were not detected, so multicollinearity was not considered to be a problem in the analyses.

Violations of assumptions including multicollinearity, linearity, homogeneity, and homoscedasticity were also checked by examining the plots of predicted and residual values and residuals against individual dependent variables respectively. No evidence of violations of assumptions were noted (Cohen & Cohen, 1983).

Dummy variables were created for non-continuous variables, location, defence experience and shift work.

HIERARCHICAL TESTS

A hierarchical stepwise procedure was used to determine the extent to which the groups of variables predicted the outcome measures. The criterion for entry at each step was that the variables should make a significant contribution to the equation at the 0.05 level of significance. This procedure has been used in similar studies (Morrison et al., 1992; Trochi & Orioli, 1994), where controlling for confounds is required (hierarchical structure) and when there was no a priori expectation concerning the relative importance of predictor variables within sets (stepwise).

A four step hierarchical regression analysis was carried out. At the first step control/demographic variables were entered to assess their relationship with strain, and to control for these relations in subsequent steps. At the second step, personal disposition variables were entered to assess the variance accounted for by the variables, and to control for their association with strain in the subsequent steps. At the third step, work environment and social support measures were entered. In the final step coping measures were entered to assess any additional variance accounted for by coping. The hierarchy of steps used in building the model were selected primarily to assess the relation between the work environment and strain, after control for possible potential confounds. The analytic procedure enabled analysis of the contributions of different sets of variables (control variables, personality variables, work environment stressors and support, and coping styles) to measures of strain.

Tables 9.20 summarises the hierarchical analysis for each of the five continuous dependent variables including showing cumulative R^2, the change in R^2 at the point of entry of the variable, F change, significance, degrees of freedom, and summary statistics for the overall model. Beta values from the final simultaneous equation with all variables in the model are shown. Some variables contribute unique variance, and these have significant beta values in the final model. Important variables which entered the equation but which shared variance with variables subsequently entered have a non-significant beta value. Logistic regression was used for the dichotomous dependent measures (stress leave and visits to the doctor) (see Table 9.21).

Following is a summary of the most important source variables in all the regression analyses.

Control variables. Service length was associated with all seven outcome measures, higher levels of service associated with higher levels of strain. Location was associated with six outcome measures, but did not contribute unique variance to any outcome measure. In other words the effect due to location is probably better explained by the remaining variable sets as by something intrinsic to location. The next most important control variable was classification, financial worries, previous defence experience. Workers with a lower classification, higher financial worries and previous defence experience were more likely to report higher levels of strain.

Table 9.20 *Hierarchical Regression Analysis Predicting General Health Questionnaire Scores, Job Satisfaction, Physical Health Symptoms, Work-home Conflict and Job Change Indications from Demographic Variables, Personal Disposition, Work Environment , Social Support, and Coping Styles.*

Source	Cum.R^2	ΔR^2	Variance explained at each step (%)	*F* Change	*df*	Beta[b]
	GHQ-12 scores					
Demographic						
#Finances	.044	.044		19.23§	1,417	.017
#Years on job	.082	.038		17.44§	1,416	.123†
#Classification	.094	.011		5.48*	1,415	-.049
#Location[a]	.105	.011	10.50	5.15*	1,414	-.020
Personal Disposition						
#Trait anxiety	.489	.383	38.30	309.71§	1,413	.416§
Work Environment & Support						
#Autonomy	.522	.033		28.72§	1,412	-.077*
#Pressure	.541	.019		16.63†	1,411	.125†
#Involvement	.550	.010		8.81**	1,410	-.070
#Work schedule	.556	.006		5.22*	1,409	.090**
#Role conflict	.562	.006		5.66*	1,408	.074*
#Staff relations	.568	.006		5.64*	1,407	.063
#Work role ambiguity	.575	.007	8.60	6.55*	1,406	.069*
Coping Set						
#Emotional suppression	.602	.027		27.48§	1,405	.213§
#Disengagement	.612	.010		10.60**	1,404	-.102**
#Symptom management	.616	.004	4.10	4.20*	1,403	.067*
MR=.79, R^2=.62. Adjusted R^2=.60; *F*(15, 403)=43.14§						
	Job Satisfaction					
Demographic						
#Years on job	.026	.025		11.03**	1,417	-.167**
#Age	.050	.024		10.76**	1,416	.067
#Classification	.075	.025		11.28†	1,415	.074
#Location	.099	.023		10.77**	1,414	-.018
#Finance	.098	.009		4.60*	1,413	.001
#Took job transfer	.118	.089	11.80	4.12*	1,412	-.060
Personal Disposition						
#Trait anxiety	.211	.094	9.40	48.87§	1,410	-.149**
Work Environment & Support						
#Involvement	.294	.083		48.18§	1,409	.210§
#Pressure	.318	.024		14.17†	1,408	-.130**
#Work schedule	.337	.019		12.29†	1,407	-.139**
#Management issues	.350	.012		7.64**	1,406	-.112**
#Work role ambiguity	.363	.013	15.10	8.31**	1,405	-.125**
Coping Set						
#Emotional suppression	.380	.017		11.37†	1,404	-.152**
#Direct strategy	.392	.011	2.80	7.55**	1,403	.115**
MR=.63, R^2=.39. Adjusted R^2=.37; F(13, 403)=7.55§.						

Table 9.20 cont'd

Source	Cum.R^2	ΔR^2	Variance explained at each step (%)	F Change	df	Beta
	Physical Health Symptoms					
Demographic						
#Years on job	.069	.069		30.96§	1,417	.280§
#Finances	.135	.066		32.18§	1,416	.118**
#Classification	.178	.042		21.46§	1,415	-.183§
#Location@	.200	.022		11.36†	1,414	.054
#Location	.215	.014		7.83**	1,413	.049
#Alcohol daily	.223	.008	22.30	4.19*	1,412	.003
Personal Disposition						
#Trait anxiety	.400	.177	17.70	121.59§	1,411	.224§
Work Environment and Support						
#Work role ambiguity	.420	.019		14.06†	1,410	.149†
#Management issues	.433	.012		8.99**	1,409	.076*
#Staff relationship problems	.445	.013		9.23**	1,408	.094*
#Inmate problems	.459	.014		10.33**	1,407	.100**
#Work schedule	.467	.007	6.70	5.67*	1,406	.081*
Coping						
#Action resource	.485	.019		14.55†	1,405	.133†
#Symptom management	.498	.012		10.00**	1,404	.109**
#Emotional suppression	.508	.010		8.50**	1,403	.138**
#Disengagement	.520	.012	5.30	10.45**	1,402	-.119
MR=.72, R^2=.52. Adjusted R^2=.50; F(16, 402)=27.25§.						
	Work-home Conflict					
Demographic						
#Finances	.066	.066		29.61§	1,417	.110**
#Defence 1	.092	.026		12.14†	1,416	.075*
#Shift1	.116	.023		10.75**	1,415	.065
#Years on job	.139	.023		11.49†	1,414	.101*
#Marital status	.150	.010		5.13*	1,413	.103**
#Age	.165	.014	16.50	7.34**	1,412	-.079
Personal Disposition						
#Trait anxiety	.280	.115	11.50	66.16§	1,411	.060
Work Environment & Support						
#Work schedule	.340	.060		37.20§	1,410	.280§
#Work role ambiguity	.367	.027		17.17§	1,409	.104**
#Inmate problems	.397	.029		19.92§	1,408	.134†
#Friends support	.414	.017		11.76†	1,407	-.073
#Management issues	.427	.014		9.60**	1,406	.067
#Pressure	.434	.006		3.97*	1,405	.097*
#Involvement	.441	.008	16.10	5.99*	1,404	-.079
Coping						
#Emotional suppression	.485	.044		34.49§	1,403	.273§
#Disengagement	.506	.021	2.10	17.38§	1,402	-.155§
MR=.71, R^2=.51, Adjusted R^2=.49, F(16, 402)=17.38§.						

Table 9.20 cont'd

Source	Cum.R^2	ΔR^2	Variance explained	*F* Change	*df*	Beta
	Job Change Indications					
Demographic						
#Transfer other Govt dept	.050	.050		22.05§	1,417	.184§
#Security/ Guard work	.067	.017		7.64**	1,416	-.073
#Age	.085	.018		8.12**	1,415	-.187†
#Years on job	.122	.037		17.32§	1,414	.156**
#Location	.131	.010	13.10	4.58*	1,413	-.006
Personal Disposition						
#Trait anxiety	.204	.073	7.30	37.90§	1,412	.118*
Work Environment						
#Autonomy	.239	.034		18.39§	1,411	-.113*
#Role conflict	.257	.018		10.16**	1,410	.118**
#Work schedule	.268	.010		6.04*	1,409	.110*
#Innovation	.275	.007	7.10	4.19*	1,408	-.077
Coping						
#Emotional suppression	.302	.026	2.60	15.53†	1,407	.196†

MR=.55, R^2=.30, Adjusted R^2=.28, $F(11, 407)$=16.02§.

* $p < .05$. ** $p < .01$. † $p < .001$. §$p < .0001$.

Note. # indicates a new step in the hierarchical analysis. a. Dummy variables were created for location but are not identified individually for publication at the request of the Department. b. The Beta values are the standardised coefficients from the final simultaneous equation, each term being corrected for all other terms in the model.

Personal disposition. Trait anxiety was associated with all strain measures, higher levels of anxiety associated with higher levels of strain. Tolerance for ambiguity was associated only with stress leave: workers with lower tolerance for ambiguity, more likely to have taken stress leave.

Work environment and support measures. The most frequent source of strain resulted from work schedule problems (5 associations), role ambiguity and management issues (4 associations), work pressure, involvement and staff relationship problems (3 associations), then autonomy, relationships with inmates, and role conflict (2 associations).

Coping responses. Emotional suppression was associated with six outcome measures, disengagement with three and, action resource, symptom management and direct action with two.

Table 9.21 *Logistic Hierarchical Regression Analysis Predicting Stress Leave and Visits to the Doctor from Demographic Variables, Personal Disposition, Work Environment, Social Support and Coping Styles*

Source	Goodness of fit $X^2 f$	*df*	Improvement X^2	*df*	significance *p*	B[1]
		Stress Leave				
Constant	290.99	290				
Demographic						
#Security work preference	283.38	289	11.63	1	.0006	-.746*
#Gender	286.10	288	5.68	1	.02	-1.545*
#Years on the job	285.01	287	6.90	1	.009	.099*
#Classification	282.22	286	7.47	1	.006	-.653*
#Defence experience	264.50	285	6.46	1	.01	1.091*
#Location	266.09	284	4.03	1	.005	.085
Personal Disposition						
#Intolerance ambiguity	267.90	283	4.92	1	.03	-.092*
#Trait anxiety	275.98	282	16.25	1	.0001	.035
Work Environment and Support						
#Management issues	297.53	281	11.41		.0007	.348
#Staff relationships	275.24	280	9.06		.003	.445*
Coping Set						
#Action resource	230.64	279	30.49	1	.0001	.732§
#Emotional Suppression	218.97	278	10.45	1	.0012	.402**
Residual X^2 (6)=3.59, *p*=.736						
The constant in the final equation is -9.45†						
		Visits to the Doctor				
Constant	291.38	290				
Demographic						
#Location	290.94	289	5.96	1	.01	.978
#Years on the job	291.73	288	3.82	1	.05	.046
Personal Disposition						
#Trait Anxiety	289.18	287	4.90	1	.03	.057*
Constant=2.18§						

Note. *f* All goodness of fit X^2 values were not significant. A non significant X^2 indicates a good fit. Stress leave was coded, 0=no, 1=yes; visits to the doctor 0=no, 2=yes.

B[1] Estimated unstandardized regression coefficients from the final simultaneous equation, each term being corrected for all other terms in the model.

In the different analysis of each of the strain measures variance was explained by control variables, personal disposition, work environment, and coping responses. One exception to this was "visits to the doctor" which was only associated with control variables (length of service and location) and personal disposition (trait anxiety). When the size of the effect was ranked in the five *linear* models, control variables accounted for the most variance, followed by personal disposition, work environment and coping, respectively.

Each of the models was statistically significant. With all the significant predictive terms in the model the cumulative proportion of the explained variance (adjusted) in psychological distress was 60% with F (15, 403)= 43.14, $p<.001$; in job satisfaction was 37% and $F(13, 403)=7.55$, $p<.0001$; in physical health symptoms was 50% and $F(16, 402)=27.25$ $p<.0001$; in work-home conflict was 49% and $F(16, 402)=17.38$, $p<.0001$; and in job change indications was 28% and $F(11, 407)=16.02$, $p<.0001$. The residual model for stress leave was $\chi 2(6)=3.59$, $p<.74$, and for visits to the doctor was $\chi 2(1)=.16$, $p<.69$.

ANALYSES WITH TRANSFORMED DATA

Data were reanalysed using transformed data as previously discussed. Given the results of the residual scatter plots it was not surprising that the results were very similar. Specifically, for job satisfaction, physical health symptoms, work-home conflict, job change indications, stress leave and visits to the doctor, no changes to the overall conclusions drawn from the analyses with original data is required.

However when GHQ-12 was the dependent measure the results varied. First, GHQ-12 was logarithmically transformed. The stability of the work environment measures in the model was affected. Autonomy, pressure, and work schedule stayed in, along with two new variables, innovation, and cohesion. Involvement, role conflict, staff relations, and work role ambiguity were removed. Also in the coping set, symptom management was removed. An observable impact was the change in work environment variance up from 8.60% to 10.60%, and a similar reduction in variance attributed to coping style. The results for the demographics, and trait anxiety were very similar. Finally, the new model accounted for 55% of the variance whereas the model based on the original data, accounted for 62%. Overall, these variations do not challenge the overall conclusions (e.g. order of importance of work environment variables) based on all of the models, and the original data.

INTERACTIONS

In order to assess the possibility of more complex relationships between stressors and strain, and the role of supports and coping strategies further analyses were undertaken. Specifically, the possibility that the impact of work stressors could be moderated by support or coping was assessed. Preliminary regression analyses of all work environment measures entered separately, then later as interaction terms with both coping styles and supports, led to a small number of interaction effects with no discernible pattern across the dependent measures. To reduce the number of variables entered in the analysis, and the possibility of Type I errors, the following procedure was adopted.

First, the primary concern of the study was reduction of strain. Therefore the focus of the analyses was at stage one of the Study Model of Stress (see Figure 8.1). A factor analysis was performed on the outcome measures shown at stage one of the model. These were GHQ-12, job satisfaction, work-home conflict, and physical health symptoms. They were found to load on the same factor. This became the dependent measure (strain) in the regression analysis (see Figure 9.1 Composite Study Model).

A factor analysis was then performed on all work environment measures. The factors retained were combined to form a composite measure of "demand". Next measures that could be defined as support measures were identified (involvement, supervisor support, peer cohesion and support from friends and family). Factor analysis of the support measures, resulted in one factor. An aggregate coping score was not determined as each style had been previously identified by factor analysis and were of separate interest.

Hierarchical regression analysis was performed in which demographic, personality, work environment measures (demands and support), and coping variables were entered in sets. Following suggestions by Cohen and Cohen (1983) and Evans (1991) that hierarchical multiple regression is the most appropriate method for testing interactions, composite variables were formed by multiplying two variables together and entering them in the regression analysis after corresponding first order effects. No evidence for interactions between demand and support, demand and anxiety, or between demand and the coping measures was found.

The main effects analysis revealed that the following predictors (in order of importance) contributed most to strain (beta values from the final model in parentheses): trait anxiety (.32), emotional suppression (.24), years on job (.22), demand (.16), support (-.15), action focussed resource (.11) disengagement (-.10), shift work (.10), classification (-.09), symptom focussed coping (.08), financial concerns (.08), and direct action strategy (-.08). Overall, approximately 65% of the variance in the strain measure was accounted for by the predictor variables, adjusted $R^2 = 0.65$, $F\ (12, 407) = 64.64$, $p < .001$. These are shown in Figure 9.2, the Composite Prevention Model.

Of the work demand measures the correlations with the composite strain score were (in order of importance): work role ambiguity, lack of autonomy, worktime concerns, work role conflict, poor staff relationships, management problems, poor relationships with inmates and work pressure. Of the support measures, those contributing the most to reducing strain were (in order of importance): involvement, supervisor support, peer cohesion, and social support.

The results suggested that multiple sources, both personal (trait anxiety and coping styles) and environmental, contribute to the development of strain in correctional officers.

Composite Study Model

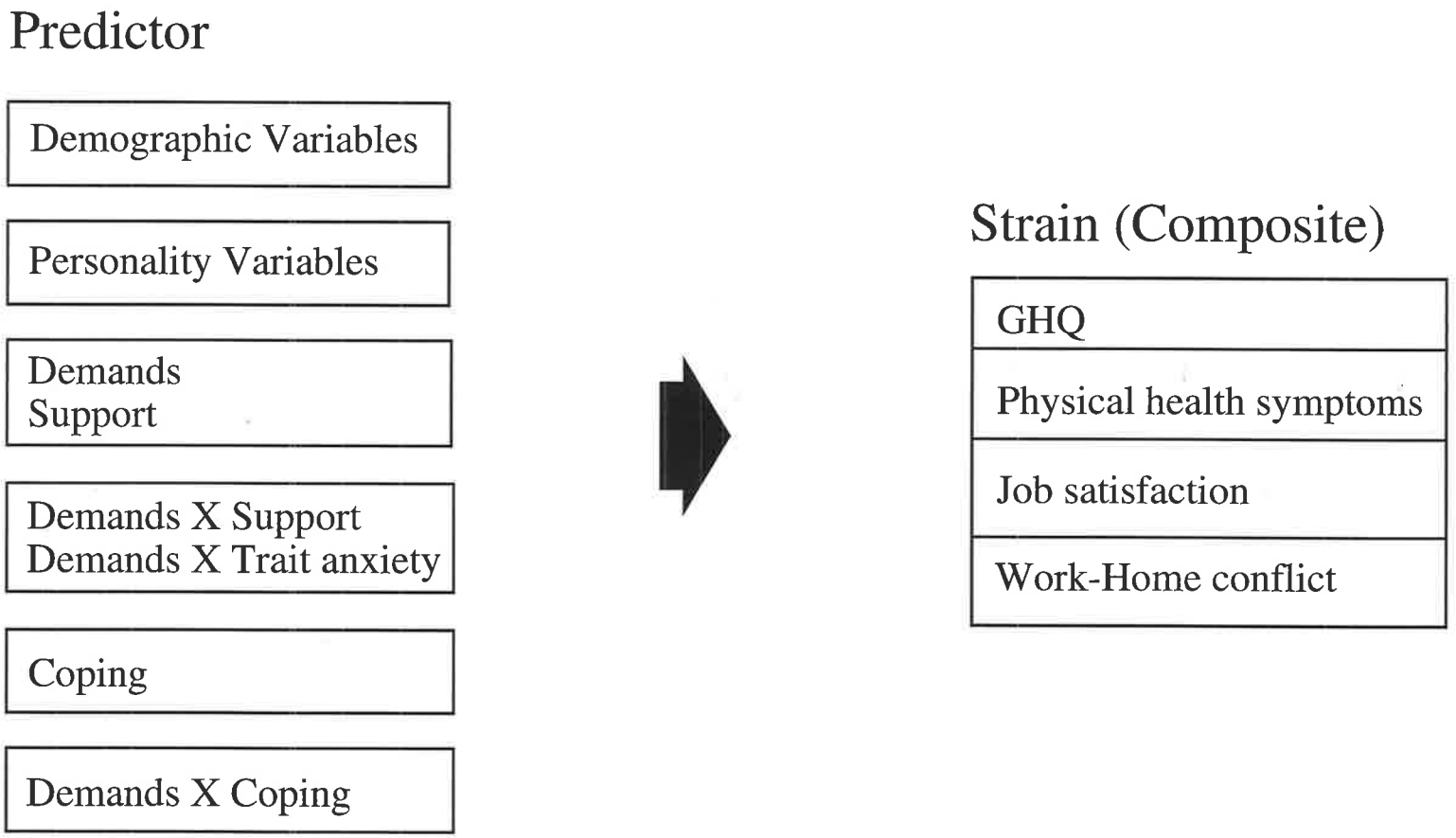


Figure 9.1 Composite Study Model

Composite Preventative Model

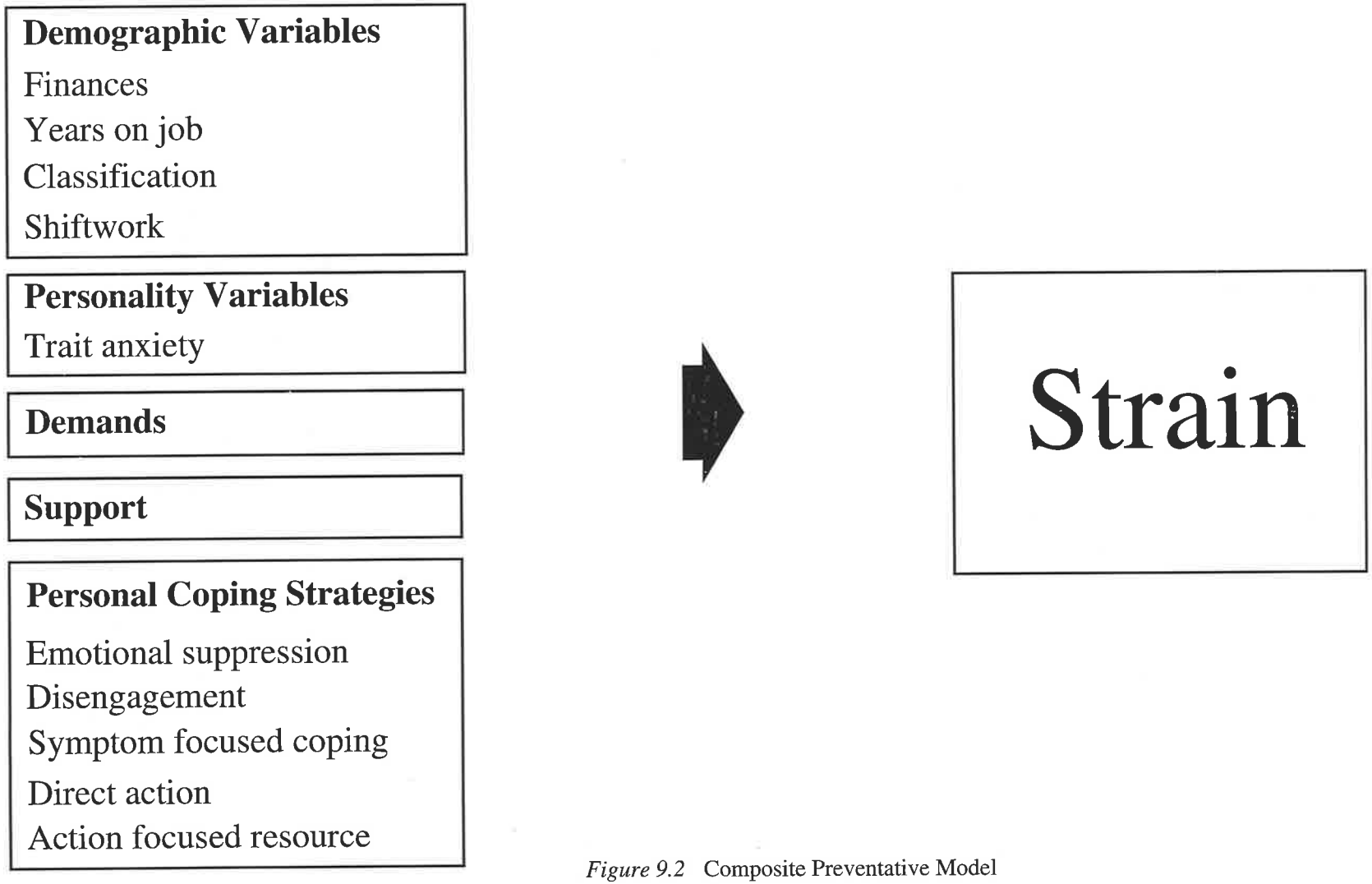


Figure 9.2 Composite Preventative Model

9.4 Qualitative data

9.4.1 Stress process summary

To assess the experiences of the officers who had taken stress leave COs who had been stress leave, or who were currently on stress leave were asked a series of open-ended questions about their work stress experiences. Respondents came from the following categories: presently on stress leave (*N*=16); at work but on stress leave in the past (*N*=65); or left the organisation subsequent to stress leave (*N*=24) (Total *N*=105).

Table 9.22 *Q1. What were the first signs of stress that you noticed when you were at work?*

	Frequency	
Psychological symptoms		145
Affective		
Tension/anxious/worry/ emotional/ moody/ restless/ lower tolerance/ unease/ agitation/ edgy/ frustration/ loss of esteem/ feeling like a failure/ depression	75	
Aggression, argumentative, antagonistic, felt like killing	28	
Fear of going to work/ frightened	12	
Disinterested	7	
Paranoid	3	
Dissatisfaction in work of others	4	
Cognitive		
Confusion, difficulty organising thoughts, difficulty planning tasks, loss of memory, lack of concentration	10	
Behavioural		
Increased smoking and alcohol intake	3	
Assaulted fellow officers, fight with prisoners, treating family badly	3	
Physical symptoms		65
Sleepless nights	18	
Chest pains/ knotted stomach/nervousness	12	
Headaches	9	
Tiredness	5	
Vomiting/ sickly feeling	5	
Weight loss/ weight gain/ loss of appetite/ overeating	4	
Skin disorder	2	
Other	10	
Did not notice		7
Described incident		3
	220	

For questions 1, 2, 4, 6, 7, 8, and 9 more than one response may have been made by each respondent. As no judgement could be made regarding the priority given to the response, each response was considered. The frequencies recorded are not independent and may include more than one response by the same respondent. For example in Table 9.22, respondents may have mentioned feeling both depressed and anxious. Both responses were recorded. For questions 3 and 5, responses were categorised into mutually exclusive categories. Each response therefore represented a single response from a respondent.

Responses to question 1 could be generally categorised as psychological (affective, cognitive, and behavioural), and physiological (see Table 9.22). The most typical signs of stress identified by the officers were psychological symptoms (*f*=145), followed by physical symptoms (*f*=65). The most frequent psychological symptoms were affective. It was difficult to separate anxiety and depression reactions, so they were grouped together and formed the largest subgroup (*f*=75). The next most frequently occurring affective response was

aggression (*f*=28), followed by fear of going to work and feeling frightened (*f*=12). Cognitive responses (*f*=10) included confusion and difficulty in thinking, planning and memory. Specific behavioural indicators (*f*=3) of stress were less frequent, and included increased use of alcohol and drugs, and actual assault. Officers described a range of physical symptoms: the most frequent were sleepless nights (*f*=18), somatic complaints ie chest pains, knotted stomach (*f*=12), headaches (*f*=9), tiredness (f=5), vomiting and sickly feeling (*f*= 3). Seven separate responses (*f*=7) indicated that the officer did not notice the first signs of stress.

Table 9.23 *Q2. What action did you take when you noticed the stress?*

	Frequency
Medical attention (general practitioner, hospital, psychiatrist, specialist, eye tests, physiotherapist)	51
Did nothing, didn't know it was stress	13
Self-coping (tried to conceal problems, relaxed more, increased fitness, turned off, avoided problems, self-monitored, laughed at idea, took Valium, drank more, used drugs, tried to rest, avoided talking to seniors and other staff)	13
Change in work (stopped working, stopped overtime, reduced work, tried for transfer, took sick leave, time off, tried to take leave, left work and went home, asked for more staff, worker harder, tried to work through it)	17
Talked to others (spouse, family, management)	13
Sought counselling (psychological help, rehabilitation counsellor, Workcover counsellor, hypnotherapist)	7
	114

The most common theme to emerge from the accounts of the officers who had taken stress leave was that after they first noticed signs of stress they typically sought medical advice (*f*=51) (see Table 9.23). Most of this advice was from a general practitioner (GP) (*f*=44) rather than from a psychiatrist (*f*=2). Even though a number of officers reported that they did nothing and continued to work (*f*=13), others reported using a range of self-coping strategies while they remained at work (*f*=13). A frequent reaction (*f*=17) was to try to change the work schedule or the nature of work by stopping work, reducing work load and overtime, taking sick leave, or time off. Officers talked to others (*f*=13) about the problem and less frequently (*f*=7) sought counselling.

Table 9.24 *Q3. How long after you first felt stressed did you let the department know?*

	Frequency
0 < 1 week	47
1< 4 weeks	8
1< 6 months	9
6-12 months	9
13-18 months	2
19< 24 months	2
2-3 years	4
4+ years	1
Never	10
	92

Table 9.24 shows that most officers reported that they let the department know (N=82, 89%) in some way and most did this within a week (N=47, 51%). Some officers did not let the department know within six months of first detecting signs of stress (N=18, 22%). A further ten (N=10, 10%) did not let the department know before taking leave.

Table 9.25 *Q4. What happened then?*

	Frequency
Took leave (sick leave, stress leave, recreation leave, work cover, unpaid leave, sent home)	36
Referred for medical help (doctor, psychiatrist, hospital, psychiatric hospital, heart operation)	27
Nothing (department refused to accept GPs decision, challenged stress leave, got over it, resumed work)	27
Referred for counselling (Department trauma unit, Workcover, rehabilitation, outside help to get back to work)	7
Left/transferred (transferred, asked for transfer, walked out, did not return)	5
Departmental action (supervisor supportive, dept investigated matter, gave paper work to fill in)	3
Personal responses (tried to commit suicide, fell into hysterical heap, went off head, began to withdraw from society, ridiculed by prisoners)	4
	109

Once officers had let the department know, the most frequent response was to take leave of some kind (f=36), and a small group left or transferred (f=5) as shown in Table 9.25. Many were referred for medical help (f=27) either to a GP (f=11), or to a psychiatrist (f=10). A smaller number sought counselling (f=7).

Twenty-seven (f=27) responses indicated nothing happened once the department was informed. The reasons for this seem to reflect in some cases just no response, whereas in other cases the officer reported that the department refused to accept the GPs decision, or challenged the stress leave. Other officers seemed to overcome the problem and resume work. One officer claimed that it was six months later when the department realised that it had overlooked his/her original complaint.

Table 9.26 *Q5. How long after the first signs did you take leave?*

	Frequency
0<1 week	47
1<4 weeks	7
1-6 months	25
7<12 months	12
1<2 years	5
2-4 years	2
	98

As shown in Table 9.26 once officers noticed stress signs most took leave within a week (N=47, 48%). Some officers did not take leave until after 6 months (N=19, 10%).

Table 9.27 *Q6.What do you think are the main things that cause stress at work?*

	Frequency
Lack of senior management support	44
Bad management /attitude of management/ policies	53
Fear for safety/physical threats/inmates(lack of security)	16
Overwork/high workload	7
Work schedule	8
Self (inability to self to manage, lost nerve)	7
Physical environment(bad conditions for criminals and staff, unhygienic work areas)	5
Staff relationships(contact with fellow officers, back stabbing by coworkers)	3
Change/turnover(high turnover of staff)	3
Other	4
	152

As reported in Table 9.27, COs overwhelmingly reported lack of support/leadership/management as the main cause of stress at work (*f*=98). The next most frequently mentioned stressor was fear for safety and physical threats (*f*=16), followed by work schedule concerns (*f*=8), overwork/high workload (*f*=7), and issues to do with self (*f*=7). This question was not asked of the group which had left the organisation (*N*=24), as it was concerned with the current workplace.

Table 9.28 *Q7. What do you think was the major reason for you becoming stressed?*

	Frequency
Lack of support (lack of recognition, persecution from management, lack of counselling facilities, victimisation by chief prison officer)	43
Quality of management /attitude of management/policies (poor conflict resolution, too much politics at management level, policy of peace at any price, bad management, investigations)	38
Relationship with inmates, fear for safety/physical threats (threats, assaults, situations with prisoners, too much drug use by inmates)	25
Overwork/high workload/overtime/staff shortage	12
Self (exhaustion, frustration, worry, unable to listen to court cases, personal inability to cope)	9
Staff problems (harassment)	8
Not enough job opportunity, loss of position (not receiving quota of higher duties, no equal opportunity to perform duties, loss of authority, removal of control from general duties officers)	6
Other incidents (caught in fire, finding a syringe)	4
Work schedule problems (too much shift work)	4
Turnover (high turnover of staff, change of partner)	2
Other	6
	157

Officers mentioned lack of support/leadership from management (*f*=43) and quality of management (f=38) most frequently as the reason for becoming stressed (see Table 9.28). The next most frequently mentioned category was relationships with inmates, including fear for safety and physical threats (*f*=25), work overload (*f*=12), and reasons attributed to self (*f*=8).

Table 9.29 *Q8. What else was happening in your life at the time you felt most stressed?*

	Frequency
Nothing	49
Family issues (father dying, spouse left, unable to cope at home, just married, changes in house, being a wife and mother, a relation was murdered)	30
Health problems (depression, loss of libido, recovering from smoke inhalation, irritable, unable to sleep, health running down, mood swings)	12
Work problems (industrial unrest, accepted higher duties, department laid charges, new manager)	9
Other	6
	106

Table 9.29 shows the most COs reported that nothing else was happening in their life at the time they felt most stressed (*f*=49). Issues to do with the family and home life were the most frequent kind of response officers gave (*f*=30). However there was no specific events within any of the categories mentioned with a regularity to constitute a theme about issues concurrent to the stress experience which need to be considered.

Table 9.30 *Q9. How do you think the department could have helped to reduce the stress you felt?*

	Frequency
Better support /management/leadership (by offering positive help and support, officials come into the work place more frequently)	110
(Legal proceedings/ fairer hearings)	(14)
Social environment/ training/selection/team spirit	18
More control to COs	7
Provide professional help	7
Physical environment	2
Did help	3
Couldn't help	4
	151

Finally, Table 9.30 shows that suggestions about how the department could have helped to alleviate the stress experienced by the COs overwhelmingly identified improvements in support/management/leadership systems. A notable subcategory of these suggestions derived from how investigation of complaints against officers could be conducted and requests for fairer hearings. Improving the team spirit, social environment, training and selection process were also identified as potential areas to reduce stress.

STRESS PROCESS SUMMARY

To summarise the main observations regarding the stress leave process for COs:

(1) Most officers identified stress in psychological terms, followed by physical and behavioural symptoms respectively;

(2) Typically COs sought medical advice for their stress symptoms and a much smaller number sought counselling. Another common strategy was to change the work pattern;

(3) For whatever reason a number of officers did nothing about the stress they had identified, yet these officers ultimately took stress leave;

(4) Generally the department was informed (process unknown) within a week of the officer noticing stress although some officers never told the department;

(5) The typical outcome was taking leave (f=36), followed by medical referral (f=26), although a small number reported counselling (f=7). No change to the situation was a common response (f=26);

(6) The causes for stress at work for self and others was overwhelmingly identified by the officers as a lack of support or leadership from management. This was followed by fear for safety/physical threats and overwork/high workload;

(7) Additional to the stressors identified at work, officers identified family and life crises as occurring simultaneously and it is not possible to say for these officers, which source contributed most to the stress reaction. Generally though, officers said nothing else was happening in their life when they felt most stressed;

(8) The responses indicate no clearly defined pattern by either the officer or the department in dealing with stress. A number of responses indicated no action on the part of officers and the department, even when the officer went on stress leave;

(9) There is clearly an under-use of counselling as an option in dealing with stress;

(10) The lack of support/management/leadership is clearly an area amenable to intervention, in comparison to fear for safety/physical threats, which may be a more intrinsic aspect of the job. The problem with the lack of support/leadership issue is two fold. First is that it is identified as a cause of stress. Second, when stress from other sources becomes an issue for the CO, access to departmental help is generally through supervisors or management;

(11) Officers believe that enhancing the social environment may be a way to reduce stress.

9.4.2 Reducing occupational strain data

Two further questions were asked of the COs. Eight lines were provided for the responses. Most responses were complex, involving a number of issues. Content analysis of the responses was conducted using the theme (as it emerged in single words, phrases, sentences, and paragraphs) as the unit of analysis (Minichiello, Aroni, Timewell, & Alexander, 1992). Given that the responses varied considerably in detail, inferences about the manifest content were required. The analysis therefore focused on the underlying or inferred meaning in the material (latent content) (Dane, 1990). 247 comments were received from the at work group, 14 from the off work group and 19 from the transfer group.

COs were asked: "How could the department reduce the pressures you experience at work?" Eleven common themes emerged in the suggestions of the COs. These were: training, management, communication/ feedback, support for COs, management out of touch, too much power for prisoners, working conditions, more staff, and promotion system. The most frequently cited suggestions were:

(1) Superiors should support officers more/ superiors often side with prisoners or give credit to what they are saying over officers (*f*=53). As one officer said:

> "The correctional officer works in a forgotten industry. The public do not want to acknowledge them. Politicians including the ministers, push them aside because it is an industry that does not pull votes. Head office do not want to know what is happening on the ground level as long as there is no trouble, out of sight is out of mind. The prisoners do not acknowledge the officers. Police are thanked by the public for arresting criminals but nobody wants to know about the people who look after this person for years later. For the constant danger and abuse we put up with we are paid the same as many a secretary would be paid";

(2) Regular meetings, feedback forums for rank and file officers/ let us know what is planned ahead of time/ act on our suggestions/ hear our input (*f*=51);
(3) Senior/superior staff should have an idea of the reality of a prison/ head office losing touch with prisons/ need to let officers give some input/ send HO staff to work in prisons for a while so they can see what its like/ expose decision makers to the end result of their decisions/ they are just 'fat cats'/ HO people should come out and visit the institutions/ some have never had experience in an actual prison (*f*=28);
(4) Prisoners get away with too much/ need stricter punishment/ need stricter rules/ prisoners are running the prisons (*f*=19);
(5) Consistency: well-defined work practices (*f*=19);
(6) More staff for safety (*f*=18);
(7) Better and more training (make fitness compulsory and therefore deductable! (*f*=18);
(8) Stop nepotism, promote/ employ staff who are capable of doing the job and have the skills, and have the skills, knowledge and qualifications to do the job (at all levels) (*f*=14).

Officers were also asked: "How could the department better reward good job performance and improve team spirit?" The ten most frequent suggestions were:

(1) Occasional thankyou or well done instead of only bad feedback/ constructive criticism/encouragement/written commendations (*f*=51);
(2) Allow opportunity for input/communication/meetings (*f*=37);
(3) Higher pay (*f*=36);
(4) Support for staff. ("Mid level management have to always expect their decisions to be countermanded by Management after the prisoner complains about the decision on punishment. There is not rock solid support from Management.") (*f*=33);
(5) Promotion on merit/length of service/stop nepotism (*f*=33);
(6) Head office staff to visit and mix/they make the rules but have no idea what our jobs are/spend time working in an institution (*f*=33);
(7) Compulsory team games, organised family functions (*f*=18);
(8) Training courses/on job training(*f*=16);
(9) A better rank structure-more ranks for more promotion (*f*=13);
(10) Introduce a performance bonus system or award system such as officer of the month awards for outstanding performance, but let the ranks elect, not head office (*f*=10).

9.5 Departmental data

A number of analyses were performed on sick leave and overtime data provided by the department to determine if there was any relationship between work patterns, practices, locations, hours worked and stress leave.

9.5.1 Sick leave and overtime data

Sick leave rates were compared against interstate correctional agencies. During the 1989-90 period South Australian COs showed higher rates of sick leave than Victoria, Western Australia, Queensland and Tasmania. During the 1990/91 period however, the absence rates

for the SA COs were less compared to Victoria, New South Wales, Western Australia (data not available from Queensland and Tasmania).

Internal departmental documents reported the average annual sick leave days per COs to be 9.3 in 1990/91 and 9.6 in 1989/90. In November 1988 the Government Management Board specified a benchmark of 5 days/full-time equivalent/year as an initial point of reference to determine whether an agency needed to evaluate sick leave rates. The rate was based on surveys by the Australian Bureau of Statistics 1987/88 and the Confederation of Australian Industry in 1983/84 which both produced a figure of 4.8 days. The sick leave rates for COs were nearly twice that rate. In comparison, non-custodial correctional staff showed much lower rates for the previously mentioned time periods (4.7, 6.2). It needs to be kept in mind however that COs work 24 hours a day, seven days a week in comparison to others in the department who typically work a forty hour week, with no shift work.

Table 9.31 *Average annual sick days for COs and all other staff, for COs who took stress leave and the total staff.*

Year	COs	All other staff	Stress leave COs	Total
1990/91	9.3	4.7	7.5	7.7
1989/90	9.6	6.2	7.2	8.3

As shown in Table 9.31 sick leave rates for COs who had been off on stress leave were lower rather than higher than the sick leave rates for all workers in the organisation, in the respective years. The reason for this may be that taking stress leave obviated the need to take sick leave.

Sick leave rates for the immediate financial year in which the stress claim was made were compared to the previous financial year, for all workers who had taken stress leave from 1986 to 1991. There was no evidence in the total stress leave sample that the level was significantly higher prior to taking leave than in the previous twelve months $t(235) = .92$, *ns*. Again, sick leave rates might be less than expected because the worker is on stress leave.

Looking at the sick leave rates for the previous financial year before the injury occurred showed that levels of sick leave were not higher for the stress claim group. These results are in contrast to other research (Toohey, 1994). Toohey found that the average leave for claimants in the year preceding the claims was 3.78 times more than the average leave for non-claimants in the year proceeding data collection. It is not clear why the results are different.

9.5.2 Overtime rates

To assess the possibility of change at an individual level, the data from each claimant during the financial year when the claim was lodged was compared against rates during the previous financial year. For reasons previously outlined the measure during the time period immediately prior to the stress leave is probably conservative due to the absence of the worker for part of the year. In the total sample no significant change was found $t(235)=1.21$, *ns*.

To assess whether the overtime level was higher for officers who had taken leave, data from COs was assessed in the financial year in which the injury occurred, and the twelve months of the financial year prior to the injury. In the first analysis, the average overtime and callback rates were collated for all officers taking leave during 1986 to 1991. Of the 39 possible comparisons (non-missing data and cases) 8 showed rates higher than all other departmental employees (20%).

Given that the injury might occur only part way through the year, the overtime rates might be less than expected because the worker is on leave. To account for this difficulty the time frame constituting the financial period before the injury was compared against the organisational sample. If the level of overtime was higher during this time it might be assumed that working long hours may *eventually* lead to occupational strain. The number of possible comparisons that could be made was 30, and in only 7 cases (23%) were the levels of overtime higher for the stress claim group.

Correlation between sick leave and overtime. There was no significant correlation between overtime and sick leave ($r(233)$ =.03) in stress leave workers. There were no discernible patterns in either overtime or sick leave that might predict whether or not an officer will go on stress leave.

Chapter 10

DISCUSSION

10.1 Introduction

The aim of this Chapter is to discuss the results of the CO study. First, consideration is given to the representativeness of the sample. Then the level of strain the COs experience is considered in relation to other samples. Next the research findings will be discussed, specifically the variables that seem most important in predicting strain in COs.

10.2 Representativeness of the sample

Inwald (1982) warned that in studies of CO stress, those who want to politicise the process or who are having the most difficulty with their jobs may self select. This concern was also expressed by management. It was therefore very important to ascertain the representativeness of the sample, to ensure that the findings of the study were generalisable.

The response rate for COs was marginally less than 50%. This is similar to other studies of COs. However the low response rate leaves some doubt about whether those who responded constituted a representative sample. The representativeness of the CO sample to the population was established, for both length of employment and gender.

The demographics of the CO sample appear to mirror the demographics of another Australian sample of COs (Morrison et al. 1992) except on two measures. For the present sample, the COs had typically worked less than the Morrison sample, and were more likely to belong to a lower rank. In both studies it was shown that levels of strain were higher among the more experienced workers, and workers with a lower rank. On the one hand, the results might underestimate the level of strain, because the present sample had less experience than the other sample. On the other hand, the results may overestimate the level of strain as the present sample generally had a lower rank than the other sample. Of course, the effect might be a balancing of these biases so that the overall result is relevant to the broader CO population.

A limitation of this comparison is that officers in the Morrison study may have also self-selected for one reason or another. But further evidence on the dependent measures, showed that the levels of GHQ-12 were similar to other CO samples both nationally and internationally.

On the basis of all this information and the observation that there were no differences between early and late respondents on levels of strain, it may be concluded with some confidence that results obtained are generalisable to the South Australian CO population and to the wider CO population.

10.3 Level of strain

Confirming the notion that the role of the CO is a stressful one, the results showed that the level of reported psychological distress (GHQ-12) for COs was higher than other occupations including psychiatric nurses, teachers, and army officers. Further, the level was higher than for a national Australian sample, and a U.K. normative sample. The results also showed that the high level of psychological distress was not due to a unique sample of COs. GHQ-12 scores were similar for other COs in Australia (Webster et al., 1983) and in New Zealand (Voges et al., 1982). Levels of job satisfaction were in fact lower than levels reported for COs in the U.K. and U.S., and significantly lower than for two large samples of blue collar male workers in the U.K. (Warr, Cook, & Wall, 1979).

Sick leave rates for COs were higher than for non-custodial officers in the same department, but were similar to other Australian correctional agencies. Sick leave rates were also nearly twice the rate of an Australian benchmark of 4.8 days (FTE) per year. Moreover, the level of stress claims for COs was higher than for any other public sector agency (Police Department, Family and Community Services, and Education Department) in South Australia, during the 1990-91 period, with a rate of 57 claims per 1000 employees.

The question of whether the level of stress claims accurately reflects the level of stress in the organisation needs to be considered. The convergent validity of the stress leave measure used in the study, was verified by its significant association with psychological distress, job satisfaction, physical health symptoms, work-home conflict, job change indications, and visits to the doctor. This suggests that high levels of strain underlie the high incidence of stress leave in the Department of Correctional Services compared to other government departments. High levels on any of these self-report measures would also be associated with higher levels of stress leave. A problem with the stress leave measure is however, that those selecting themselves for stress leave may subsequently report higher levels of stressors/ stress (attribution theory) (cf. Kasl, 1986). Given the cross-sectional nature of the study, this alternative explanation can not be ruled out.

To ascertain what the observed high levels of strain could be attributed to, the independent measures were assessed against a number of benchmarks. The comparison excluded the specific work stress measure, because it was idiosyncratic to the CO work environment. For the general work stress measure (the Work Environment Scales) COs reported many differences on a range of variables in comparison to a large work sample (Moos, 1986). The direction of these differences was generally in the direction shown in the literature to be linked with higher levels of strain. Specifically, lower levels of involvement, autonomy, support from supervisors and peers, innovation, and task orientation were found in the CO sample compared to a large work sample. One exception was work pressure. Although it was significantly less than the comparative sample, high levels rather than low levels were associated with high levels of strain.

Another possibility was that the level of strain might be attributable to high levels of trait anxiety or lifestyle risk factors. However, compared to other working adults of similar age

(Spielberger et al., 1980), the level of trait anxiety for both males and females was somewhat lower. This result is consistent with Voges et al., (1982) who showed that the level of anxiety among a large sample of New Zealand COs, was also within the normal range. They noted that the level of anxiety, measured by the Neuroticism Scale Questionnaire (Scheier & Cattell, 1961) was slightly higher than average, but given that a measure of general stability was normal, they concluded that occupational stress rather than personality factors would account for this. Additionally, new evidence from a study undertaken in Queensland, showed that COs had a low mean anxiety score. Using the same measure as the current study the Queensland COs were significantly higher however than the South Australian COs (Callan, 1996). Overall, these results suggest that trait anxiety is not a main contributing factor to higher levels of strain symptomatology and stress leave compared to other occupational samples. The level of trait anxiety could however explain different levels of strain within the sample.

Where possible levels of personal risk related to smoking, alcohol consumption and exercise were compared to a national sample. COs were more likely to smoke in comparison to other Australians. Although smoking was not linked with any measure of strain, it is a recognised risk factor for cardiovascular disease. Moreover, level of smoking was highly correlated with the use of smoking as a coping mechanism to deal with work worries, suggesting that it could be an outcome of a stressful environment rather than a lifestyle behaviour. For both alcohol use and exercise levels, no deviations from national norms were noted that could account for elevated levels of strain in the COs. This evidence corroborates Webster et al., (1983) findings of non-elevated levels of alcohol use in another Australian sample of COs.

Together these findings (work environment, control/demographic, personal and lifestyle factors) emphasise the importance of the work context rather than personal disposition or risk factors that might underpin the high levels of strain in the CO occupation, compared to others.

10.4 Relative influence of the independent measures

It is difficult to draw conclusions about the relative influence of independent variables on the outcome measures. In each regression analysis the relative percentage of contribution to variance showed in most cases that the demographic set accounted for the largest variance in strain followed by trait anxiety, the work environment and then coping. However the order of entry influences the proportion of variance available, and so variables entering the equation later would of course have less variance to account for. Each variable set also contributed unique variance [standardised regression co-efficients (beta values) reported in the final regression equations and B values in the logistic regressions] in the analyses. Demographic variables accounted for unique variance in six analyses, trait anxiety contributed to five models, work environment measures contributed to six analyses and coping contributed to six. It is difficult to maintain that any one set of variables is more important than the others. Rather, the model of work stress for COs needs to be multifactorial and include a range of variables including, demographics, personal characteristics, work environment and coping.

10.4.1 Length of employment

Of all the demographic variables examined in the study, length of employment was most strongly related to all outcome measures. This important finding supports previous research findings (Kalimo, 1980; Lasky et al., 1986; Morrison et al., 1992) of COs. It provides support for the proposition that (1) the work environment is stressful and the effects accumulate over time; and/or (2) that maladaptive coping or behaviour styles develop over time and these are linked to strain; and/or (3) the most affected workers stay on because of a lack of job opportunities else where. It does not support the hypothesis that workers adapt expectations or needs or develop experience and abilities, which act to reduce the level of strain over time (Argyris, 1957; Blau, 1981; Hulin & Smith, 1965; Schuler, 1980). Examination of the scatterplot between length of employment and measures of strain showed no evidence of a curvilinear relationship (cf. Lombardo, 1981; Toch & Klofas, 1982; Rogers, 1991).

If length of employment is an approximate indication of prison work socialisation (Jurik et al., 1987) is there any evidence from the study that officers on the job for longer periods of time develop a "working personality"? There was no relationship with intolerance of ambiguity, a tendency to show rigid categorical thinking and outcome measures, nor a relationship between intolerance of ambiguity and length of employment suggesting that rigid thinking did not develop or increase over time.

There was however a correlation with trait anxiety so that the reason tenure may be linked to strain is because officers who have been on the job the longest have higher levels of trait anxiety. By definition, trait anxiety should not theoretically fluctuate readily with external changes. However, Karasek and Theorell (1991) propose that trait anxiety might indeed be a conditioned outcome of a stressful work context. Other possible explanations are that leaving the organisation is an adaptive coping ploy of lower trait anxiety workers, or that officers with higher levels of anxiety may have been recruited in the past. However these explanations are insufficient because tenure contributes unique variance to each model which also contains trait anxiety. Trait anxiety would remove length of employment from the final equation if the relationship was solely due to shared variance.

Another observation that adds support to the idea that the CO environment is a chronic stress environment and this leads to high levels of strain, is that workers who had been on the job the longest, were *less* likely to be shift workers, and to have a *higher* job classification, both demographics typically associated with less strain. However, service length and age were also correlated. Age was correlated with shift work and classification, in the same way that service length was. Despite these similarities age and length of service also operated independently, both unique contributors to levels of work-home conflict, job change indications, and job satisfaction. Again the stress chronicity hypothesis is supported.

Finally length of employment was also linked with coping responses. Specifically COs with longer service were more likely to use emotional suppression, less likely to use physical exercises, and less likely to use a direct action strategy including seeking clarification, feedback, and support from other officers. This suggests that a particular way of dealing with the work environment does develop over time, perhaps endorsed by the correctional

environment subculture. These directions in styles of coping, in turn, are related to adverse effects for the worker.

There was no difference between short and long term serving officers in their current perceptions of the work environment, only in how they coped. It does not seem then that COs changed their perception of the work environment over time, only how they dealt with it. It appears therefore that coping may have its basis (at least in part) in job socialisation rather than being a stable trait-like behaviour.

It is possible that longer serving officers, may have been previously selected for the job, in ways that relate to their current use of coping. However, as far as the measures of this study go, variance can still be uniquely attributed to length of service, even with trait anxiety and the coping styles in the regression equations. Again the results suggest the cumulative effect of previously experienced job stressors.

10.4.2 Level of education, reason for taking the job, and previous defence work experience

At the commencement of the study there had been no systematic attempt by the Department to professionalise the role of the CO. The study did not evaluate custody vs rehabilitation attitudes of officers regarding the proposed future role of the CO in the Department. Level of education and motivations for taking the job as CO however are both individual factors that may impinge upon the level of strain officers experience. The literature has specifically assessed this in relation to levels of job satisfaction.

There was no association between level of education and job satisfaction. This finding does not support the *status inconsistency perspective*, that education may exceed the functional requirements of the job and lead to dissatisfaction (Jurik et al., 1987; Rogers, 1991).

Personal motivations for taking the job were however associated with other strain indicators; job change indications and stress leave. Specifically officers who took the job in order to transfer to other government agencies were more likely to show job change indications, than officers for whom this motivation was not important. These officers also showed higher levels of job dissatisfaction, but in the context of other important variables this relationship did not remain significant.

Officers who took the job because of an interest in security or guard work were less likely to take stress leave compared with officers for whom this motivation was not important. This may reflect the possibility that the kind of work expected and experienced by these workers was commensurate. In other words, the work of the CO in reality was like security or guard work. Therefore there was some evidence that personal motivations for taking the job in the first place could have important consequences with respect to levels of strain or taking stress leave.

Whether level of education would influence personal motivations for taking the job was also considered. Officers with higher levels of education took the job because promotional opportunities were considered important. Consistent with other research (Rogers, 1991) there was no support the view that more educated officers would select their position because of a preference for human service work. However, Jurik et al (1987) found that the more educated

officer showed more interest in the human service work than in security work (*reform perspective*). In making this comparison however, it must be pointed out that in the present sample, only 9% held a degree or diploma, whereas 77% of the Jurik et al. (1987) sample held a diploma or degree.

Overall the present findings provide the strongest support for the *work-environment model* which proposes that environmental conditions, rather than individual variation due to education level and reason for taking the job, are important determinants of job satisfaction. However other personality variables (age and trait anxiety) impinge on job satisfaction. Therefore again it must be concluded that individual characteristics and environmental conditions are both important determinants of job satisfaction.

With regard to the impact of previous employment in defence services, it was found that those who had this experience were more likely to report higher work-home conflict and stress leave, than workers without this experience. From the zero-order correlations it can be seen that workers with defence experience also took the job for job security rather than for other reasons. While it is tempting to conclude that higher levels of strain could be due to underlying personality difference, or initial motivations for taking the job, it may also be that previous stressful experiences make these workers more vulnerable.

10.4.3 Location

Location effects made significant contributions to the regression equations but they did not contribute unique variance. This means that their effect is mediated by other variables; specifically, trait anxiety, work environment, or coping variables.

10.4.4 Shift work

Shift work was only associated with work-conflict, and the composite measure of strain. There was no difference between shift workers and non shift workers on any physical health measure (except hay fever) in contrast to the literature [including heart disease/trouble (e.g. Alfredsson, Kasasek, & Theorell, 1982), or gastrointestinal symptoms (Duchon & Keran, 1990). In fact, shift workers reported fewer of the following symptoms: hearing problems, upper back problems, arthritis, dizziness and other illnesses.

Recall that COs who had been on the job the longest and were older were generally not involved in shift work and that years on the job and age were correlated with a number of health problems. The confounding between years on the job, age, and shift-work could account for the counter-intuitive findings. Problems that are normally noted in the literature may have been mashed because the non-shift workers comprised officers who had been on the job longer, and were older. To discount this possibility a series of regression analyses were undertaken controlling for the potential confounding effect due to length of service, and age. However shift work was still only significantly associated with work-home conflict and the composite measure of strain. It is possible, as others have suggested, that those who have trouble adapting to shift work may leave the organisation. If selective attrition of this nature has

occurred this would result in shift workers showing lower levels of strain than would be theoretically expected.

Sleep difficulties were listed as the most frequent physical health symptom reported in the last month for all officers, *not just shift-workers*. Therefore sleep disturbance could be used to identify officers at risk generally, not merely to index the level of adaptation to the shift system as recommended by Lavie (1989). The findings support the notion that the relationship between shift work and sleep difficulties is not the problem. Rather, time conflict/concerns associated with shift work and work schedules are a major source of strain for COs. As noted by Froberg (1981), disturbances to family and social life that may result from shift-work have more serious consequences than fatigue from shift-work. This concurs with Staines and Pleck (1984) who found that non-standard work schedules were associated with reports of higher levels of family conflict, and poorer levels of family adjustment.

10.4.5 Work environment

A number of work environment sources (in order of importance), including work-schedule concerns, management issues, role ambiguity, job pressure, involvement, staff relationship problems, inmate problems, autonomy, and role conflict accounted for significant variance in all strain measures. These relationships held after controlling for trait anxiety, which has been shown to inflate the relationship between self report measures of the work environment and strain (see Chapter 6). Further, the work environment sources continued to account for unique variance in strain, despite the use of particular coping responses, which might also be linked with level of strain and stress leave.

The *specific* sources of work stress for COs ranked in order of importance were management issues, staff relationship problems, relationships with inmates, role ambiguity, role conflict, and work schedule concerns. In ten leading areas nominated by officers as causing the greatest concern, six were later shown by factor analysis to load on the factor "management issues" (poor communication with senior officers, lack of appropriate management by senior institutional staff, lack of opportunities to defend complaints from inmates, remoteness of head office and need to justify actions). Qualitative data provided by the COs who had taken stress leave also corroborates this key *perception* that management issues are the main source of stress for COs. This is also reflected in the large number of suggestions made by the officers to reduce the pressure they experience at work. Most of these suggestions targeted management issues. This triangulation provides some support for the internal consistency of the data.

The present study, like Morrison et al., (1992) advances previous research methodology in the CO stress as it used hierarchical regression analysis in a large sample and controlled for possible contaminating variables including demographic variables and trait anxiety (cf. Gernstein et al., 1987; Voges et al., 1982). The results showed that management issues were significantly associated with more outcome measures, (job dissatisfaction, physical health symptoms, work-home conflict and stress leave) than inmate concerns, (physical health symptoms and work-home conflict). The finding that management issues accounted for more

strain/stress leave than did inmate problems, in the context of this improved methodology, may reconcile previous correctional officer literature that has produced mixed results.

While some previous research has suggested that "relationships with inmates" is the primary source of stress for officers (Rutter & Fielding, 1988), and is linked with strain (Gernstein, 1987), the present study showed that concern with management (see also Voges et al., 1982) is more important. This is not to say that inmate concerns are not important; they are simply less important then management issues.

The possibility of unconscious denial of the real cause of stress can not be ruled out (Rutter & Fielding, 1988). Another possibility is that COs focused on features of their work environment that they saw as modifiable. Overall, the evidence is consistent with the conclusion that organisational/ administrative problems are more important in the prediction of strain outcomes and taking stress leave for COs, than the intrinsic nature of their work, dealing with inmates.

The importance of the overall work environment is underscored by the significance of the measures in the regression models, even after control for a wide range of demographic variables and trait anxiety. The significant overall effect of the work environment on levels of strain supports other recent findings (Karasek & Theorell 1990; Morrison et al. 1992; Parkes 1990).

10.4.6 Coping

As noted earlier there is some evidence that coping styles develop over time. This is in accord with Newton's (1989) view that coping styles may be in part conditioned or are products of particular environmental contexts. If chronic stressors summate or accumulate over time, the effect of which can not be fully determined in a cross-sectional study, then it could be expected that less functional behaviours would develop as a result of being unable to *prevent* the build up of stress.

A number of findings support this proposition. First, length of employment was associated with the use of coping responses which were found to have negative outcomes (higher suppression, less direct action). This is consistent with other research that has shown that as stress levels increase, individuals discard problem-focused coping strategies and adopt emotion-focused strategies (Kahn et al., 1964; Latack, 1984).

Second, a stronger correlation was found between work stress (composite specific work stress measure) and emotion focused coping, in comparison to work stress and problem focused coping. This is in accord with the view that as work stress increases the relationship with emotion focused should become stronger (Anderson, 1977; Kahn et al., 1964; Latack, 1984: 1986). These results are not consistent with the view that learning and knowledge of the job would lead to less dysfunctional behaviour (Parasuraman & Cleek, 1984; Schuler, 1980).

Thirdly, there was a relative predominance of emotion focused coping versus problem focused coping. The same result was found in a recent study of COs in Queensland. Callan (1996) using the same coping instrument prepared for this study found that problem focused strategies were used much less frequently by COs than emotion focused coping strategies.

Folkman and Lazarus (1980) found that in situations of unavoidable high stress, or where previous attempts at changing the source of stress had failed, greater emotion focused coping resulted. It was established that the level of autonomy was significantly lower for CO work compared to a general work group. The perception of the COs that they would have little influence over changes in the work environment, could mean that emotion focused coping is the most *resourceful* (Carver et al., 1989; Folkman & Lazarus, 1980). Some researchers have even gone so far as to argue that coping at the individual level is ineffective in dealing with work stress when it is embedded in authority systems of formal organisations (Pearlin, Lieberman, Menaghan, & Mullan, 1981). The higher use of emotion focused coping comparative to problem focused coping by COs may therefore reflect learned palliative attempts by officers to deal with the situation, rather than action attempts to modify the source of stress.

On balance a reasonable conclusion based on the coping results is that the work environment for COs is stressful, and is of a chronic nature, and the most frequently used coping styles are not directed to changing the work source, but rather involve emotion focused strategies.

The study of coping responses extends the research of the previous authors (Morrison et al. 1992; Voges et al., 1982) who have not considered the impact of coping in their models of CO stress. This study showed that coping, was significantly related to levels of strain regardless of the level of work stress officers reported. Exploratory analyses of work environment and coping interactions, provided no evidence that coping would moderate or buffer the work stressor-strain relationship. Rather, depending on the type of coping used, a detrimental or beneficial effect on strain was noted.

Emotion focused coping. Of the emotion focused coping strategies, emotional suppression and symptom management (smoking and drinking) showed detrimental effects, disengagement showed positive effects and avoidance, physical exercise, and religion showed no consistent effect. Higher levels of the use of emotional suppression and symptom management were associated with higher levels of strain consistent with Parasuraman and Cleek's (1984) hypothesis, that emotion focused coping would be positively linked with strain.

The specific effect of suppression however was not consistent with some other research findings. Parkes (1990) for example found that high levels of suppression were related to low GHQ-12 scores. The positive potential of the strategy was also noted by Vaillant (1976) who, in a 30-year longitudinal study, found that several different aspects of adult adjustment, including career success, were positively predicted by suppression, leading to the conclusion that "the capacity for suppression tags an important facet of mental health" (p. 540).

The difference in findings could be explained in terms of the different methodology employed (situational vs. dispositional), or in terms of the operationalisation of the coping construct. Indeed Parkes (1990) contends that the favourable role of suppression noted in her investigation could be related to the adaptive components of the suppression construct (restraint, compromise, and continuing with immediate activities regardless of difficulties).

The measure used in this study had a fairly narrow focus, "holding back emotions and trying not to let the stress show" and "using home as a refuge". It was similar to a measure "emotional discharge" defined as sharing worries and concerns, used by Ashford (1988) to examine individual strategies for coping with organisational transition. She found that emotional discharge (vs suppression) had a significant direct effect on strain prior to organisational transition and was associated with reduced strain six months following the change. Her conclusion, that it is detrimental to hold the emotions back is consistent with the result reported here.

A number of other reasons may be offered for differences in findings between the studies. The emotional distress attached to CO work may be of a greater magnitude. Indeed the GHQ-12 scores for COs were significantly higher than those reported for the student teachers (Parkes, 1990). Perhaps hiding such strong emotions, results in a negative downward spiral, leading to ever increasing strain. Officers may have *little control over emotional expression* because of the "working personality" required of them, compared to the student teachers. Several researchers have reported evidence concerning the macho, tough, authoritarian style of the CO (Cheek & Miller, 1983), which is at least in part a result of socialisation (Crouch & Marquart, 1980; Skolnick, 1966). Emotional expression in correctional officers is probably discouraged by peer pressure. It is not consistent with the "working personality" required of them.

Finally, Parkes examined student teachers who had only worker for two months, and therefore the short term palliative effect of emotion focused coping was probably measured. The present study more accurately reflects the situation for workers more experienced with the organisation and its culture, and more familiar with their typical responses to stress. Taking these points together the conclusion that emotional suppression does have negative consequences in the long term seems plausible.

Symptom management, smoking or drinking to cope with work worries, was also associated with higher levels of strain. Even when COs used these strategies they did not appear to reduce levels of strain. The direct harmful effect of emotion focused coping is consistent with the bulk of the literature (Callan, Terry, & Schweitzer, in press; Israel, Schurman, & House, 1989; Parasuraman & Cleek, 1984).

In contrast to the detrimental direct effects of these emotion focused coping responses, one emotion focused strategy, disengagement was associated with lower levels of strain. The results here support the idea that disengagement is a functional strategy because it showed beneficial effects on strain. High use of the strategy was associated with lower levels of GHQ-12 scores, physical health symptoms and work-home conflict. It could be referred to therefore as "functional disengagement".

Higher levels of disengagement were associated with lower levels of TA, suggesting further favourable attributes of the behaviour. In contrast, other studies have found TA to be positively associated with emotion focused coping (Parasuraman & Cleek, 1984). More specifically, Carver et al., (1989) found high TA subjects more likely to disengage. They therefore described mental and behaviour disengagement as dysfunctional and argued that behavioural

disengagement was reflected in phenomenon such as *helplessness*: "In theory behavioural disengagement is likely to occur when people expect poor coping outcomes" (Carver et al., 1989, p. 269).

Although disengagement may be an outcome of helplessness, this study suggests that the behaviour improves, rather than diminishes, psychological and physical health. Moreover, its link with reduced work-home conflict is important from a preventative perspective given that the job is expected to have adverse effects on the home life of the CO (Long & Voges, 1987).

What is interesting about this style compared to other emotion focused styles, is that in response to work worries and concerns workers say they do this and it has beneficial effects. It provides some confidence that workers can do something about chronic work stress, to reduce its deleterious effects. From an organisational perspective, however, it may not be a desirable outcome, because the energy and interests of the worker are being channelled outside of the organisation.

Problem focused coping. Two problem focused strategies were examined; direct action, and action focused resource. The direct action strategy showed beneficial main effects with job satisfaction only, supporting previous research findings (Bhagat, Allie, & Ford, 1991; Latack, 1986). Not all research is consistent on this relationship. Contrary to their expectations, Parasuraman and Cleek (1984) found that direct coping in middle level managers failed to have beneficial effects on job satisfaction or felt stress.

Action focused resource was positively associated with physical health symptoms, and stress leave. The direction of this relationship was not expected because the use of organisational resources for coping theoretically should lead to reduced strain. It probably means however that workers seek help from the organisation only when their situation is bad enough and leave is inevitable or recommended. It is a positive observation in one way because at least the workers were making use of organisational resources. On the other hand, use of the resource was not linked with reduced levels of strain.

Together these results show very little support for the problem focused direct effects hypothesis, similar to other empirical studies (Israel, House, Schurman, Heaney, & Mero, 1989; Parasuraman & Cleek, 1984; Shinn, Rosario, Morch, & Chestnut, 1984). No support was found for the moderating effects of problem focused coping (Ashford, 1988; Shinn et al., 1984). This is in contrast to other research that reported moderating effects (Callan, Terry, & Schweitzer, in press; Bhagat et al., 1991; Mitchell, Cronkite, & Moos, 1983; Parkes, 1990).

In summary, consistent with other studies (Bhagat et al., 1991; Parasuraman & Cleek, 1984) the main effects model seemed appropriate for representing the relationships between work environment, coping and strain, rather than an interactive model (Parkes, 1990). Overall it is evident that *individual* coping does plays an important role in the work stress-strain process, but that it is not always effective. The findings suggest that some forms of coping (emotional suppression, symptom management) may be detrimental while others are beneficial (disengagement, direct coping). The coping set showed direct effects for each outcome

measure, with size of variance similar to other studies (Parasuraman & Cleek, 1984; Parkes, 1990).

10.4.7 Trait anxiety

Trait anxiety was included in the analyses to 1) control for its potential confounding effects on the relationships between self-reported measures of the work environment and coping on the one hand, and self-reported dependent measures on the other (Brief, Burke, George, Robinson, & Webster, 1988), and 2) because of its strong association with measures of strain (Payne, 1988).

As expected TA showed direct effects with *all* outcome measures. This finding is important because other studies have generally not found measures of negative affectivity to be linked with objective indicators of strain. The use of objective measures of strain in stress research has been recommended by Watson, Pennebaker, and Folger (1987) to overcome the possibility of confounding effects due to NA, and to assess the stressor/stress-strain relationship further. The study found associations between TA and self-reported "visits to the doctor" and "stress leave". To the extent that these measures are "objective", this is evidence more generally that NA is a personality factor of substantive importance in the stress-strain process. Notwithstanding, NA is likely to be a nuisance factor requiring statistical control in studies using subjective measures of stressors/ stress and strain (Brief et al., 1988; Dollard & Winefield, 1995; Parkes, 1990).

The evidence tends to support the overall conclusion that workers with high TA tend to report high levels of strain regardless of the level of stress from the environment (Morrison et al., 1992; Parasuraman & Cleek, 1984; Parkes, 1990). The results are also consistent with Watson et al.'s (1987), arguments that NA is generally unrelated to reactivity.

Consistent with Watson and Clark's (1984) definition of NA as a disposition to experience negative affect across time and situations, Edwards (1988) proposed that one mechanism underlying NA may be the active selection/enactment of coping strategies that maintain a customary level of affect. Rather than selecting coping strategies that maximise well-being, the individual selects coping strategies that marginally improve current well-being and preserve an affective state consistent with NA. To some extent this might apply in the current study. However it is also clear that socialisation processes occur in the selection/enactment of the strategies. In other words, coping is not a strictly personal phenomenon.

10.4.8 Social support

Given the growing literature (see section 4.6) on the important role of social support in the work stress process, analyses were specifically conducted to assess whether social support would moderate the relationship between a composite measure of both work demands and strain. Social support showed only direct effects with a composite measure of strain confirming previous research findings of a direct effects model of strain (Ganster, Mayes & Fusilier, 1986; Kessler, Price, & Wortman, 1985) rather than a buffering model (Kirmeyer &

Dougherty 1988; Kobasa & Puccetti, 1983). Some research has found no consistent beneficial effect, either interactively or as a main effect (Morrison, Dunne, Fitzgerald, & Cloghan 1992; Parkes, 1990). The buffering model has been viewed as critically important because it may indicate that social support could alleviate the detrimental effects of work stressors. The present findings, however suggest that support combines additively with work environment sources to either increase or decrease strain, depending on the level of support. In other words, officers are affected by low support in much the same way as by other sources of work stress.

10.5 Summary and conclusions for the CO study

The aim of the study was to ascertain aspects of the work environment, including external forces, key personal factors, ways of coping with the job, aspects of lifestyle/health and fitness and work practices that have an adverse effect on Correctional Officers. A questionnaire was developed to assess each of these areas, following extensive consultation with members of the Department, the Public Service Association, the Correctional Officers' Legal Fund, health professionals and social scientists, as well as a thorough examination of the relevant literature.

On the basis of the information obtained, a multiple-source model of stress was proposed. Different measures of strain were used including psychological distress, physical health symptoms, job dissatisfaction, work-home conflict, job change indications, visits to the doctor, and taking stress leave.

Four hundred and nineteen officers employed by the Department (including 30 officers on stress leave) and 24 officers who had left the Department following stress claims responded to the questionnaire. A further eight were received after the closing date.

A number of relations were drawn from the study:

(1) Financial concerns were significantly correlated with measures of strain;
(2) Lifestyle behaviour, such as smoking, use of alcohol, drugs, and exercise level were not associated with strain;
(3) Overtime hours worked were not associated with levels of strain;
(4) Educational level of officers was generally unrelated to levels of strain;
(5) Overtime and sick leave patterns could not be used to predict stress leave;
(6) Trait anxiety contributed substantially to the variance in levels of strain;
(7) Environmental stressors arising from the job also made significant contributions to strain; Specific identification of environmental stressors is difficult as their importance changes according to the measure of strain being predicted, and because of correlations between environmental stressors. In fact, in a final model proposed to identify sources for prevention, all environmental stressors made some contribution in predicting strain. Accordingly, intervention in all areas should have favourable outcomes for the officers;
(8) Some problem areas could be identified though, including work schedule problems, job pressure, lower involvement and work-role ambiguity. Management issues feature more prominently than inmate issues;

(9) The observation that years on the job is positively related to strain is consistent with the concept that experience of work stress accumulates over time. Officers on the job the longest, however, also used coping strategies found to be detrimental to health;

(10) For all officers, coping with work concerns by suppression of emotions and using home as a refuge was associated with high levels of strain;

(11) Alternatively, officers who used a disengagement coping style, mentally separating work from home and increasing outside work activities (not necessarily physical) showed lower levels of strain than officers who did not use this strategy;

(12) Support provided from supervisors, peers and family/friends acted to reduce the level of strain for officers;

(13) Lack of support from the Department was presented most strongly by officers as the major cause of stress.

The results supported a model conceptualising multiple sources in the development of strain in COs. This led to the primary conclusion that to reduce the levels of strain in the CO, joint action needs to be taken by both the officers and by the Department.

Chapter 11

A TEST OF THE DEMAND-CONTROL/SUPPORT MODEL IN CORRECTIONAL OFFICERS

11.1 Introduction

The CO study was guided by the imperatives of the organisation rather than by the theoretical interests of the researchers. While the study was not conceived entirely using the Demand-Control/ Support (DC/S) model, the utility of the model in explaining varying levels of strain between occupations, and within occupations, and informing intervention is of interest given its current dominance in the occupational stress field.

The next analysis is concerned with how useful the DC/S model is for predicting individual levels of strain *within* the CO occupation. The DC/S model has been criticised for not being very useful in workplace assessment and intervention studies within occupations (Kristensen, 1995; Schnall, Landsbergis, & Baker, 1994). While multi-occupational studies seem to provide support for the model (Schnall et al., 1994) these studies are based on the assumption that job characteristics are invariant within occupations. Karasek argued that only limited support for the theory could be found in homogeneous samples because of limited variance on the independent measures in a single occupation. On the other hand, Ganster & Fusilier (1989) argued that analyses done at an occupational level are probably just "too crude in their neglect of so much variability in job characteristics within occupations" (p. 263). Furthermore, the presumption of variability in job characteristics is "the only basis for us to hope that we could intervene (e.g. through job redesign) to make the worker's job less stressful" (Ganster & Fusilier, 1989, p. 263). Therefore, it is important that DC/S theory is able to predict differences in level of strain between individuals within the same occupation.

Choosing more homogeneous samples with respect to occupation could provide a more adequate test of the model (Ganster, 1989). An advantage of within occupational analyses is that they can control for a range of potentially confounding variables which have encumbered epidemiological studies (Spector, 1987b).

The aim of this analysis was to assess the utility of DC/S theory in accounting for individual differences in level of strain in a homogenous sample (COs). Specifically the DC/S model was tested using those measures derived in the study most consistent with the operationalisation of the model constructs. The purpose was to assess whether differences in level of strain within the occupation could be predicted by defining CO jobs along the three dimensions (demand, control, support).

It was assumed that variation on the job dimensions would be sufficient to test the DCS. Certainly previous research of COs has proceeded on this basis (Morrison et al., 1992).

Drawing from the background of Chapter 4, the following specific hypotheses were formulated:

(H1) "that 'high strain' CO jobs are associated with higher levels of strain (psychological distress, job dissatisfaction, physical health symptoms, work-home conflict, job change indications, stress leave, and visits to the doctor) and passive coping than other CO jobs" (residual strain hypothesis)

(H2) "that 'active' jobs are associated with higher levels of job satisfaction and active coping than 'passive' jobs" (activity level hypothesis)

(H3) "that social support modifies the effect of high strain jobs on strain indicators" ("iso-strain" hypothesis).

Finally, on an exploratory basis the cognitive model of occupational stress was assessed against the DC/S model by comparing the percentage of variance accounted for by "the subjective appraisal of the work environment" versus the more "objective work environment".

11.2 Method

11.2.1 Measures

The following measures described in Chapter 8 were used: demographic/control variables; personal disposition variables; WES subscales, pressure (demand), autonomy (control), and support (co-worker and supervisor); active coping, and passive coping (emotional suppression).

Subjective work stress measure. The assumption of the cognitive model is that it is not the actual source of stress but the appraisal of it that is important in determining concomitant strain. It would therefore make sense theoretically to add together all stress sources, appraised similarly, to provide a composite measure of stress. The measure of specific work stress for COs was used for this purpose (see Chapter 8). The addition of stress items has been noted in other research examining the impact of coping on appraised stress (Ashford, 1988; Frone, Russell, & Cooper, 1991; Wheaton, 1983). The alpha coefficient was .97 for the composite work stress measure.

11.3 Results

11.3.1 Relationship between job characteristics, strain and coping

Prior to assessing the relationship between job characteristics, strain and coping, each of the independent measures was dichotomised at the sample median (demands=3, control=4, co-worker, supervisor support=3). In this way the quadrants shown in Figure 4.1 were reproduced within the occupation at high and low levels, of co-worker support (Figure 14.1) and supervisor support (Figure 14.2).

Hierarchical multiple regression analysis has been recommended as the most appropriate method for testing interactions in research of this kind (Bromet et al., 1988; Cohen & Cohen, 1983; Evans, 1991; Parkes, 1991; Stone & Hollenbeck, 1989; Wheeler & Frank, 1988). It was used to examine the extent to which demands, control and support and their interactions, explained variance in strain. The conventional (multiplicative) interaction term predicts a continuously accelerating increase in strain with increases in demands, even at high levels of control (Sauter, 1989). Logistic regression was used for the dichotomous dependent measures (stress leave and visits to the doctor).

Consistent with previously reported regression analyses (see Section 9.3.6), a range of demographic variables were entered at the first step. As the work environment measures were self-reported, to control for the potential contaminating effect due to personal disposition variables, trait anxiety and intolerance for ambiguity were entered at the second step. At the third step, the work environment measures, demand and control, were entered, followed at the fourth step by their interaction. At the fifth step, support measures, supervisor support and peer cohesion, were entered, followed at the fifth step by two way interactions between the work environment measures and the support measures. To test the possibility of a higher order interaction, the three way product terms (Demand X Control X Support) were also entered at this step. (As a variation of this, three way interaction terms were entered in a further step, and showed no significant effects).

Table 11.1 and 11.2 continue from Table 9.20 reported in Chapter 9, at the third step (after control for demographics and personal disposition). When the R^2 change (Δ) for the variables set was significant (F change) then the individual effects were examined (t-values). Beta values are displayed for the complete model.

After accounting for a range of control variables (demographic and personal), work environment variables (demands *and* control) contributed significantly to R^2 in predicting GHQ-12, job satisfaction, physical health symptoms, work home conflict, and active coping. For the strain measures, higher levels of demand and lower levels of control were associated with higher levels of strain.

For active coping higher levels of demands (β=2.95, p<.003) and higher levels of control (β = 3.78, p<.001) were associated with higher levels of active coping. Control only was associated job change indications, high levels of control associated with lower levels of job change indications. Control alone predicted levels of emotional suppression at work (β = -5.14, p<.0001).

Direct effects were also noted for both support measures. For dependent measures GHQ-12, physical health symptoms, and job satisfaction, higher levels of co-worker support was associated with lower levels of strain. Supervisor support was only associated with work-home conflict.

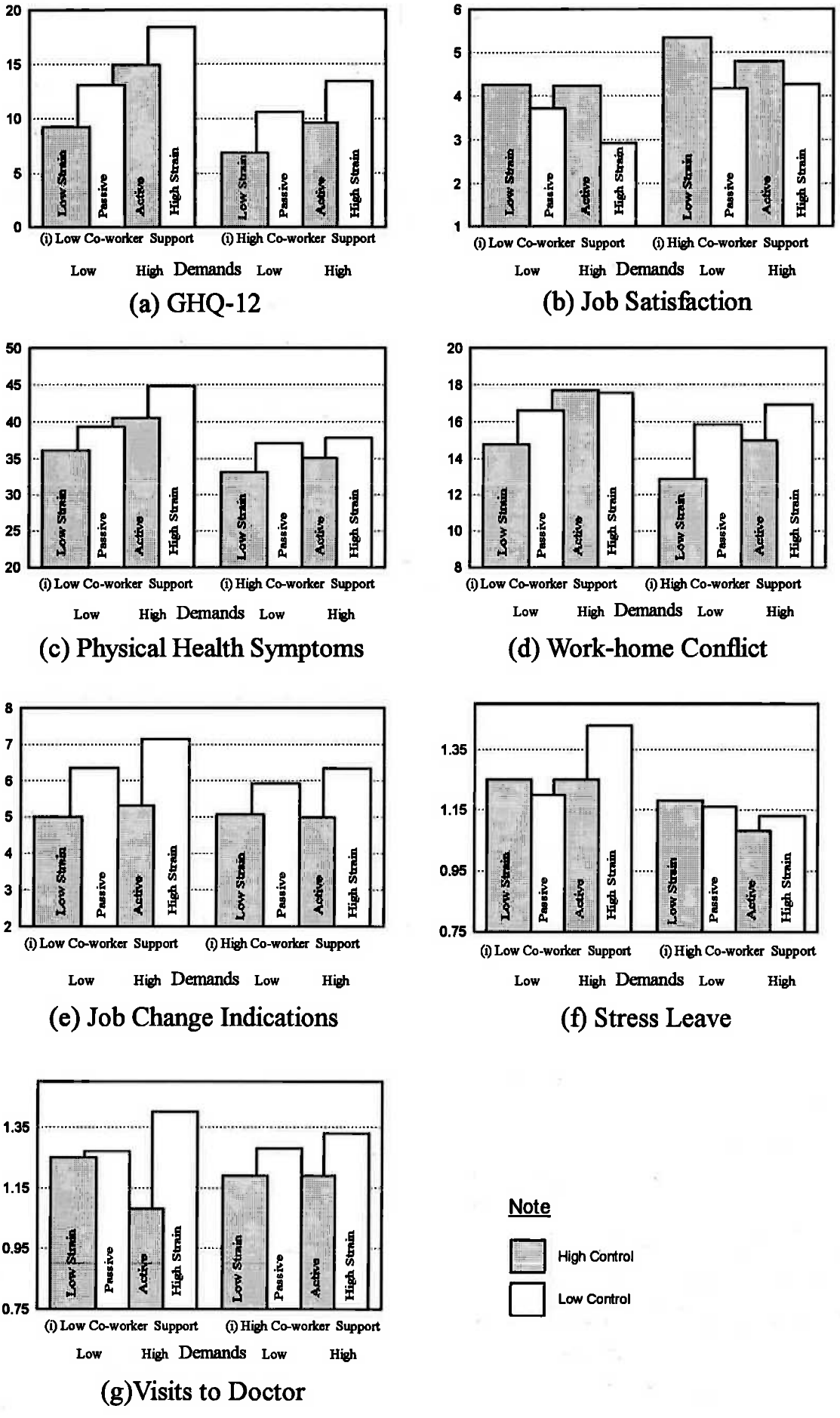
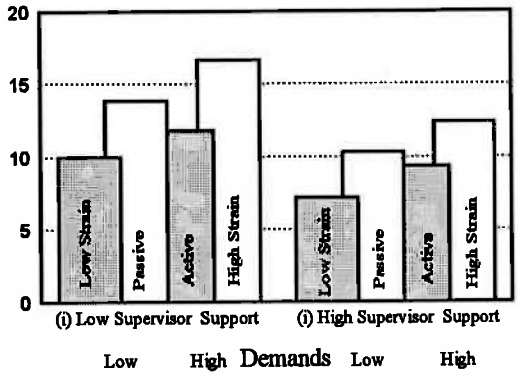
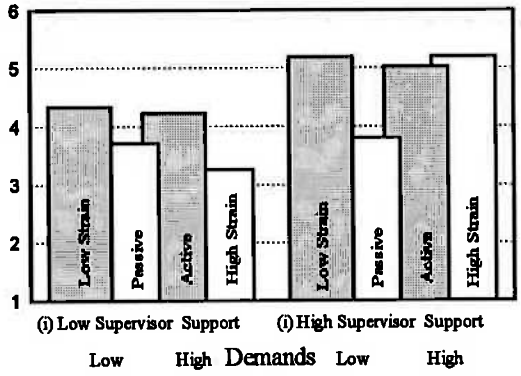


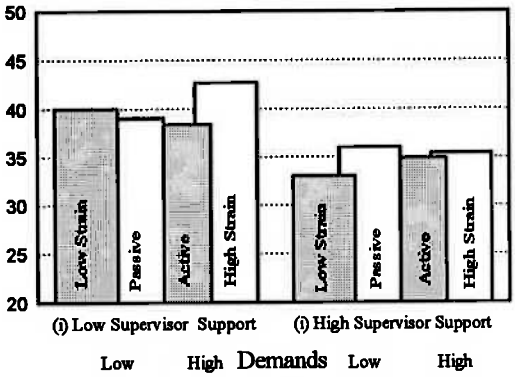
Figure 11.1 *The DCS (Co-worker Support) Model and Prevalence of Strain Symptoms*



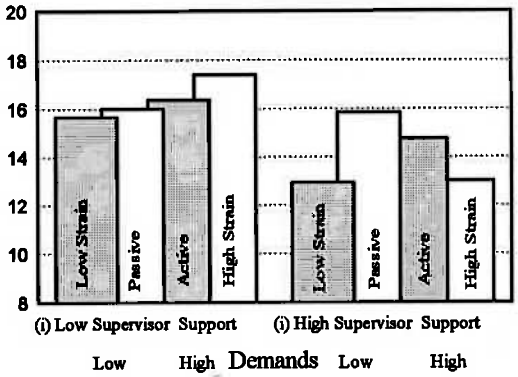
(a) GHQ-12



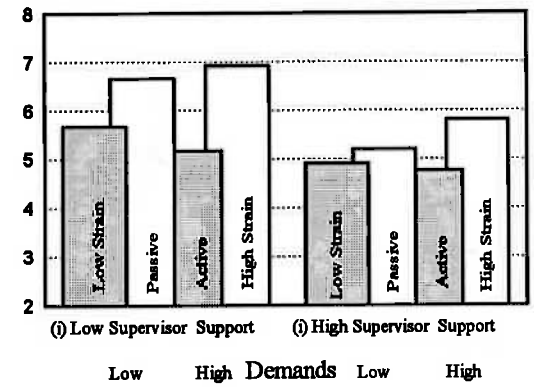
(b) Job Satisfaction



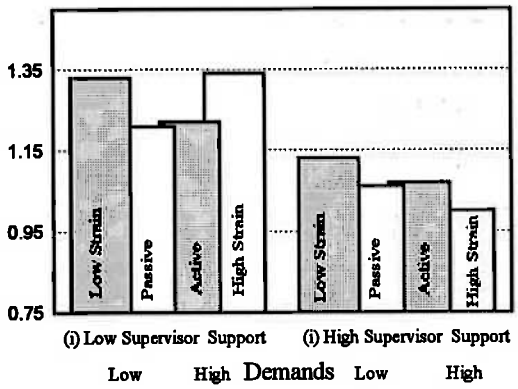
(c) Physical Health Symptoms



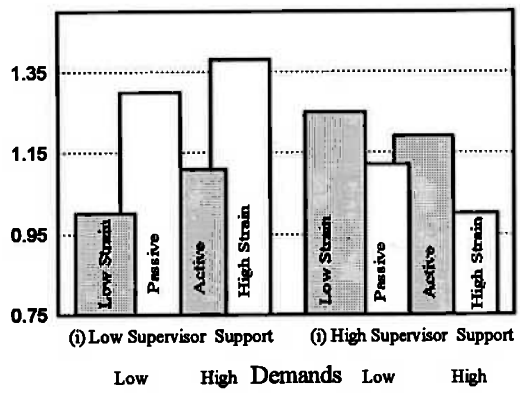
(d) Work-home Conflict



(e) Job Change Indications



(f) Stress Leave



(g)Visits to Doctor

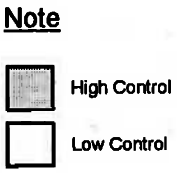


Figure 11.2 *The DCS (Supervisor Support) Model and Prevalence of Strain Symptoms*

Table 11.1 *Hierarchical Regression Analysis Predicting Strain from Demand, Control, Support and their Interactions* [a]

Source	Cum.R^2	ΔR^2	% Variance explained at each step	*F* Change	*t*	Beta[b]
GHQ-12 scores						
#Work Environment	.541	.051	5.10	23.14§		
Demand					4.07†	.164†
Control					-5.25§	-.142†
#Demand x Control	.541	.000	.00	.04		.016
#Support	.549	.008	.80	3.44*		
Co-worker support					-2.12*	-.093*
Supervisor support					-.71	-.045
#DCS Interactions	.555	.006	.60	1.12		ns
MR=.74, R^2=.55, Adjusted R^2=.54; *F*(16,402)=31.31§						
Job Satisfaction						
#Work Environment	.275	.064	6.40	17.92§		
Demand					4.07†	-.090
Control					-5.25§	.152**
#Demand x Control	.276	.001	.00	.34		.032
#Support	.293	.017	1.70	4.97**		
Co-worker support					2.58*	.139**
Supervisor support					.80	.004
#DCS Interactions	.300	.007	.70	.79		ns
MR=.55, R^2=.30, Adjusted R^2=.27; F(18,400)=9.54§.						
Physical health symptoms						
#Work Environment	.427	.024	2.40	8.54†		
Demand					2.44*	.118**
Control					-3.22**	-.076
#Demand x Control	.428	.001	.00	.87		.005
#Support	.438	.010	1.00	3.41*		
Co-worker support					-1.94*	-.096*
Supervisor support					-.96	-.042
#DCS Interactions	.451	.013	1.30	1.84		ns
MR=.67, R^2=.45, Adjusted R^2=.43; *F*(18,400)=18.22§.						
Work-home conflict						
#Work Environment	.322	.036	3.60	10.68§		
Demand					3.45†	.130**
Control					-3.00**	-.029
#Demand x Control	.321	.005	.50	2.74~		.070
#Support	.339	.018	1.80	5.54**		
Co-worker support					-1.42	-.074
Supervisor support					-2.27*	-.132*
#DCS Interactions	.341	.002	.20	.20		ns
MR=.58, R^2=.34, Adjusted R^2=.31, *F*(18,400)=11.49§.						
Job change indications						
#Work Environment	.244	.039	3.90	10.46§		
Demand					1.60	.115*
Control					-4.21§	-.205†
#Demand x Control	.245	.002	.20	.82		-.073
#Support	.246	.001	.10	.17		
Co-worker support					-.56	-.029
Supervisor support					.36	-.013
#DCS Interactions	.367	.022	2.20	2.37*	ns	ns
MR=.52, R^2=.27,Adjusted R^2=.24; *F*(17,401)=8.61§.						

Note. [a] All results after control of demographic and personal disposition variables. # indicates a new step in the hierarchical analysis. [b]The Beta values are the standardised coefficients from the final simultaneous equation, each term being corrected for all other terms in the model. ~, $p<.09$. * $p < .05$. ** $p < .01$. † $p < .001$. §$p<.0001$.

Table 11.2. *Logistic Hierarchical Regression Analysis Predicting Stress Leave and Visits to the Doctor from Demand, Control and Supports, and their Interactions* [a]

Source	Goodness of fit X^2 [b]	*df*	Improvement X^2	*df*	significance *p*	B [c]
			Stress leave			
#Work Environment	307.48	300	3.23	2	.20	
Demand						-.02
Control						.02
#Demand X Control	317.50	299	.79	1	.37	.37
#Support	336.18	297	2.30	2	.32	
Co-worker support						-.12
Supervisor support						-.17
#DCS Interactions	304.00	291	4.42	6	.62	ns
The constant in the final equation is -5.88*						
			Visits to the doctor			
#Work Environment	307.28	305	1.19	2	.55	
Demand						-.03
Control						.06
#Demand X Control	306.96	304	.01	1	.93	-.10
#Support						
Co-worker support	308.02	302	.73	2	.70	.00
Supervisor support						.08
#DCS Interactions	303.15	296	3.69	6	.72	ns
The constant in the final equation is -1.18						

Note. [a] All results after control of demographic and personal disposition variables. # indicates a new step in the hierarchical analysis. [b] All goodness of fit X^2 values were not significant. A non significant X^2 indicates a good fit. Stress leave was coded, 1=no, 2=yes; visits to doctor, 1=no, 2=yes. [c] B Estimated unstandardized regression coefficients from the final simultaneous equation, each term being corrected for all other terms in the model. * $p < .05$. ** $p < .01$. † $p < .001$. §$p < .0001$.

Overall the regression analyses show strong support for the demand-control additive model for active coping, and the DCS additive model for GHQ-12, job satisfaction, physical health symptoms, and work-home conflict. Stress leave, visits to the doctor, job change indications and passive emotional coping could not be explained in terms of combined effects of demand, control, and support. No support for the interactive model was found.

Karasek interaction method. In the initial formulation of the job strain model Karasek (1979) rejected the multiplicative interaction centred at the mean of the independent variables "because it predicts a down-turn in strain at low demands and low decision latitude" (p. 293). The interaction formulation described by Karasek was Job Strain=|Demands-Decision Latitude+c|, where job strain is determined by the absolute value of the discrepancy between job demands and decision latitude. Karasek argued that in order to retain some of the original implications of the relative excess interaction the constant term was used to place three quarters of the sample in the category where too many demands make the absolute value expression positive, and one quarter in the category where an excess of decision latitude makes the expression positive. The constant empirically derived was 2. Regression analyses were repeated using this interaction formulation instead of the multiplicative interaction term.

The interaction term had no effect on the dependent measures and interactions between the term and social support measures were not significant. The additive model was confirmed in the regression models as above.

Karasek ratio method. Another interaction term suggested by Karasek consisted of the ratio of the demands variable to the control variable, with the condition that all ratios less than the ratio of the means of the two variables are set to the constant of the ratio of the two means. This model predicts strain only at high levels of demand in combination with low levels of control (Sauter, 1989).

The empirically derived ratio term was .94. There was one significant interaction effect. Work-home conflict was predicted by the interaction term ΔR^2=.010, *F change* (1, 406)=4.93 p<.03. This relationship held after control for NA. The positive relationship between demand and work-home conflict held under conditions of high control not low control and this is *not* consistent with Karasek's prediction.

Taken together, the findings of the demand-control mean quadrant symptomatology, are consistent with a conventional interaction surface. However conventional hierarchical regression and Karasek interaction terms analyses, show that the results are accounted for by an additive combination of demands, control and support rather than an interactive model. There was no indication of a Demand X Control X Support interaction predicted by the expanded DCS model. Furthermore, there was no evidence that the interaction term recommended by Karasek (1979) Job Strain=|Demands-Decision Latitude+c| X Support, or the ratio interaction term X Support predicted strain.

Results held even without control for the personal disposition variables and the control variables. The results obtained previously using hierarchical regression analysis were confirmed.

11.3.2 Sociological vs cognitive model

To ascertain the relative merits of the DCS model versus the cognitive appraisal model a further series of hierarchical regression analyses were conducted. Results from the regression analyses enabled comparisons of the theories in terms of the percentage of variance accounted for by the DCS direct and interaction effects (see previous regression analyses) and the composite work stress measure (all components of the CO specific work stress added together). After control for demographic and personal disposition variables, the percentage of variance accounted for in the dependent measures (GHQ-12, job satisfaction, physical health symptoms, work-home conflict, and job change indications) by the psychological model (appraised work stress) and the sociological model (demand, control, support and interactions) was assessed (See Table 11.3).

Table 11.3 *Percentage of Variance Accounted for by Demographic, Personal Disposition, Cognitive and DCS models.*

Source	Dependent Measures					
	GHQ-12	Job Satisfaction	Physical Health Symptoms	Work-home Conflict	Job Change Indications	Average %
Demographic	10.50	11.80	22.30	16.50	13.10	14.84
Personal Disposition	38.30	9.40	17.70	11.50	7.30	16.84
Cognitive Model	2.50	5.00	4.40	6.20	1.60	3.94
DCS Model	6.50	8.90	4.80	6.10	6.40	6.54

The average proportion of variance for each category was as follows: demographic variables, 14.84%; personal disposition variables, 16.84%; the cognitive model, 3.94%; and the DCS model 6.54%. The results show that the measures used in the DCS model would provide a better prediction of occupational strain than the measures used in the psychological approach. This result held even if interaction effects were not considered in the sociological model.

11.4 Discussion

The results of the present analyses contribute to an understanding occupational stress by testing DC/S theory in a homogenous sample at the individual level. The main and interactive effects of the work environment measures were examined in relation to predictions that control and support might mitigate the adverse effects of work demands on levels of strain, and that active jobs would show the highest level of satisfaction and active coping. The methodology used showed some improvements compared to other individual level analyses, by controlling for the confounding effects due to NA, and a range of demographic variables. Support was found for an additive DCS model. Additionally, the study added to the limited literature on the "iso-strain" hypothesis.

Another important finding of the study was that more support was found for a sociological model with its basis in the work environment, rather than a cognitive appraisal model. Finally, the results established a link between work conditions and psychological processes: work conditions predicted active coping styles consistent with the activity level hypothesis.

11.4.1 Correlations between job characteristic variables

The relationship between control and support is important because it reflects the participation level of workers in the work process (Karasek & Theorell, 1990). The moderate sized positive relationship was confirmed and is consistent with other studies using homogeneous samples (Sauter, 1989; Spector, 1987a). The results are consistent with the notion that levels of control and support in the workplace are often linked. The lack of correlation between demands and control supports Karasek's (1979) view that contemporary work structures leave many workers with discrepant demands and control. Further it provides some support to the foundation of the DC model which assumes the orthogonality of the two constructs.

The relationship between demands and support was negative and significant. This means that where worker demands are high, there is a low level of supervisor support, which is not the ideal situation. For instance, many studies have shown work support to be a natural palliative to work demands, acting as a main effect (see for reviews, Kaufman & Beehr, 1989; Kahn & Byosiere, 1992) or as an interaction effect (e.g. Kirmeyer & Dougherty, 1988), or even as a preventive effect (Beehr & McGrath, 1992). The results are consistent with those from other studies (Karasek & Theorell, 1990; Landsbergis, 1988) including those which have used objective measures of work-load (Kirmeyer & Dougherty, 1988). There was no correlation between job demands and co-worker support.

11.4.2 Tests of the DC/S theory

Despite Karasek's concerns of restricted variance in occupationally homogeneous samples, the variability for each work environment measure used here (demand, control and supports), was in fact higher than that reported for similar measures in a large occupationally *heterogenous* work group (see Ganster & Fusilier, 1989). This shows that the variability on important job characteristics is as extensive *within* the occupations as it is *between* occupations.

The within occupational differences therefore highlight the lack of correspondence between objectively assessed work conditions of *occupations* and employee perceptions of them. This has been the premise of many large scale epidemiological studies of the DC/S theory. It might have been expected that within occupations the perceptions would be fairly uniform, whereas the evidence shows considerable variation in the perception of the work environment. The variability described here suggests that job characteristics are determined more by the employment situation faced by the worker than by the occupation (Ganster & Fusilier, 1989).

The DC model seemed to be a useful model in predicting individual differences in levels of strain (psychological distress, physical health, work home-conflict, job change indications) and well-being (job satisfaction) and active coping in COs. The findings of an additive model is consistent with other research in homogeneous samples (Beehr & Drexler, 1986; Hurrell & McLaney, 1989; Payne & Fletcher, 1983; Perrewe & Anthony, 1990) and heterogenous samples (Landsbergis, 1988). Moreover, some researchers have found support for main effects due to demand or control but not to both simultaneously in the same model. For example, although Morrison et al. (1992), and Bromet et al. (1988) both found one instance of an interaction effect, of eight other models tested (different dependent measures), no others conformed to an additive model. The results here can be considered good support for an additive model of the DC model.

Results are consistent with other CO studies that have found work demands due to overload to be a stressor (Shamir & Drory, 1982), and to be correlated with GHQ-12 (Webster et al., 1983). Similarly, lack of autonomy in decision making and responsibility have also been identified as sources of stress for COs (Cheek & Miller, 1983; Lasky et al., 1986). Moreover, the percentage of variance accounted for by job control in predicting job satisfaction was similar to other studies [10-15%] (Ganster & Fusilier, 1987; Spector, 1987a).

Strong support was found for an additive "iso-strain" hypothesis. In other word, demands, control and support exert and independent and direct effect, rather than interact, to predict strain. Stress leave, visits to the doctor, job change indications and passive emotional coping could not be explained in terms of combined effects of demand, control, and support.

The proposal that only social support that provides functional support would lead to a interaction effect (Cohen & Wills, 1985) has been supported empirically (Kirmeyer & Dougherty, 1988). However the results of the present study (using the *same* support measures as Kirmeyer & Dougherty, 1988) consistent with the conclusions of a recent review (Kaufman & Beehr, 1989), failed to support the "functional support-buffering hypothesis". It is however possible that the measures used to assess social support in the present study failed to tap the functional support required in the case of helping COs cope with high work demands. It is also possible that the moderate sized correlations between control and support may have obscured a three way interaction effect.

In summary, the results suggest an additive combination of high demands, low control and low support leading to the highest levels of symptomatology for COs. Overall there was no support for an interactive model and this conclusion was verified using both conventional interactive term and interactive terms recommended by Karasek (1979). The data were obtained from a homogenous sample, so the concerns expressed in relation to occupational level analyses (Kasl, 1989), that self-reports of demand and control could be confounded by other differences in job characteristics, or selection effects, do not apply here. Overall, the results support the recent expansion of the DC model to include social support (Johnson & Hall, 1988; Karasek & Theorell, 1990; Kasl, 1989; Landsbergis, 1988; Payne & Fletcher, 1983; Sauter, 1989).

11.4.3 Sociological vs psychological theory

The study found that more variance was accounted for by the sociological model than by the psychological model in a range of strain measures. The results of these tests are important for a number of reasons. First, the appraisal measure canvassed a large variety of possible idiosyncratic sources of stress in the CO environment, whereas the sociological measures assessed a restricted range of generic work environment variables. Second, it could be expected that the psychological appraisal measure would be more susceptible to the possibility of other psychological processes affecting the relationship between source variables and strain, resulting in inflated levels of explained variance. It has been assumed in this study that the more objective measures used in the sociological model would be less susceptible to this phenomenon. For these reasons greater support for the psychological model could have been expected, but instead the results were opposite. The explained variance due to the sociological measures were higher for each dependent measure (except work-home conflict), and this demonstrates an important role for the DCS model and the generic measure in predicting levels of occupational strain in COs.

Together the results suggest that both the psychological and sociological approaches have an important role to play in understanding the work stress process.

11.4.4 The DCS model and coping

There was support for the activity learning hypothesis: those with active jobs (high demand, high control) showed high levels of job satisfaction and active coping. Workers reporting high strain jobs showed significantly less active coping than those reporting active jobs. This is consistent with Schaubroeck and Ganster's (1993) argument that chronic demands could lead to a lower responsivity to challenge because of a tendency to avoid active coping or an inability to marshal the energy resources. This may be viewed as a conditioned response, and, if so, supports the basic tenet of Karasek's expanded model that work conditions can shape behaviour.

Further the results are consistent with a complex feedback mechanism where physiological toughening due to challenge situations coupled with control (active jobs) would lead to a spiralling effect where a perception of mastery develops and influences the perception of the work environment as less stressful and the coping as more successful (Dienstbier, 1989; Karasek & Theorell, 1990). This in turn would lead to higher levels of job satisfaction.

It is worthwhile noting again that the length of employment was associated with lower active coping. It is possible, that as a result of exposure to chronic stress, perhaps resulting from sources other than those specified in the DC/S model, over time COs use less active coping. This would lead to a situation where accumulated strain can inhibit learning attempts (active coping) that arise from active jobs (Karasek & Theorell, 1990).

The result that passive cell workers showed significantly less active coping than active cell workers is consistent with the learned helplessness concept that workers experiencing passive jobs, with little opportunity for control will show diminished ability to tackle problems (Maier & Seligman, 1976).

The study was unable to confirm that higher levels of passive coping were associated with high strain jobs, but rather were associated with low levels of control only. In accord with the view here about the chronic stressfulness of the work environment, length of employment was associated with higher levels of passive coping. Reduced feelings of mastery might occur in response to low control and the broader work context, because the stress source does not change as a result of the coping response. This could reduce the capacity to cope with job strain, and further result in workers capitulating to higher levels of strain (passive coping was positively associated with many strain indices, see Chapter 9).

11.4.5 Methodological issues

Although the measures were self-report, it was assumed that a degree of objectivity would be derived, as subjects were asked to report the work context in true or false terms rather than as a subjective appraisal (see Frese & Zapf, 1988). Previous research has shown that self-report is a fairly accurate reflection of objective job characteristics (Griffin, 1983). Even so, results showed that NA acted to inflate relationships between the work environment measures and the self-reported strain measures, indicating the influence of personal disposition even in more "objective" methodology.

Consistent with other research (Brief et al., 1988; Parkes, 1990), NA appeared to mediate relationships between demand and outcome and between support and outcome, as the strength of these relations was reduced with NA included in the models. Without adjustments for NA, it is likely that results based on self-report studies purporting to test Karasek's model, are biased (possibly Landsbergis, 1988). Most likely the effect is to over-estimate the role of the work environment and social support in predicting strain.

More generally, even after correcting for confounding due to a range of demographic and personal variables, the work environment continued to account for significant levels of strain in workers. This observation is also consistent with findings reported by Brief et al. (1988) and Parkes (1990).

The present study also attempted to reconcile conflicting results in the literature using three different methods for testing interactions. Similar results were found using three different analytic procedures. Other research has also pointed out the robustness of findings despite varying statistical procedures used (Landsbergis, Schnall, Warren, Pickering, Schwartz, 1994; Payne & Fletcher, 1983; Sauter, 1989).

11.4.6 Limitations

Some improvements in the present test of DC/S theory were made, with the control of a range of confounding variables, and the use of more objective independent (Frese & Zapf, 1988) and dependent variables.

If interactions had been found, this would have strengthened evidence against the common method phenomenon, because interaction effects can not be readily ascribed to method variance effects. The fact that few interactions were noted however does leave some doubt about the extent to which observed correlations could be due to the measurement method.

It might be argued that more rigorous testing of the hypotheses could have been undertaken. For example, some researchers have used canonical analysis to examine the combined main effects of stressors on strain variables (Ganster, Mayes, & Fusilier, 1986; Landsbergis, 1988). The procedure provides a multivariate assessment of the overall relation between stressors and strains while also considering the correlations within the two sets of variables (Cohen & Cohen, 1983; Ganster et al., 1986). It appears to be mainly used when researchers are considering a considerable range of independent measures. This was not the case in the present study. Further demands and control were orthogonal.

The main weakness of the present study is the cross-sectional self-report methodology (see also Chapter 13).

Chapter 12

THE UTILITY OF THE DC/S MODEL: A CASE STUDY ANALYSIS

12.1 Introduction

The previous analyses examined the levels of CO strain relative to other samples, and assessed responses of COs to derive a typical picture for COs. Moreover, in tests of the DC/S model, the occupational situation was portrayed. It is clear from these studies that not all the variance in strain was accounted for by the variables studied.

More in-depth analysis of individual responses could provide information about other relevant variables. The individual case study approach may generate useful inductive information, and provide a richer understanding of the factors important in predicting occupational strain. Criticisms regarding the lack of meaning in work related research (Jahoda, 1992; Fryer, 1992) have led researchers to recommend the triangulation of research approaches. This is the combination of different techniques of collecting data in the study of the same phenomenon (Minichiello, et al., 1995). It has been used successfully in understanding occupational stress (Israel, et al., 1989), and failures in occupational rehabilitation (Kenny, 1995).

The aim of this study was to assess the utility of DC/S theory in predicting individual differences in level of strain between CO *cases*. It is based on a number of assumptions. First is that although the CO job is homogeneous relative to the world of jobs, COs themselves may occupy different types of jobs, that can be defined by DCS theory. Second, once knowledge about their job characteristics is derived it will be possible to account for the various levels of strain that COs exhibit.

There may be competing, or alternative explanatory factors to account for variations in levels of strain, and a range of antecedent risk factors are also considered. These are factors that may exist independent of the DC/S job characteristics, and were clearly identified in Chapter 9 to be linked with levels of strain for COs. These include years of service, job classification (in the hierarchy), shift work status, level of trait anxiety, and financial worries.

To summarise, first each case is located on the three dimensions, demand, control and support. Based on this categorisation, predictions regarding the expected level of strain are drawn. Next, individual cases are assessed regarding their fit with predictions from Karasek's theory or predictions based on findings from the previous Chapter. Exceptions to the findings will be discussed in terms of limitations of the model. Alternative themes may be identified further by a review of other qualitative and quantitative components of the survey.

The analysis here is both inductive and deductive. It is deductive in that it tests the case experience against the conclusions of the previous studies to explain level of strain. It is inductive in that it looks for explanations or hypotheses not suggested by DC/S theory.

12.2 Method

12.2.1 Subjects and sampling

Original survey forms used in the previous studies were destroyed after coding. Eight survey responses arrived after the closing date. These data were not included in the previous studies, and were used as eight case studies for the current study. Of these cases, five were very similar in demographics: male CO base grade officers, married or defacto, aged between 31-40 years and had been working for a relatively short time (1-3 years) (cases 2-6). Two other were quite different: a female aged 41-50 years, married employed for eight years, now in senior position (case 7): and, a male aged 51-60 years (case 6), married, CO base grade, employed for five years. The last respondent did not identify his age, marital status, or length of service. He was however employed as a base grade CO (case 8).

12.2.2 Measures

Measures of marital status, length of service, classification, shift work, financial worries, and trait anxiety were all assessed as previously described in Chapter 8. Of these a number were described as risk factors, and were classified as risks as follows: length of service greater than the CO sample mean (> 5.6 years); classification base grade; shift worker; financial worries greater than sample mean (> 2), and trait anxiety, lower if the score was less than for other COs the same age, normal if it was the same, and higher if it was less than one standard deviation higher, and very high if it was one standard deviation higher than the CO sample mean.

Finally strain was assessed by assigning one point to each instance where the obtained score was greater than the mean CO sample score for GHQ-12, physical health symptoms, work-home conflict, job change indication, less than the mean score for job satisfaction, and in the affirmative for visits to the doctor, or stress leave. Points were added and cases were assigned scores for severity of strain.

12.2.3 Procedure

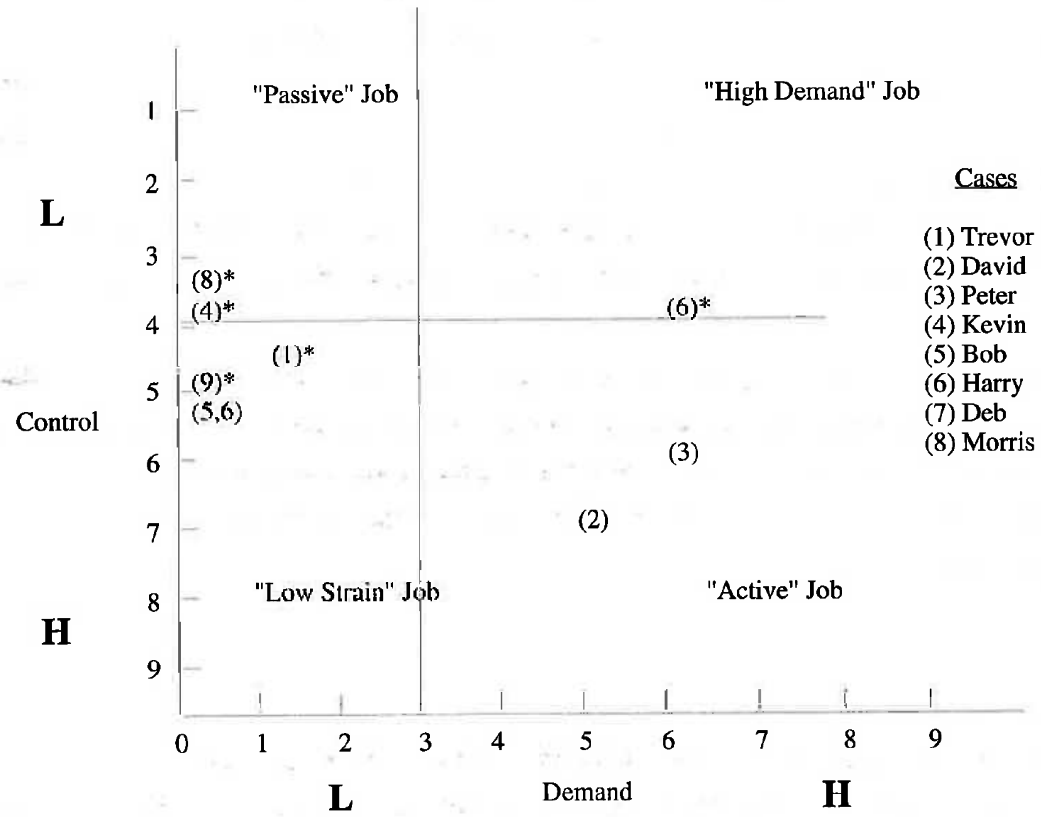
A triangulated research design was used incorporating both deductive and inductive methods, and quantitative and qualitative data. Case studies were used to provide a more holistic, contextual perspective (Kenny, 1995; Patton, 1990). The method was also consistent with the general presentation of the stress problem. Most stress intervention, or treatment is aimed at the individual level. A case study approach would therefore seem appropriate to assess the DCS model. Moreover, failure of the model to account for findings at an individual level would raise serious doubts about its validity.

Pseudonyms for cases were used to protect identity. Case summaries of each subject were constructed from both qualitative and quantitative data gathered via the survey instrument already described. These are not documented here as it possible that individual cases could be identified. Next, each case was categorised into job classifications, using the median values for

the sample on measures of demand (3) and control (4). The distribution of these cases is shown in Figure 12.1. Cases were also classified as low support or high support on the basis of whether support from coworkers, or supervisors was higher or lower than the sample median (≤ 3, low support, > 3 high support). Asterisks are used to denote low support. In one case (Deb), supervisor support was above the median (4) and coworker support was below the median (2). The average of these scores was therefore used (=3) and the case was defined as low support.

12.3 Results

As shown in Figure 12.1 there was one high strain/low support job (Harry), two active/ high support jobs (David and Peter), one passive/low support job (Kevin and Morris), and three low strain/ low support jobs (Bob, Deb, and Trevor).



Notes. Demand, Control Dichotomised at the Sample Median (3,4) respectively; *Low Support

Figure 12.1 *Distribution of CO Cases by the DC/S Model*

According to DC/S theory, the highest levels of strain would be found in high strain/ low support jobs (Harry). As predicted Harry showed the highest level of strain compared to all cases. One exception to this was Trevor.

It was expected also that the highest levels of job satisfaction would be found in the active jobs (David and Peter). As expected Peter showed the highest level of job satisfaction, compared to all other cases. Unfortunately David had missing data on the job satisfaction scale.

Compared to a large representative work sample, COs overall occupy a passive/ low support job (see Table 9.11).

Table 12.1 *Risk factors, the Categorisation of Jobs, and the Level of Strain*

	Case 1 Trevor	Case 2 David	Case 3 Peter	Case 4 Kevin	Case 5 Bob	Case 6 Harry	Case 7 Deb	Case 8 Morris
Years on job	5	1	2	3	2	2	8	missing
Classification	Base	Base	Base	Base	Base	Base	Higher	Base
Shift	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial worries	Yes	No	No	No	No	Yes	Yes	Yes
Trait anxiety	Very High	Normal	Lower	Lower	Higher	Higher	Lower	Very High
Karasek classification	Low strain/ low support	Active/ high support	Active/ high support	Passive/ low support	Low strain/ low support	High strain/ low support	Low strain/ low support	Passive/ low support
Level of strain	6	0	1	1	3	5	3	4

It should be noted that because all cases were shift workers it is not possible to use shift work as an explanation for why one case reported more strain than another. Of course it could explain why the level of strain for the case was higher than that reported for the CO sample. For this reason shift work is not used as a possible explanatory risk factor in the following analysis.

The same argument can apply to job classification. All cases were base grade, except for one. In the latter case it may be argued that higher classification should lead to less strain. For all other cases though classification is not considered an explanatory risk factor.

The risk factors remaining that could account for differences between cases are referred to as relative antecedent risk factors.

Theme 1: High strain jobs lead to high levels of strain

Harry occupied a high strain/ low support job. As expected he showed very high levels of strain, compared to other cases, and the overall CO sample. The proposition that the kind of job experienced would be sufficient to predict differences in levels of strain was supported. With regard to risk factors, he reported lower than average length of service, and this should have been an advantage. Harry did however report having frequent financial worries. The issue of financial worries (possibly linked to slightly elevated levels of trait anxiety) can be elucidated. Harry had worked 18 hours overtime in the past two weeks, and did not want to work this overtime. It is possible, that Harry like other officers was locked into a situation of

having to work long hours to support their financial commitments. Consistent with this interpretation, Harry reported, significantly higher levels of concern about the work schedule, than all other officers. The demands of excessive hours of work (perhaps as a result of financial pressures), and no apparent control over work scheduling, is consistent with DC/S theory.

Other possible explanations for the results in support of the DC/S model are that individuals bias their responses depending on the level of strain they experience or because of dispositional factors. For example, it is possible that experiencing high levels of strain, leads to an exaggeration of the level of demands, and underestimation of the level of control or support, as a way of explaining strain reactions (Landsbergis, Schnall, Deitz, Friedman, & Pickering, 1992). In Harry's case it is possible that high levels of strain led to reporting adverse work conditions. Harry did say that he thought the job had become *less* demanding since he had commenced work with the department. If he was consistently distorting his view his response would probably be "*more* demanding".

A final possibility is that workers higher in levels of negative affectivity (trait anxiety), report adverse job conditions, and/ or higher levels of strain. However, it is not likely that higher levels of negative affectivity influenced his reporting of job characteristics, as he reported only slightly higher than average levels of trait anxiety (there were two other cases that reported very high levels of trait anxiety).

Also consistent with this type of job, Harry reported higher levels of emotion suppression compared to the low strain workers.

Theme 2: Intrinsic job factors, length of employment, and personal characteristics

The case of Trevor did not seem consistent with DC/S theory. He showed high to severe levels of psychological distress, and overall showed the second highest levels of strain, yet was in a low strain/low support job. There were two significant features of Trevor's case. First, his level of trait anxiety was significantly higher than the means for the CO sample, and a normative sample. The main CO study established that TA was significantly associated with perceptions of the work environment and strain. It could be that his personal disposition was linked with his perception of the work environment and subsequent experience of strain, or merely to reporting higher levels of strain. Two cases that reported very high levels of trait anxiety, also reported lower than average levels of demands. As others have noted, it is unlikely that those disposed to negative affectivity would falsely *underestimate* levels of work demands (Landsbergis, et al., 1992). Therefore, it seems more likely that high negative affectivity leads to higher levels of strain reporting, than a bias in perception of the work environment that in turn leads to strain.

Second, he had been working longer than average for all the other COs, and was the second longest serving in the case sample. It was substantiated earlier that length of service (exposure) was a strong predictor of strain. Finally, Trevor reported higher than average levels

of financial worries and this is another risk factor for COs. Trevor had worked 11 hours overtime in the past fortnight, but unlike Harry, he wanted to do this.

Looking at specific sources of work concern, Trevor showed higher than average over the range of sources, significantly so for relations with inmates, and staff problems. He expressed major concerns over safety and security in relation to inmates, and the lack of appropriate management of these issues. He wrote "stop putting officers into situations where they are in danger of violence from inmates". He also wrote that he was worried about the tuberculosis problem in the prisons. He seemed to accept that correctional work was stressful at all times, and expressed concern that the knowledge of the CO was not used in the operations of the service. This conflict with management over the treatment of inmates, in combination with longer service, probably led to high levels of strain for Trevor and even high levels of trait anxiety over time. Also given that length of service is linked with TA, to some extent personality development which leads to higher levels of strain, may have its *basis* in the environment (Karasek & Theorell, 1990). In summary, Trevor's high levels of strain can only be interpreted in the context of a range of risk factors, and intrinsic aspects of the work environment, and can not be inferred from the job which he currently occupies.

Theme 3: Critical incidents

One assumption underlying the DC/S theory is that workers occupying the same kind of job classification would report similar levels of strain. Bob, Trevor and Deb all occupied low strain low support jobs. There was really no indication from Bob's antecedents, or in the type of job he occupied that he would report levels of strain higher than the average CO. Bob reported that he suffered a traumatic incident that involved the death of an inmate. This critical incident precipitated a "stress episode". He reported recurring flashbacks consistent with post-trauma stress disorder (DSM-IV, 1994). Although he does describe receiving assistance from the department (chief and social worker) at an individual level, he also describes strong feelings of loss of control, and a failure of the department to back the officers at a macro-level when under public scrutiny (i.e. the media). He indicated that reports in the media, that the officers were not doing their job, precipitated a second stress reaction. This experience seems to underlie the elevated level of psychological distress he experienced, lower job satisfaction and also sometimes thinking about resigning or considering a complete career change. In response to a question seeking suggestions about how the pressures you experience might be reduced and what the department could do to help, he said:

> "if the department could back up officers more instead of giving in to prisoners....because of political reasons. I'm not saying officers are always right . But it is very worrying when the prison or department you work for doesn't back you up, when you are all only doing what they tell you to do in the first place and they change the rules to suit the pressures they are getting at the time".

At the time of the incident, Bob said that nothing much else was happening. His home life was great, he was enjoying work and he was getting along with most people. He had never taken stress leave "I've been trying to handle the situation myself".

Theme 4: Active jobs lead to high job satisfaction

Consistent with the activity level hypothesis, the highest level of job satisfaction was found in the active/ high support job. David and Peter were both in active/ high support jobs, which according to Karasek should lead to feelings of mastery which should in turn inhibit strain perception. An alternative explanation for the result is that both Peter and David had only worked on the job for between 1 to 2 years, not long enough to experience the chronic effects of the work environment. The other point is that both cases reported low levels of strain compared to the average of the CO sample. It is noteworthy also that they reported no antecedent risk factors relative to the sample here. Their sources of specific work concerns were similar to the CO sample. Consistent also with the activity level hypothesis, David showed higher active coping compared to workers in passive jobs. This was not the case for Peter who reported lower levels of active coping.

12.4 Discussion

A major goal of the present study was to assess causes of occupational strain in workers by detailed examination of specific cases. Primary consideration was given to how well Karasek's DC/S theory could account for the results at the case level. It was anticipated that detailed case studies could provide useful information regarding exceptions to Karasek's theory and suggest other features of the job strain model. The results do show support for the job strain hypothesis and the activity level hypothesis proposed in DC/S theory.

One sub theme to emerge from the analysis was that demands due to the work schedule, not just shift work, and working overtime hours that were not wanted, may add to the strain experience. This is latter finding is consistent with another study of DC theory, that found hectic jobs combined with low influence on work hours, and low influence on planning work to be associated with myocardial infarction in both men and women (Hammar, Alfredsson, Theorell, in press).

Failures of the DC/S model to account for fully for the patterns of results led to the uncovering of two themes. The first related to the impact of a critical incident on the level of strain experienced. Dynamic interactions between the workers and the environment at a range of levels (family, intrinsic aspects of the job itself, support workers, organisational, and the media) and consequent levels of strain were found.

The second theme related to intrinsic aspects of the work environment, that either persist or build up overtime (with longer service), and result in higher levels of strain, and higher levels of anxiety. This interpretation is consistent with the proposition that experience of the job can (in part) influence psychological traits (Landsbergis et al., 1992). Trevor's high levels of strain

could only be interpreted in the context of a range of risk factors, and intrinsic aspects of the work environment, and could not be inferred from the DC/S job category which he currently occupies.

Although most theorists argue for models of occupational stress that involve feedback mechanisms, the cross-sectional survey methodology most frequently used in stress research falls critically short of informing this process. Instead of focusing on linear cause and effect sequences, the case study approach seems useful in providing more information about the context, and the more circular interaction processes that in occur in reality between the individual and their work environment.

This study employed a triangulated research design using both deductive and inductive methods, and quantitative and qualitative data. The case study method enabled levels of occupational strain to be assessed using a more holistic perspective of the individual, and the individual's reactions in the organisation, and considering the individual in the context of the organisation and its intrinsic demands (Kenny, 1995; Patton, 1990).

Most stress intervention, or treatment is aimed at the individual level. A case study approach would be appropriate to assess levels of strain of individual workers against the CO population, and against wider benchmarks. However the success of the DC/S model in accounting for varying levels of strain at the individual level, supports intervention to modify job characteristics of individual workers, rather than taking broad occupational interventions. For instance, the CO occupation is classified as passive. Within that sample however, 18% percent can be classified as "passive" workers, 12% as "low strain" workers, and 16% as "active" workers. Any broad intervention approach to increase the level of demands and control at the same rate, implied in a passive situation, might lead to further problems for high strain workers. They would be facing increased demands, and increased control, on an already unbalanced platform of demands and control. Moreover some workers already have positive active jobs that do not require change.

Finally, the failure of the model to account for all variations in strain suggest elaborations to the DC/S model to include more explicitly lack of influence over excessive work, shift work, critical incidents, intrinsic features of the occupation, exposure impact (length of service). Interventions supporting changes in these areas is also required.

In conclusion it must be acknowledged that limitations to the results may apply because of the non-random nature of selection, and the possibility of non-reprentative case studies.

Chapter 13

CONCLUDING COMMENTS ON OCCUPATIONAL STRESS IN CORRECTIONAL OFFICERS

13.1 Introduction

The aim of this Chapter is to draw together the results and discussions of Chapters 9, 10, 11 and 12. Possible theoretical frameworks that might be helpful in explaining the results are examined. Considerations for intervention are proposed, integrating recommendations from the literature and the current findings. Finally the methodological limitations of the study are outlined. To describe and explain occupational strain in correctional officers (COs), and integrate the findings of the studies, a number of existing theories rather than just one, seem relevant.

13.2 Theoretical frameworks

As already outlined some of the major problems for COs stem from work-schedule concerns, management issues, and role ambiguity. This really indicates uncertainty for COs, in how their work schedule is organised, how they are managed and what is expected of them. To some extent work role ambiguity was expected to be an issue because organisational restructuring, and discussion about it had already commenced in the organisation before the study began. However, the problem of management and role ambiguity may be explained to some degree by the "double bind theory". In "crisis situations" officers are worried and fearful, not only about the possibility of harm from inmates, but also the possibility of doing something wrong, because of a lack of clear guidelines for job performance (Cheek & Miller, 1983). The CO job does expect a strong working personality, but on the other hand the officers are in a powerless situation in relation to rule enforcement. Poor communications with senior officers, and lack of appropriate management by senior institute staff were key management issues. Moreover, once an incident does occur, and even if the guidelines are followed, the procedure of investigations adds further pressure, and leads to perceptions of low support from management in times of distress, and to feelings of alienation from the organisation. Additionally, protracted investigations appear to erode relationships between COs, and undermine social support from peers that is vital in crisis situations. On top of this, COs perceive the rule makers to be unfamiliar with the requirements of the job, and out of touch. They perceive that they are not consulted and that their advice is not sought.

The fact that it is not clear for COs what their role is, and given the lack of control over their work environment means that according to DC/S theory and role theory (Kahn, Wolfe, Quinn, & Snoek, 1964) that strain will result. COs also experience both illegitimate frustrations relating to management (e.g. unequal treatment of inmates, uneven discipline, different practices by shift) as well as legitimate frustrations (e.g. difficult inmates). According to frustration-aggression theory, both frustrations may be instigators of aggression (Berkowitz,

1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939). Indeed aggressive reactions were a common indication to COs that they were stressed, yet display of aggressive reactions can lead to organisational investigations, sanctions, and even job loss. A "triple bind theory" might be required: that in "crisis situations" officers are worried and fearful, not only about the possibility of harm from inmates, but also the possibility of doing something wrong, because of a lack of clear guidelines for job performance (Cheek & Miller, 1983), *and because of the potential to lose control.* Taking stress leave may be a legitimate way for officers to ventilate their aggression, and other emotions.

The finding that inmate issues were not as frequently associated with measures of strain compared to management issues, suggests that theories such as burnout theory (Maslach, 1982) would not be adequate to explain occupational strain in COs. For example, one assumption of burnout theory is that it is the interpersonal contact with the client that is central in the development of burnout (emotional exhaustion, lack of personal accomplishment, depersonalisation). Whitehead and Lindquist (1986) found no support for burnout theory in COs when they found that administrative practices had a greater impact on burnout. Moreover they found that greater inmate contact was associated with higher levels of personal accomplishment. This finding is also opposite to burnout predictions. No doubt the type of contact with inmates in these studies is important to consider, and also the fact that the instances of physical harm are relatively rare (Shamir & Drory, 1982). In the present study the qualitative aspects of the CO-inmate interaction, including problems, threats and fear were measured. This strengthens the conclusion about the limitations of burnout theory as an adequate explanation of high levels of CO stress.

A theory of occupational strain in the context of a double bind theory, seems to have specific application to the CO context, although its applicability might extend to other services such as police work. A theory that could help to explain levels of strain *relative* to other occupations would need to be more generic. Such a theory could explain why different occupations are more stressful. Demand-Control theory for instance predicts that "high strain" jobs, combining high demands and low control, would show the highest levels of strain. If the CO job could be categorised along the demand and control dimensions, and found to be a "high strain" job this would be an explanation for high levels of psychological distress, job dissatisfaction, sick days, and sick leave relative to other occupations.

DC theory specifically defines job demands in terms of workload. Specific measures used in the study that correspond with the demand-control dimensions, and the specific operational requirements of the measures, were the work pressure and autonomy scales of the WES (Moos, 1986). Compared to a large representative heterogenous work group (Moos, 1986) the levels of work pressures (demand), and autonomy (control) were significantly lower. According to the DC theory, therefore, the CO job is passive. It involves few demands and little decision latitude (autonomy). According to the theory, passive jobs lead to a decline in problem solving and activity generally, low skill acquisition, job dissatisfaction, and may even lead to learned helplessness (Maier & Seligman, 1976). However, this categorisation does not explain high levels of psychological distress, sick days, or stress leave. According to DC

theory, this would be an outcome of "high strain" jobs. The high levels of job dissatisfaction however are predicted by the activity level hypothesis, and the passive job.

The "iso-strain" hypothesis, derived from the expanded DCS model proposes that "high strain" jobs combined with low support, "high iso-strain" jobs, would show the highest levels of strain. It was also shown in the data that the levels of support from supervisors and coworkers was significantly less than for the representative work group (Moos, 1986). The CO job can therefore be categorised along the three dimensions as a passive-low support job. Again this classification would not explain high levels of strain. However, when low levels of support combine with low control it defines, ironically, an "isolated prisoner" job (Karasek & Theorell, 1990). Karasek and Theorell (1990) commented that "this combination of psychological characteristics appears to have no clear analogue in most animal societies and there is evidence that such jobs represent a clear sociobiological misfit with human physiological capabilities" (p. 74). CO staff might have a *special* need for encouragement from senior management in order to counteract hopelessness in their jobs (Harenstam, Palm, & Theorell, 1988).

A theory of occupational stress embedded in job characteristics is consistent with the findings of the study. It is clear that COs experience high levels of strain in comparison to other occupations but that the DC/S model can not account for this in its present state. Extension of the model to include aspects of the work experience other than task level demands and control would be helpful (Schnall, Landsbergis, & Baker, 1994). For COs demands could include things other than workload, for instance, interaction with inmates, or demands from the work schedule (for example COs jobs are different from many other occupations because of shift work). The impact of shift work is also not accounted for by DC/S theory (Kristensen, 1995; Schnall, et al, 1994), and it is apparent, that it does have important consequences for work-home relations. Control could be extended to include control over departmental and organisational functioning, control over work scheduling, control over policy, and control over public image. With these extensions, to include intrinsic demands, it is clear that the high demands of the job coupled with low levels of control would explain high levels of strain in COs.

DC/S theory was helpful in explaining why some COs show higher levels of strain than other COs. Chapter 11 showed good support for the DC/S model and Chapter 12 showed support for the model in predicting levels of strain at the case level.

Personality theory, and/ or selection theory may also be relevant. The evidence showed that workers high in trait anxiety showed higher levels of strain. It is difficult to tell if the personality characteristics themselves derive from the situation, or are better explained by trait theory. There is for instance some evidence that TA is linked to situational influences via the impact of length of employment. While there is some evidence that TA is linked with experiences on the job (see also Karasek & Theorell, 1990), COs overall do not experience elevated levels of TA. Occupational differences in level of strain may not be attributed to high TA personalities. Of course other personal differences might occur between occupations, due to selectivity effects. For instance, the data from the present study could not exclude the

possibility that intolerance for ambiguity might be one such example. The use of P-E fit theory (French, Caplan, & Harrison, 1982) to explain the high levels of stress for COs would inappropriate because personal fit to an ambiguous role prescription, a meaningless job, or to a job with high demands (ie dealing with danger and fear) and low control, is clearly inappropriate. Also tests of the cognitive-appraisal theory in comparison to DC/S theory showed less potential for accounting for variances in strain. In other words focusing on individual differences in appraisal did not account for as much variance in strain as focusing on individual differences in the experience of the more "objective" work environment.

The finding that length of service was associated with nearly all measures of strain, indicates that the experience of stress does not diminish with time. Improvements in well-being are predicted with time in burnout theory, either due to a gaining of experience (Maslach, 1982), or overcoming an early crisis of confidence (Cherniss, 1980). Moreover it seems that in the early stages of employment the CO uses active and direct coping, and physical exercise, and in the later stages use more emotional suppression. This coincides with the idea that strain arises due to depletion of personal resourcefulness, flexibility and positive energy and that accumulated environment exposure is dynamically associated with long-term personality evolution (Karasek & Theorell, 1990). Residual strain resulting from high demands, and low control may inhibit or restrict a person's ability to learn solutions to new problems, or accept positive challenges that the job may offer. This would impair learning of new coping strategies, and diminish feelings of mastery over situations. In a negative spiralling effect the reduced feeling of mastery leads to a restricted capacity to cope, and even higher levels of residual strain and so on. The *expanded* DC model that describes the dynamic interplay between the environment and personality seems particularly useful in explaining the relation between the work environment, coping and strain for COs, and high levels of strain in COs.

In the public perception COs occupy low status jobs. In the organisational structure and relative to other occupations, COs have low pay jobs. It is common knowledge in the organisation that salaries can be greatly enhanced by working overtime. Problems eventually emerge however because overtime is not always available, or constant. Therefore officers often find themselves in financial difficulties. These worries were also related to higher levels of TA, and higher levels of smoking, use of drugs or alcohol to cope. Financial worries were an important source of strain for COs and this finding is not predicted by DC/S theory. One theory that may account for this aspect is the theory of effort-reward imbalance (Siegrist, 1991). This theory proposes that it is the imbalance between receiving an inadequate wage, low rewards, low job security, lack of promotional opportunities, or having jobs that define a situation of relative deprivation, in comparison to other's efforts or what other's receive, that constitutes a threat and which may have adverse health consequences. Recurrent experiences of effort-reward imbalance weaken one's sense of mastery. This is because the core expectations of reciprocity and responsiveness in social exchange are disappointed. This theory would therefore account for the "feeling that you are inadequately paid for the work you do" and "insufficient departmental acknowledgment for good work" as major concerns for the COs.

Systems theory of occupational stress may also be relevant (Shirom, 1989). According to systems theory each element of the organisation is interrelated. Change in one aspect of the system, as might occur when one person becomes stressed, may potentially lead to organisational-wide stress. For example, the phenomenon of organisational burnout has been considered as a chronic state of depleted resources, fatigue and exhaustion in responding to environmental cues that demand reaction in the environment. It has been studied in the context of organisational decline (Jick, 1985). It is feasible that this organisational wide chronic state of helplessness, being ineffective individually to change the situation (Pearlin & Schooler, 1978), using more emotion focused coping than active coping, may exacerbate levels of strain and stress leave. The emergence of the "legal fund" in the organisation, as a separate entity from the regulated union, as a collective for responding to COs concerns and legal issues, probably indicates a collective reaction to this state of hopelessness.

In addition, the context of the organisation must also be considered. The economic context of high unemployment invariably means that some COs are in the job when they would rather be in another job. A general public ignorance of what goes on in prisons, and chronic persistent ambivalence of society toward the functioning of the prison system (Thomas, 1974) means insufficient societal recognition for the job, and insufficient money from the public funds. In turn this leads to less opportunity to professionalise the role of the CO and to engage in job enrichment strategies.

Finally, media representations that officers were not doing their jobs, coupled with perceived low departmental support was reported by some officers to be particularly damaging to their well-being. There is no question that the work environment would not be appealing for most people. The strong message from the officers is that their ability to handle the job would be greatly enhanced if support from within the organisation and from external sources was forthcoming. As one officer said:

> "It all gets down to the need for the Department to show genuine support for its officers. A large number of officers do not care about job performance because the Department constantly undermines their authority, so they think 'what's the use, I'll just put in hours for pay'"

In summary, any overarching theory of occupational stress for COs must consider explanations at the individual, task, organisational, system, economic and social level. While an expanded DC/S model, embracing the dynamic interplay between the environment and the individual provides some utility for explaining high levels of strain in COs, and accounting for differences in levels of strain between COs some further elaborations are required, to model the virulent features of the CO situation.

13.3 Considerations for intervention

Recommendations for intervention, are usually found in empirical studies of correctional settings. Some are comprehensive, covering aspects such as organisational problems, training needs, relationships with inmates, salaries, promotion policy, occupational status and family problems (Voges et al, 1982). Others seem to focus more on the individual. For example,

studies from the U.K. have been used in a formalised national initiative aimed to make prison officers more aware of the consequences of stress and inappropriate coping behaviours. Prison governors have also been advised and reminded in their own training, and other forums, of the effects of stress on prison officers' health and work performance (Smith, 1988).

Some recommendations are limited because the empirical studies on which they were based assessed only a small number of variables. For example, Digman, Barrera, and West (1986) suggested that role ambiguity could be prevented through social support. Social support lessens role ambiguity, which in turn would lead to fewer burnout symptoms.

The recommendations here are derived from the results of the studies, and the model describing the relationships between possible predictor variables and outcome measures. The usefulness of models of stress ultimately lie in the intervention strategies implied by the kinds of relationships uncovered. Results from all analyses supported a direct effects model of stress. This implies action aimed to reduce or enhance the variable, to create the preferred outcome, lower strain.

Intervention to reduce strain could be focused at the personal level. For example, trait anxiety was found to have negative consequences for health and of all the predictor variables, contributed the most variance to measures of strain. Protracted counselling may be required as trait anxiety is an enduring personality trait. Alternatively, selection processes may view levels of trait anxiety more judiciously, given its strong association with strain. For example, Morrison et al. (1992) like Parkes (1990) found that negative affectivity interacted with job demands and drew a similar conclusion:

> Together the results of Parkes (1990) and those of the present study would seem to support an argument for the use of individual characteristics, such as negative affectivity, for selection purposes. It may be possible to select out those who are more likely to suffer ill-health as a function of exposure to particular work stressors. For work environments (e.g. prisons) in which it is difficult to manipulate job characteristics such a finding may prove to have great utility (Morrison et al., 1992, p. 14).

Coping styles were also related to levels of strain, implying that helping officers cope with the job may be a useful initiative. Direct and active strategies were linked to job satisfaction. Providing resources for officers to continue this kind of coping throughout their career would be important (ie improved support from supervisors). Disengagement (expanding interests and activities outside work, and deliberately separating "home" from "work") seemed to have a beneficial effect. Although it focuses the thoughts and energy of the CO in directions other than to the organisation, it may be a useful strategy to promote, given that the work demands (ie dealing with inmates) will probably not change for some time.

Finally, COs who used emotional suppression, seemed to be worse off. Providing the opportunity for emotional ventilation may be a useful strategy. Recently Karasek (personal communication, October, 1995) spoke of research directions in the lack of control over central nervous system functioning, that might result from high strain jobs, and that might increase risk of cardiovascular disease. Along similar lines the lack of control over the expression of emotion (and attendant physiological changes) needs to be examined. It was clear from the CO

study that there was no legitimate means for COs to express their emotions. Moreover, the nature of the culture probably inhibits emotional expression.

The benefits of emotional expression and social support have been highlighted in the literature, and would similarly apply here. For example, in a study of six occupational groups with different levels of job strain, physiological and psychosocial data were gathered on several occasions (Karasek & Theorell, 1990; Theorell, Orth-Gomer, & Eneroth, 1990). Regular group feedback sessions on information on associations between job strain and physiological responses were given. Increased awareness and enhanced groups discussions, improved social support and collective coping with anger, were thought to have more immediate effects on subjective health than opportunity for participatory job change (Siegrist, 1991).

Demographic variables which are directly related to strain are financial concerns, classification, shift work and number of years on the job. Interventions could be focused to reduce financial concerns. Officers with lower classification and officers engaged in shift work are also vulnerable to strain, and any action could be focused initially in those areas. The most important demographic area of concern is, however, years on the job, with longer serving officers the most vulnerable. The reason for this is difficult to determine but is probably a combination of the experience of chronic work demands, and the development of detrimental coping styles.

Aspects of the work environment and support were directly related to strain implying intervention aimed to either reduce or enhance the variable depending on whether the aspect is beneficial (ie social support) or not (work pressure). There is a convergence in findings, that administrative practices are more important than contact with inmates in the development of occupational strain, here and else where (Cheek & Miller, 1983; Lombardo 1981; Shamir & Drory, 1982; Whitehead & Lindquist, 1986). Whitehead and Lindquist (1986) therefore argued that administrators should develop an agenda for organisational change. They conclude:

> "Although the creation of individual coping strategies may ameliorate officer stress, they may also impede organizational change. Accordingly, correctional administrators might consider changing working conditions within prisons both by enlarging the job of the correctional officer and by developing designs to deal with job related, worker problems." (p.40).

Currently the CO job is more concerned with exercising safe, secure and humane control of all persons referred to the department, rather than with the rehabilitation of inmates. The prescribed role of the CO may therefore be experienced as under stimulating, or even meaningless. A major focus for the department is to enlarge the role of the CO to ensure that "skills are fully utilised, functions enhanced and decision making capacity delegated as far as possible". This should lead to more professional and fulfilling careers for officers through optimal utilisation of their skills and aptitudes, and facilitate professional interaction with prisoners and in the process, increase delegated authority to the officers. It should also lead to enhanced job satisfaction (Brief, Munro, & Aldag, 1976; Lombardo, 1981; Toch & Klofas, 1982).

Sweden leads the way in terms of developing the role of COs. In Swedish law, the prison service has to resocialise the inmates, to promote the adjustment of inmates to society, and to

try and counteract the detrimental effects of deprivation of liberty. These reforms have been in place since 1976. Even with these reforms, however, COs appeared to constitute an at-risk group, for cardiovascular disorders, elevated levels of early morning plasma cortisol, and sick leave rates for workers over 45 (Harenstam, Palm, & Theorell, 1988). To the extent that the South Australian Department of Correctional Services is heading in this direction these cautionary results are very important.

However, Harenstam, Palm, and Theorell (1988) suggested that problems for COs could be overcome through a proactive management style, goal consensus among staff, a high degree of decision latitude, satisfaction with work performance, and a supportive psychosocial climate. More specifically, although they found highest levels of strain in prisons with the highest levels of drug abusing inmates, exceptions to this showed the positive results of these work ingredients.

Finally, Shamir and Drory (1982) suggested that increasing the level of autonomy and skill variety within the important concept of job enrichment would do little to reduce tedium (burnout). Instead, they argued that efforts to reduce role overload and role conflict, by increasing community support and managerial support would be more important.

13.4 Methodological issues

Probably the main limitation of the present study and many of the studies cited has been the reliance on cross-sectional design. This poses a problem for interpreting probable causation because the level of strain may affect the perception of the work environment. The inherent weakness in the cross-sectional design therefore provides an uncertain basis from which to draw conclusions. For instance it is not possible to conclude that individual coping styles led to variations in levels of strain. The reverse is possible: high levels of strain led to certain types of coping styles. Indeed by using the length of service variable (objective) and its relationship to coping style, the conclusion that work environment led to strain which in turn influenced coping style, was in some instances a plausible explanation. Not all conclusions are affected by causal rival hypotheses however. For example, comparisons with other samples are not affected.

The cross-sectional, self-report design for the COs is defensible because of the constraints of the study. It was a trade off for CO participation in the study. Fear of being identified was a major concern for the officers in this study, so methodology which required any form of identification such as interview or prospective design was not possible. Further, a six month time frame, precluded the use of multiple data collection.

Where possible, psychometrically valid tests were used in the present study. However, some measures were developed or modified for the study, including the specific work source questions and the coping scales. Reliability was shown for most measures to be generally at an acceptable level and validity was shown by meaningful correlations between measures.

The observation that suppression, a form of emotion-focused coping, was related to higher strain perhaps adds weight to the notion that measures were not "self-serving methodological traps" (Kasl, 1978) in terms of being conceptually overlapping. For example,

use of suppression might be expected to lead to reporting fewer symptoms (cf. Parkes, 1990), whereas the present study showed that suppression was related to higher reporting of symptoms. Even so, it remains possible that because of the nature of suppression, levels of strain were under-reported. On the other hand the relationship between coping and outcome, may be due to overlap in the measure ("try not to let the stress show") with dependent measures of stress (cf. Kasl, 1986)

Another limitation was a reliance on self report measures. Inclusion of independent, objective measures/assessments of the work environment or well-being may enhance future research (Frese & Zapf, 1988; Newton, 1989). Examination of stressful location effects, indexed by drug related incidences, or proportion of drug abusing inmates, may be one such example (cf. Harenstam, Palm, & Theorell, 1988). Critical incident assessment is another.

Further, the reliability and validity of the findings were established by taking the findings back to the original respondents (Glaser & Strauss, 1967) to confirm or refute the theory or model developed. The process of constantly taking findings back to the research review committee served to enhance the validity of the findings.

Longitudinal studies carried out over time are more likely to shed light on possible causal relationships that may operate in the development of strain. Although theorists are arguing for more improvements to stress research methodology (Frese & Zapf, 1988) the practical realities of conducting research in political organisations are not always acknowledged. Rather than focus on causal conclusions in stress research, given the inevitable difficulties and uncertainties, it might be better for researchers to be catalysts for dialogue between the stakeholders about work stress and intervention, and evaluators of change.

Chapter 14

RECOMMENDATIONS

In this chapter the recommendations of the study will be presented.

14.1 Job design to improve working conditions

14.1.1 Leadership and management training

It is recommended that appropriate leadership and management training for officers be implemented. Management issues defined in terms of poor leadership and management from supervisors and senior management was the perceived source of stress most readily identified by officers. Specific work concerns for COs indicate that head office or senior management are not providing COs with leadership, or management, or support. Responses to the questions concerning the stress-leave process corroborate the role of management as a stressor. They also indicate the belief that better support/management/ leadership could attenuate levels of strain (in an additive sense). This leads to the recommendation that a significant leadership and management development program be undertaken for senior and middle management within the Department, particularly training which leads to greater empathy and support for the CO.

14.1.2 Increased management training in job design

It is recommended that increased training be given for management staff in job design (greater autonomy, greater support) as it relates to psychological well-being.

14.1.3 Implementation of team building processes

Team building processes need to be implemented. The study found that augmentation of social support (from supervisors, peers and family/friends) would confer positive benefits to the officer by directly reducing strain. Opportunities for personal interaction and emotional support, as well as actual help to accomplish shared goals should be provided.

14.1.4 Reduction of work schedule concerns

Difficulties with the roster system should be addressed. At present COs find the roster unpredictable, and time conflict concerns appear to be more of a problem than shift work per se.

14.1.5 Reduced work-role ambiguity

Work-role ambiguity should be reduced. Information is needed to clarify the roles and responsibilities of the CO. Role ambiguity was a significant predictor of strain for COs.

14.1.6 Mandatory debriefing

Debriefing at the end of each shift should become mandatory work practice. Findings indicated that if COs withhold their work concerns and try not to exhibit stress, this has a detrimental effect on levels of strain. COs should be encouraged to talk about their concerns and feelings in a non-threatening context. This atmosphere could be achieved through stress

management training for all officers, team building processes, and training for supervisors and management. If officers have the opportunity to debrief and mentally separate 'work' from 'home' the spillover of strain into the home environment should be reduced. Continuation of critical incident debriefing is recommended.

14.1.7 Subsidisation of physical health programs

Subsidisation of physical health programs by the Department should continue.

14.1.8 Department supporting outside work interests

COs who expand outside work activities and deliberately separate work from home show lower levels of strain. Therefore any intervention attempted by the Department that enables officers to commence or maintain outside work interests is encouraged. The effect should be to reduce work-home conflict (support from home is advantageous), and reduce other areas of strain. Shift-workers may need special consideration in this area given their irregular working hours.

14.1.9 Participation in decision making

Participation in decision making that affects the officer is required to help improve involvement and commitment to the organisation as well as enhancing feelings of control in the work place.

14.1.10 Enhancing involvement in the organisation

Feelings of involvement in the organisation should be enhanced. Lower involvement by officers in the organisation is related to higher strain. An extensive list of ideas which officers have offered about how to better reward good job performance and improve team spirit have been summarised in section 9.4.2.

14.2 Enrichment of psychological health services for workers

14.2.1 Staff Counsellor appointment

A Staff Counsellor with appropriate professional qualifications in psychology and social work, and preferably with a background in correctional work or organisational behaviour should be appointed. From the information provided from officers who have been on stress leave, it appears that there is no clearly defined process of reporting stress, nor a clearly identified response by the Department. Significant time delays occurred at various points in the rehabilitation process. An under-use of counselling as an option in dealing with stress was noted with concern as stress is generally viewed as a psychological health issue. Employee Assistance Programmes, and professional intervention from external consultants are recognised as an option, but have received some criticism as they generally have a tertiary prevention focus and therefore do not address organisational factors in the aetiology of strain (Murphy, 1988).

The focus for the staff counsellor should include *employee and organisational* factors as intervention points.

14.2.2 Field based counselling

The Counsellor should be field based, mobile between institutions, and directly accessible by the COs. It is essential that such a counsellor be credible in the eyes of the officers and that the officers are guarantied confidentiality. Some officers conceal strain, not only because they perceive that the job 'requires' it of them, but because they fear they may lose their credibility or their jobs.

14.2.3 Counsellor involvement

The Counsellor should be involved in the development and implementation of procedures which encourage and enable reporting of early warning signs of strain - followed by immediate intervention. Apart from enhancement of psychological well-being, another positive outcome should be that fewer officers take leave.

14.2.4 Family counselling

Family counselling in stress-related issues should be encouraged by the Department. The experience of stress in the family environment due to the work environment is likely, but the reverse effect is also possible. Support from home reduces strain and should be encouraged.

14.3 Surveillance of psychological distress and risk factors

14.3.1 Ongoing surveillance of distress

Ongoing surveillance of occupational psychological distress, and surveillance of occupational conditions that place workers at risk of psychological distress is required. This could be achieved by surveillance of health status, including psychological health status, to detect emerging problems, and recording work conditions to identify possible relationships between strain and work risk factors.

14.3.2 Regular personal audits

Regular personal audits for COs applying some of the instruments used in the study (e.g. GHQ-12) should be part of the Staff Counsellor's role. The GHQ-12 is a measure of psychological distress which discriminates between groups of officers according to their stress leave status, thus confirming its validity.

14.3.3 Expanded workplace safety assessments

It is recommended that assessments of workplace safety should be expanded to incorporate workplace risk factors for psychological distress.

14.3.4 Continuing aggregate feedback

Aggregate feedback (to assure confidentiality) from health care providers or other mental health providers should be used for continued surveillance of occupational mental health and risk factors.

14.3.5 Exit interviews with all officers

Exit interviews should be conducted with all officers leaving the Department. In this way records of possible occupational factors or psychological factors underlying the decision may indicate future points of intervention.

14.4 Priority intervention targets

Officers currently on stress leave, and officers who have previously been on stress leave and returned to work, should be targeted for support. The latter group still shows elevated levels of distress. To provide support to officers on leave it is recommended that home visits be continued.

Officers who have been employed in the Department the longest are at the greatest risk. Correctional Industrial Officers and base grade Correctional Officers are also at risk. Officers involved in shift work are more at risk than their non-shift work counterparts. COs who have been on stress leave in the past or are currently on stress leave, show higher levels of distress than others. Support should be targeted toward these groups.

14.5 Selection

14.5.1 Psychological testing

Psychological testing specifically for trait anxiety at selection is recommended, as trait anxiety is a very significant predictor of stress among the CO population. Given that the role of the correctional officer is potentially a stressful one, high levels of trait anxiety could exacerbate personal strain. Appropriate cut off points can be determined from the findings of this research and applied in selection. People with high trait anxiety should be screened out or counselled in the selection process.

14.6 Training, education and information dissemination

14.6.1 Stress management training

Stress management training which helps officers identify both work and non-work stressors, examines coping behaviours and ways of thinking and responding to work stressors, teaches relaxation, goal setting and assertive behaviours should be designed and implemented immediately for all officers in order to reduce high levels of strain prevalent in the organisation. The study showed that one in three COs experienced very high levels of stress (more than double the rate in the general population) as indicated by the GHQ-12 at the time of testing.

Despite their levels of strain, many of the officers are not on leave, and have not taken stress leave in the past.

14.6.2 Financial counselling

The results of the studies indicated that concerns over financial worries were significant in predicting strain. This leads to the recommendation that a one day or half-day personal financial management program be designed for COs and a Financial Counsellor for the Department be appointed. Another possibility would be to work in conjunction with the Department's Credit Union to design and implement an appropriate program.

14.6.3 Personnel selection training

Special training for personnel selection staff in the detection of behaviour/thinking which may lead to "maladaption" to the CO role is required. Those involved in the training and assessment of probationary officers in progress should also be trained in identifying risk behaviours so that people can be counselled or screened.

14.6.4 Feedback from the present study

Anecdotal information obtained by members of the research team when visiting various correctional institutions indicates a very high degree of antipathy and a lack of trust towards management. This has been referred to in Chapter 9, and suggests that consideration needs to be given very carefully to the feedback of results from this. The involvement of the Public Service Association and the Correctional Officers' Legal Fund, at a point after the study had already commenced, also indicates the need for considering how results should be given back. It is recommended that a results presentation session be developed and delivered to COs, at their work locations by members of the research team. This would ensure that the information being supplied to COs is given by a recognised, independent source, rather than coming through established channels for the distribution of information.

14.7 Public relations campaign

It is recommended that a public relations campaign be undertaken by the Department on the role of the CO to boost or enhance the understanding of the community with which the CO deals to provide greater public support for the nature of the work being undertaken.

14.8 Industrial relations complaints

The current system of handling complaints made by inmates against the behaviour of COs should be examined. There is a strong feeling of vulnerability over complaints by inmates towards some COs and their concern over the nature of investigations is a significant source of strain. The current system should be altered so that greater support is given to COs and greater information is provided on the nature of the complaints. Complaints should be followed up

more quickly. Resolution of the complaints should be achieved as quickly as possible, to lessen the stress experienced by the CO against whom the complaint is being made.

14.9 Implementation, research and evaluation

14.9.1 Evaluation of job enhancement/ design strategies

Evaluation of effects of job enhancement or job design strategies should occur not only in terms of performance outcomes but in terms of psychological well-being. Any intervention implemented can be evaluated against the baseline data obtained in the study. A review of institutional restructuring would be an example.

14.9.2 Implementation of task force

It is recommended that a task force be established to oversee the implementation of the recommendations of the study. Membership should include members of the research review committee, and representatives of the Public Service Association and the Correctional Officers' Legal Fund.

14.9.3 Regular feedback

It is recommended that regular feedback be provided to officers about interventions that have been implemented as a result of the study. Officers expressed a degree of cynicism about whether anything would be done as a result of the study.

14.9.4 Access to educational material

Officers should have access to educational material which relates to the nature and prevention of stress not only to provide useful self-help materials , but also to de-stigmatise the notion of strain. Stigma attached to lodging a claim for work-related stress has been noted as a reason for delayed notification and intervention (Usher, 1991).

14.10 Conclusion

The study has examined a complex issue in an organisation which historically has endured industrial difficulties. Results from the study indicate that there is an elevated level of psychological distress, job dissatisfaction, and stress leave among COs which requires urgent redress. The recommendations drawn from the study have an employee and organisational focus and provide a framework for the development of positive outcomes for both the officers and the Department in terms of reduction and prevention of workplace strain.

Chapter 15

AN EVALUATION OF THE IMPACT OF THE CO STUDY

15.1 Introduction

Having provided the recommendations to the Department, two questions arose for the researchers: the first was, to what extent have the stakeholders (Department) utilised the research results? and the second question was, to what extent has the implementation been effective in the reduction of strain for workers? This chapter mainly concerns the first question. It provides an evaluation of the implementation of the outcomes of the study (the recommendations) by the Department.

15.2 The objectives of applied social research

Social change is the main objective of applied social research. The judgement of the value of applied work comes from the various stakeholders identified previously who can comment on and evaluate how much of a contribution the study has made to the development and implementation of policies and programs, and ultimately to the resolution of the social problem. In contrast, basic research is judged by academic peers. Its utilisation is in part determined by the acceptance of research papers in prestigious journals and the ability of the research to stimulate further research (Rossi & Freeman, 1989, p. 421). For any applied work to be linked to social change it must be utilised by the stakeholders. Two types of utilisation are distinguished by Rossi & Freeman (1989). Conceptual utilisation is the "long-term, indirect utilisation of the ideas and findings of an evaluation", and direct utilisation is the "explicit utilisation of specific ideas and findings of an evaluation by decision makers and other stakeholders" (1989 p. 418). The present evaluative study is mainly concerned with direct utilisation, because it was conducted in the short term.

To address the question about the extent of utilisation, archival research, using public records as the unit of analysis, was conducted. The critical analysis was conducted in terms of the following concepts: specific reference to the study and specific reference to the recommendations, intention to act, and criticisms.

15.3 Results

The study and the recommendations were handed to the Department on February 24th 1992. A series of written documents and events followed the delivery of the report.

1. March 27th, 1992 a letter from the Executive Director of the Department to the researchers; "the comprehensive report which highlights staff perceptions of stress and strain in the Department will assist in developing strategies to reduce this strain as the Department proceeds through a period of organizational change. Executive management is currently

considering implementation plans and a program for release of the report to staff and other interested parties"

2. May 1992, shortly before the report was released to the press, the executive management released a special bulletin to all Correctional Officers documenting the report's summary and conclusions, the recommendations and the proposed Departmental response to the recommendations of the report. The formulation for the recommendations takes into account the major findings of the study and was modelled on a national strategy proposed by the National Institute for Occupational Safety and Health (NIOSH), Cincinnati (Sauter, Murphy & Hurrell, 1990) to prevent work-related psychological disorders. Methods for prevention in that formulation were classified into four categories of action; (a) job design to improve working conditions; (b) surveillance of psychological disorders and risk factors; (c) information dissemination, education, and training; and (d) enrichment of psychological health services for workers (Sauter et al., 1990, p. 1149). The recommendations and the Departmental response to each strategy (reported verbatim from the bulletin) are given in Table 15.1.

Table 15.1 *Organisational Responses to Recommendations*

	Recommendation	**Organisational Response**
1	Job design to improve working conditions	
1.1	Leadership and management training Appropriate leadership and management training for officers be implemented.	The Staff Development and Training Centre has finalised its 1992 training program which has been endorsed by Executive.
1.2	Increased management training Increased training for management in job design as it relates to psychological well-being.	Components include Structural Efficiency Training, the Management Development program, the staff training policy document and program of staff development courses. Consultation with Structural Efficiency
1.3	Implementation of team building processes The study found that augmentation of social support (from supervisors, peers and family/friends) would confer positive benefits to the officer by directly reducing strain. Opportunities for personal interaction and emotional support, as well as actual help to accomplish shared goals, should be provided.	Training will continue and Staff Development Officers are continuing to work with managers to identify Management Development needs. The Management Development Program will address, in specific and general terms, these recommendations.
1.4	Reduction of work time concerns Difficulties with the roster system should be addressed.	The department is currently using available resources to rationalise roster systems across all institutions. Funding for proposed time recording system which will assist in improved management of rosters will be sought in 1993-4.
1.5	Reduced work-role ambiguity Work-role ambiguity should be reduced. Clarity of information about roles and responsibilities of the correctional officer is required as role ambiguity was a significant predictor of strain.	Action is currently being taken and will continue through the on-going consultation processes of restructuring as the department works towards enhancing the role of the correctional officer in the new prison structures.
1.6	Mandatory debriefing Debriefing at the end of each shift should become mandatory work practice. Findings indicate that if officers withhold their work concerns and try not to exhibit stress, this have a detrimental effect on their psychological health, physical health and job satisfaction and is also related to work-home conflict.	Some prisons do conduct information debriefing sessions. Action will be taken to ensure that formal debriefing sessions occur at shift changes in all prisons.
1.7	Subsidisation of physical health programs Subsidisation of physical health programs by the Department should continue. Officers who expand outside work activities and deliberately separate work from home show lower levels of strain.	Since 1988 the department has subsidised a range of physical health programs for the staff. The Coordinator, Corporate Health will continue working in this area through the local Occupational health and Safety committees.

1.8	Department supporting outside work interests Any intervention attempted by the department that enables officers to commence or maintain outside work (recreational) interests is encouraged. Shift-workers may need special consideration in this area given their irregular working hours.	The department encourages outside work recreational activities however, considers this recommendation lies outside its responsibilities as an employer.
1.9	Participation in decision making Participation in decision making that affects the officer is required to help improve involvement and commitment to the organisation as well as enhancing feelings of control in the work place.	The department currently encourages and enables staff to participate in decision making and involvement in the organisation through the consultative mechanisms established at the local level (e.g. local DCS/PSA consultative committees and Occupational Health and Safety committees).
1.10	Involvement in the organisation Feelings of involvement in the organisation should be enhanced. Lower involvement by officers in the organisation is related to higher strain.	Participation will increase as the benefits become more apparent to staff.
2	Enrichment of psychological health services	
2.1	Staff Counsellor appointment That a Staff Counsellor with appropriate professional qualifications in psychology and social work and preferably with a background in correctional work or organizational behaviour be appointed.	(See below)
2.2	Field based counselling The counsellor should be field based, mobile between institutions and directly accessible to the correctional officer.	The appointment of a Staff Counsellor is fully supported and the department is now seeking the reallocation of funds to create this position. Recommendations 2.2 to 2.4 relate to the duties of this officer.
2.3	Counsellor involvement The counsellor would be involved in the development and implementation procedures which encourage and enable reporting of early warning signs of stress - followed by immediate intervention.	
2.4	Family counselling Family counselling in stress-related issues should be encouraged by the Department.	
3	Surveillance of psychological distress and risk factors	
3.1	On-going surveillance of distress On-going surveillance of occupational psychological distress and surveillance of occupational conditions that place workers at risk of psychological distress is required. This could be achieved by surveillance of health status, including psychological health status, to detect emerging problems and to record work conditions to identify possible relationships with work risk factors.	This task would also be the responsibility of both the Staff Counsellor and line managers. The Staff Development Centre will report on the training implications.
3.2	Regular personal health audits Regular personal audits, applying some of the instruments used in the study should be part of the Staff Counsellor's role.	The Department recognises the importance of regular personal health audits and encourages staff to maintain these.
3.3	Expanded work place safety assessments Assessments of work place safety should be expanded to incorporate work place risk factors for psychological distress.	It is proposed to consider psychological aspects of work place safety in an informal manner through staff consultation by the Staff Counsellor.
3.4	Continuing aggregate feedback Aggregate feedback (to assure confidentiality) from health care providers or other mental health providers should be used for continued surveillance of occupational mental health and risk factors.	Levels of strain in the organisation will continue to be monitored by health and safety committees and the number of claims lodged.
3.5	Exit interviews with all officers Exit interviews be conducted with all officers leaving the department, to record possible occupational factors or psychological factors underlying the decision.	The Human Resources Branch will place this recommendation on the agenda of the PSA/DCS Executive Consultative Committee with a view to planning its effective implementation.

4	Priority Intervention Targets	
4.1	Officers currently and previously on stress leave Officers currently on stress leave and officers who have previously been on stress leave and have returned to work are identified as groups for priority intervention.	Two Rehabilitation Officers, appointed in November 1990, work with officers on stress leave to assist them in returning to work and developing healthy coping strategies.
4.2	Officers most at risk Officers at the levels of Correctional Industrial Officer and Correctional Officer (OPS 1 and 2 in the restructured classifications) are the most at risk. Officers who have been employed in the Department the longest are at the greatest risk. Officers involved in shift work are more at risk than their non-shift work counterparts. Action should be targeted toward these groups.	When appointed the Staff Counsellor will counsel staff experiencing stress at work, in order that they can be assisted to cope and remain at work.
5	Selection	
5.1	Psychological testing Psychological testing specifically for trait anxiety at selection is recommended. People with high trait anxiety should be screened out in the selection process.	This recommendation is to be given further consideration by Executive.
6	Training, Education and Information	
6.1	Stress management training Stress management training which helps officers identify both work and non-work stressors and examines coping behaviours and ways of thinking and responding to work stressors, teaches relaxation, goal setting and assertive behaviours should be designed and implemented immediately for all officers.	The department does, and will continue to, provide stress management training in accordance with identified local needs. This training is co-ordinated through the Occupational Environment and Welfare Services.
6.2	Financial counselling The study finds that concerns over financial worries are significant in predicting strain. A financial management program designed for correctional officers is recommended.	This topic is included in the correctional officer induction training course - a service is provided by the Credit Union.
6.3	Personnel selection training Special training for personnel selection staff in detection of behaviour/thinking which may lead to maladaptation to the correctional officer role. Those involved in the training and assessment of probationary officers in progress should also be trained in identifying risk behaviours so that people can be counselled or screened.	The Department is constantly improving the selection process to ensure that those selected are best suited to the occupation. This process will continue and be refined.
6.4	Feedback from present study Consideration needs to be given to the feedback of results from the study into stress.	Feedback of the present study will continue through departmental publications, staff meetings and local consultative groups.
7	Public Relations Campaign It is recommended that a public relations campaign be undertaken by the Department on the role of the correctional officer to boost or enhance the understanding of the community with which the correctional officer deals, particularly in country areas, to provide greater public support for the nature of the work being undertaken.	The Public Relations Unit will continue to utilise all possible opportunities to raise public awareness of the work of correctional officers.
8	Industrial Relations Complaints The current system of handling complaints made by inmates against the behaviour of correctional officers should be examined with a view to resolving complaints as quickly as possible.	A working party, including members representing the PSA and Correctional Officers' Legal Fund had been established to prepare a report on the subject of this recommendation.
9	Implementation, Research and Evaluation	
9.1	Evaluation of effects of job enhancement or job design strategies Evaluation of effects of job enhancement or job design strategies should occur not only in terms of performance outcomes but also in terms of psychological well-being.	The Department and the PSA are closely involved in evaluation of job redesign and role enhancement and will monitor the effects of new structures and roles on staff.

9.2	Implementation of task force That a task force be established, including members of the research review committee and representatives of the PSA and the Correctional Officers' Legal Fund to oversee the implementation of the recommendations of the study.	Regular feedback will be provided to Executive through reports from the Occupational Environment and Welfare Services, based on information received from local Occupational Health and Safety committees, the Staff Counsellor and Rehabilitation officers.
9.3	Regular feedback That regular feedback be provided to officers about interventions which have been implemented as a result of the study.	Feedback to staff will continue through departmental publications, staff meetings and local consultative groups.
9.4	Access to educational material Officers should have access to educational material which relates to the nature and prevention of stress not only to provide useful self-help materials, but also to de-stigmatise the notion of strain.	Access to educational material will continue to be made available through the Library, Public Relations Unit and Occupational Environment and Welfare Services.

Further excerpts from the bulletin are given below to show the tone of communication;

"The report does not comment on the human loss to the individual (alienation from the work force and loss of self-confidence) and to the organisation (the loss of the full contribution of the staff member). The report and its recommendations, do however, provide the Department with a framework to both enhance present strategies and implement new strategies to reduce the incidence of stress experienced by custodial staff.

The researchers conclude that joint action needs to be taken by the officers and the Department to reduce levels of strain. Staff are encouraged to take full advantage of these initiatives (outlined in the bulletin), participate in the programs and contribute to further reducing stress in the work place by participating in the established consultative processes.

The study has examined a complex issue in an organisation which historically has endured industrial difficulties. Results from the study indicate that there is an elevated level of psychological distress among correctional officers which requires immediate action. The recommendations drawn from the study have an employee and organizational focus and provide a framework for the development of positive outcomes for both the officers and the Department in terms of reduction and prevention or work place strain.

The Department thanks those officers who participated in the study by completing the researchers' questionnaire. The data has provided invaluable information to assist the Department in reducing stress in the work place as well as a useful "tool" to measure the impact of new and existing strategies adopted."

3. May 15th. 1992, following the dissemination of this document to all officers, a joint press conference between management and the union was held for the first time in the history of the organisation with representatives, Department of Correctional Services Executive Director, and Public Service Association secretary. This was a public statement about the nature of the problem and what the Department proposed to do about it. "The department has undertaken to implement strategies in the areas of work conditions, monitoring stress factors, health services, intervention, staff selection, industrial relations and on-going evaluation. It's a very positive move, pioneering management of work stress in the public sector"

4. May 16th. 1992, the daily newspaper's industrial reporter documented the press conference cited the Public Service Association secretary, as hopeful that the initiative would "usher in a new era" for Correctional Officers.

5. June 2nd. 1992, personal communication from the South Australian Department of Labour, Principal Rehabilitation Adviser, responsible for the rehabilitation needs of 51,000 workers who lodge 400 stress claims each year: "I concur with all the conclusions and recommendations. These confirm what I and others close to the issue have concluded. The Department of Correctional Services, partially because they have the greatest problems, are probably showing the way in which to respond. Executive support is the most critical yet hard to achieve ingredient."

6. June 16th. 1992, request Department to thank officers who participated in the study through the Department newsletter.

7. December 12th. 1992, an advertisement appeared in the daily newspaper for a Staff Counsellor following unsuccessful solicitation through South Australian Government employees.

To examine the issue of *impact* of the study, a proposal was submitted to the Department in July 1993, but was rejected at the time as delays had occurred in the appointment of a staff counsellor, as recommended, and this meant that a number of the other recommendations had not been implemented. The search for a psychologist for the position failed and the position was filled in January 1994 by a social worker, with a background in counselling, debriefing, rehabilitation, and management.

Recent information from the Government Workers Rehabilitation and Compensation Office has shown a down turn in stress claims from the Department (1989-'90, 86 claims; 1992-'93, 89 claims; 1993-'94, 55 claims), *The Advertiser*, 14 September, 1994, p. 3. In the article, State Minister of Industrial Affairs, said that the fall, (also noted in the Education Department), could be attributed to major programs aimed at cutting the incidence of stress-related disorders with the early identification of stress problems.

The study and its recommendations no doubt contributed to this positive result, (personal communication with the social worker, July, 1994) and to the collective knowledge of the department community through presentations and publication of the study. However without formal evaluation, the precise extent of the influence is largely unknown.

In 1995 the staff counsellor agreed to evaluate the counselling services provided to the organisation[2]. Services provided by the counsellor included among others: counselling for staff at home or work; the development of an in-house critical incident debriefing team; management counselling regarding staff stress management; team building for management teams in prison; development of prison staff support teams; employee assistance programs for private therapy or therapeutic massage; and conflict resolution in the field. Preliminary evaluation of the service shows, over 500 staff contacts in the first twelve months and a reduction in the number of stress claims by 30%. Enormous savings in the worker's compensation area have been attributed by management to counselling and debriefing provided to staff. A general cultural shift has been observed in utilisation of services, from the COs being reticent to ask for help to a culture of seeking assistance both after critical incidents and at times of personal or professional crisis.

Although organisational data suggests significant positive gains for the mental health of COs, further surveillance is required to assess possible changes in CO health and well-being as a result of interventions. Moreover, the decrease in registered stress claims need to be considered in the context of a wider trend for all public service claims, where the first decrease was noted in 1993-4, and continued in 1994-5. These changes also seem coincident with more stringent conditions for work stress claims via amendments to the Worker's Compensation and Rehabilitation Act 1986 (proclaimed December 1992). Under the new Act, the conditions under which an illness or disorder of the mind caused by stress was compensable, were made

more stringent. Now, stress arising out of employment must be considered by a medical practitioner to be a substantial cause of the illness or disorder of the mind (*Workcover Injury Management Bulletin*, March, 1993). These new conditions themselves no doubt influence the number of stress claims received. Finally, evaluation of the psychological impact of work environment changes is required.

15.4 Evaluation

The archival evidence presented establishes that the rudiments of a social intervention program have been fashioned by the Department based on the outcomes and recommendations of the study. This positive result was apparently due to the attempts made by the researchers to understand the political context of the study, to consult with all stakeholders at the outset of the study, to respond to the emergence of stakeholders as the study proceeded, and to provide constant feedback to the research review committee about the progress and findings of the study. These interactions provided the basis for reciprocal education about the salient issues and concerns in the action research process. The diverse membership of the research review committee also gave voice to the less powerful and elicited the interest and attention from the more powerful to the issues being investigated (Greene, 1988).

Where possible the researchers met with prison officers to explain the purpose of the study and emphasise the importance of their participation, as well as promising that feedback would be provided. The terms of reference provided at the outset by the Department also provided broad parameters for investigating the problem and reflected a value stance that gave consideration to the possibility that structural problems within the organisation, in addition to personal variables could give rise to strain. The internal validity of the research is also reflected by the acceptance, both internally and externally, of the results and recommendations.

In addition to direct or instrumental utilisation (the use of the report in decision making), persuasive or symbolic utilisation may also be used as ammunition for justifying decisions or policies which have already been made (Dooley, 1990) and to some extent this is demonstrated in the Department's response. For example, the Department stated that "the Department currently encourages and enables staff to participate in decision making and involvement in the organisation through the consultative mechanisms at the local level (e.g. local DCS/PSA consultative committees and Occupational Health and Safety committees). Participation will increase as the benefits become more apparent to staff". The consultative structure is argued to exist, but clearly the officers did not perceive a participative, consultative role in the organisation.

The effectiveness or impact of the program based on the study has not been evaluated at this stage. However this raises a number of methodological difficulties. In evaluating the impact of an intervention the obvious way is to compare pre-existing conditions with conditions after the introduction of the program. The initial study anticipated this possibility and employed measures with known reliability and validity. The major problem for the evaluation is that,

although initial negotiations by the researcher attempted to have officers identify themselves on the questionnaire, many officers feared identification despite assurances of confidentiality. The union advised the researchers that officers would not participate if they felt they could be identified in any way. It was therefore impossible to use a longitudinal design comparing base line responses with post intervention responses. It is important to note also that the Department implemented a number of other changes contemporaneously with the study, such as enhancing the role of the correctional officer, and organizational restructuring so that conclusions about the substance of the recommendations leading hopefully to reduced strain would be very tenuous without reference to these other changes.

15.5 Concluding remarks

The stress literature abounds with suggestions about the nature and sources of stress, with models built on the basis of cross-sectional research methodologies (the present study being a case in point) which limit causal inferences about the impact of the work environment on mental and physical health. Further, many studies provide suggestions about organizational strategies to remedy increasing levels of strain but few studies have made specific recommendations about how to both reduce strain and prevent work-related psychological and physiological ill health. Fewer still evaluate the impact of such interventions. It is clear from the organizational response to the present study and its recommendations, that the Department proposes structural changes rather than just tertiary prevention strategies where the onus of responsibility for reducing or managing stress is with the individual. The organisation has recognised psychological distress as a leading occupational health problem and has taken some key steps toward improving work conditions and establishing employee mental health services. Further, the agenda has been set for collaborative action between the officers, their union, and management to respond to the recommendations and monitor the implementation of the strategies.

The challenge for the Department and the researchers now is to further evaluate the initiatives taken to reduce the level of strain for officers. The methodology for such evaluation will not be straightforward because of the officers' refusal to be identified. Consequently, only aggregate changes in the dependent measures will be available for such an evaluation.

NOTES

1. The Chapter is based on: Dollard, M. F. & Winefield, A. H. (1994). Organizational response to recommendations based on a study of stress among correctional officers. *International Journal of Stress Management, 1*, 81-101.

2. Dollard, M. F., Forgan, R., Winefield, A. H. (1996). A study into stress among correctional officers: Five years on. Paper to be presented in the symposium Occupational stress in the public sector, International Congress on Stress and Health, Sydney.

PART III

Stress in Nurses: A Test of the Demand-Control/Support Model

Chapter 16

A TEST OF THE DEMAND-CONTROL/SUPPORT MODEL IN NURSES

16.1 Introduction

The aim of the study was to assess the utility of the DC/S model in a single occupational sample. Most tests of homogeneous groups have used individual levels of analysis, using self report measures of demands, control and affective outcomes. As discussed in Chapter 4, a number of tests of the J-DC model have been conducted in homogeneous groups of workers without much support for the model (Hurrell & McLaney, 1989; Morrison, et al., 1992; Payne & Fletcher, 1983; Perrewe & Anthony, 1990; Spector, 1987). Some methodological limitations of these studies were outlined.

The aim of the present analysis was to assess the DC/S model cross-sectionally *and* prospectively at the individual level. The study improved on previous research designs used in the thesis, by controlling for initial levels of strain symptomatology (Bromet, Dew, Parkinson, & Schulberg, 1988; Parkes, 1991) and by the use more objective measures of strain. Also the study aimed to assess the generality of the model, as most DC/S tests have been restricted to male workers.

While there is some evidence in the literature that nurses relative to other health professionals report the greatest levels of stress (Landsbergis, 1988; Richardson, Burke, & Leiter, 1992; Wolfgang, 1991), there are surprisingly few claims that nursing work is more stressful than other kind of work. Indeed Karasek and Theorell (1990) classified nursing jobs as active jobs, combining high levels of demands and high levels of control. According to the J-DC theory nurses therefore would not show higher levels of strain compared to many other occupations (e.g. high strain jobs). High levels of job satisfaction should also be apparent. Quite a lot of research has been conducted on nursing stress, but it generally seeks to explain differences in levels of stress between nursing specialty areas rather than attempting to establish higher levels of stress for nurses (e.g. Gray-Toft & Anderson, 1981a; Oehler, Davidson, Starr, & Lee, 1991; Power & Sharp, 1988).

Quite a lot of nurse stress research has focused on the relationship between the nurse and patient as a key source of occupational burnout (Maslach & Schaufeli, 1993). Another line of enquiry focuses on the lack of job autonomy nurses seem to have, relative to medical practitioners (Jonas, 1990), and often as a result of the structure and the functioning of large bureaucratic institutions that nurses often work in (Parkes & Von Rabenau, 1993). Although earlier studies of nursing stress reported that exposure to death and dying was one of the top three sources of stress for nurses (Gray-Toft & Anderson, 1981a) one subsequent interpretation was that actual differences between nursing specialty areas gave rise to different levels of strain. The differences in the areas, Landsbergis (1988) argued showed that "social support, skill discretion and decision authority were important modifiers of the stress of facing dying patients" (p. 235). A number of researchers have examined the possibility that level of autonomy, and social support could moderate the impact of work demands on levels of strain of

nurses using the DC/S model (De Jonge, Janssen, & Breukelen, in press; Fox, Dwyer, & Ganster, 1993; Hurrell & McLaney, 1989; Landsbergis, 1988; Parkes, Mendham, & von Rabenau, 1994).

Within nurse samples higher levels of stress have been reported to contribute to a range of negative consequences for the nurse and the organisation, including "burnout", (Maslach 1982; Maslach & Schaufeli, 1993; Oehler et al., 1991; McCranie, Lambert, & Lambert, 1987), job dissatisfaction (Davis, 1974; Gray-Toft & Anderson, 1981a; Power & Sharp, 1988), excessive staff turnover (Gray-Toft & Anderson, 1981a; Kramer, 1974), intention to leave the profession (Fimian, Fastenau, & Thomas, 1988), absenteeism (Firth & Britton, 1989), and psychological distress (Tyler & Cushway, 1992).

16.2 Method

16.2.1 Procedure

Permission to conduct the study was sought through the Hospital Board. Union members, and nurse managers were approached about a study into the nature of stress among nurses. Their advice about the conduct of the study, and the content of the questionnaire was sought. Nurses were informed about the study through talks, letters, posters and meetings, and were encouraged to respond, although participation was voluntary. Anonymity and confidentiality of responses was assured. Questionnaires were distributed through the hospital pay system. Surveys were sent out with payslips and follow up notes were sent out two weeks after the original mailing (see Appendix 5). Nurses were asked to identify themselves by pay-roll number or name if they wished to participate in a follow up study. Administrative services at the hospital assisted in locating subjects at T2. Data were collected at T1 in August-September 1992, and at T2 in August-September 1993.

16.2.2 The sample

The population consisted of 212 nurses employed in a medium-sized public hospital in rural Australia. At T1 the sample consisted of 107 (99 female, 7 male) nurses. Ages ranged from 18 to 60 years, with the mode being 18 to 30 years. Tenure ranged from 0 to 26 years (M=7.15, SD=6.48). Twenty-six percent (26%) of the sample were single, 59 % were married and 14 % were living in a defacto relationship.

At T2 the sample consisted of 65 (61 female, 4 male) respondents. Ages ranged from 18 to 60 years, the mode being 18 to 30 years. Tenure ranged from 0 to 26 years (M=7.42, SD=6.39). Twenty-two percent (22%) of the sample were single, 67 percent were married and 11 percent were defacto.

16.2.3 Measures

Gender, years of service, age, daily alcohol use, relationship status, exercise level, shift work status, perceived weight, number of cigarettes smoked daily, overtime hours in the past fortnight, and frequency of serious financial worries in the past month were measured as described in Chapter 8. Additional demographic measures included classification. This referred to level of training and was coded as follows, 1=*trainee enrolled nurse*, 3=*student nurse*, 4=*registered nurse,* 5=*clinical nurse/ consultant.*

Trait anxiety. The 20-item STAI-Y State-Trait Personality Inventory (STPI) (Spielberger Gorsuch, Lushene, Vagg, & Jacobs, 1983) was employed to measure trait anxiety as a recommended index of negative affectivity (Watson & Pennebaker, 1989) (T1 and T2).

Demand, control and *support* measures derived from the WES were measured as previously described in Chapter 8 (T1 and T2) (see Appendix 6).

Subjective work stress measure. The Nursing Stress Scale (NSS) was used as a subjective measure of work stress for nurses (Gray-Toft & Anderson, 1981b) (see Appendix 6). The scale consists of 34 items describing situations that have been identified as causing stress for nurses in the performance of their duties. The scale shows a satisfactory level of reliability and internal consistency among items [Test-retest reliability coefficient for the total scale of .81, internal consistency Spearman-Brown coefficient of 0.79, Guttman split-half coefficient of 0.79, a coefficient alpha of 0.89, and a standardised item alpha of 0.89] and good convergent validity (Gray-Toft & Anderson, 1981a).

Subjects responded on a 4 four point scale, ranging from 1=*never* to 4=*very frequently,* to items asking how often they had found the various nurse situations to be stressful (see Appendix 5). Items covered a range of issues including death and dying, inadequate preparation to deal with emotional aspects of the patients and their families, lack of social support, workload, uncertainty regarding treatment, conflict with other nurses and supervisors, and conflict with doctors. The word "physician" was changed to "doctor" to reflect the Australian usage.

Coping. As described in Chapter 10, *direct action* and *emotional suppression* were used to operationalise direct coping and passive coping respectively (T1).

Psychological distress, physical health symptoms, work-home conflict and visits to the doctor were measured as previously described in Chapter 9 (T1 and T2).

Job satisfaction. At T1 the measure was one item, the same as in Chapter 8. The test-retest reliability of the scale reported by Warr was quite low (reliability was 0.27) compared to the 15-item scale of total job satisfaction test-retest reliability of 0.63 (Warr, Cook, & Wall, 1979). This is probably because of the priming of long term memory that would be inherent in longer scales (Porac, 1990). To be more certain about reliability the full 15-item scale was used at T2 (see Appendix 6). The correlation between the global index (1 item) and the full scale was 0.70 (Warr et al., 1979) and in the present study was comparable (0.73), both measures taken simultaneously at T2. All items were answered on a 7-point scale (1=*extremely dissatisfied,* 7=*extremely satisfied*) resulting in a possible range of scores from 15 (minimum satisfaction) to 105 (maximum satisfaction). Higher scores were associated with higher satisfaction.

Job satisfaction is the degree to which a person reports satisfaction with intrinsic and extrinsic features of the job. Total job satisfaction is the sum of all the separate fifteen items, and overall (global) job satisfaction is reported satisfaction with the job as a whole. When comparisons are made between T1 and T2 data, the global scale only is used.

Job change indications. This was a two-item scale, which asked nurse how often they had considered resigning from the hospital, and how often they had considered a complete career change. Responses were coded, 1=*never*, 2=*sometimes*, 3=*often*, 4=*frequently*. To this was added a score for responses to the following: in the past twelve months have you applied for a 5=position outside the department, 4=transfer to another location, 3=transfer within your own department, 2=promotion, and 1=none of the above. Scores could range from 2 to 13. This was measured at T1 only.

Stress leave. At T1 subjects were asked if they had taken stress leave. At T2 subjects were asked if they had taken stress leave in the past twelve months. Stress leave was coded 1=*no leave taken*, 2=*yes leave taken*.

It was also decided to use more objective indices of strain, by including measures of blood pressure and pulse rate. Blood pressure is a well-known risk factor for cardiovascular disease (Schnall, Pieper, Schwartz, Karasek, Schlussel, Devereux, Ganue, Alderman, Warren, & Pickering, 1990). Given the sample comprised nurses, it was assumed that they would be able to provide reliable information regarding these measures.

Blood pressure. At T1 and T2 nurses were asked "what is your blood pressure now?" Diastolic and systolic blood pressure were recorded in this way. It was expected that nurses would measure their blood pressure at the time and record the amount as milligrams of mercury

Heart rate. This was measured only at T1. Nurses were asked "what is your pulse now?" Beats per minute were recorded this way.

16.3 Results

16.3.1 Representativeness and response rate

The representativeness of the sample at T1 only could be checked by location and gender data from administrative records. Table 16.1 shows the percentage of responses by location. Although there was an under representation of total responses from paediatric and maternity areas, nursing specialty areas themselves were not associated with significantly different levels of strain (for GHQ-12 $F(11, 94)=1.64$, *ns*, for job satisfaction $F(11, 90)=1.57$, *ns*; for physical health symptoms $F(11, 94)=1.06$, *ns* ; and for work-home conflict $F(11, 94)=1.23$, *ns*.. It could be concluded that under representation in these areas would not affect level of strain reported. Of course, those who did not respond may have been more or less stressed than those who did respond. There were no differences in the percentage of responses obtained from different nursing specialty areas from T1 to T2. The gender composition of the population (93% females: 7% males) matched that of the sample at T1 (93% females: 7% males) ($\chi 2(1) <1$) and at T2 (94% females: 6% males) ($\chi 2(1) <1$).

The response rate at T1 was 50.5% (N=107). Of the initial sample 89 (83%) identified themselves, and this was the subset available for the follow up study. The main reason given from nurses for non-participation was that they were tired of surveys, that the questionnaire was very long, and that they were not interested. None of these comments raised concerns that the responding sample may have been seriously biased, in the experience of the work environment or in levels of strain.

Table 16.1 *Location of Respondents and Response Rate*

Location	Population Size	Total Survey Returns	Response Rate (%)
Nursing Administration	9	7	77.77
Medical Ward	27	15	55.55
Surgical	39	27	69.23
A & R	15	7	46.66
Paediatric	18	4	22.22
Maternity	40	12	30.00
Day Surgery Unit	5	2	40.00
Palliative Care	2	2	100.00
Intensive Care	18	8	44.44
Accident and Emergency	22	11	50.00
Operating Suite	17	11	64.70
On Call		1	
Total	212	107	50.47

Of the eighty-nine available at T2, nine were classified by administrative records as not available (death by car accident, resignation due to psychotic episode, overseas). Although six were working in other hospital locations they were invited to participate. Eighty questionnaire forms were mailed. Sixty-five were returned, representing a response rate of 81% of the available sample, 61% of the initial sample and 31% of the original population.

The respondents at T2 were compared with the non-respondents at T2 to assess any bias in the sample at T2. Demographics and personal disposition were assessed. Table 16.2 shows the means, standard deviations and difference between means of measures using unrelated sample t-tests, of respondents at T2 and non-respondents at T2 (who participated at T1 only). There were some differences between the samples. Respondents at T2 were less likely to be shift workers, more likely to have a higher job classification, and more likely to perceive themselves as heavier, than non-respondents. There were also some differences that approached significance. Respondents were more likely to be married or defacto. The intercorrelations shown in Table 16.4 suggest that these demographic differences may lead to higher levels of blood pressure (diastolic and systolic) reported at T2 due to fewer shift workers in the sample. However there may be lower levels of diastolic blood pressure at T2 due to higher levels of job classification at T2. There was no relationship between marital status and

levels of strain. Overall these differences do not suggest bias between the samples in levels of strain in any systematic way.

Table 16.2 *Representativeness of Survey Respondents at T2 vs Non-respondents at T2 on the Demographic Variables and Personal Disposition Measured at T1.*

	Respondents			Non-respondents			
	N	*M*	*SD*	*N*	*M*	*SD*	*t*
Age	65	1.90	.96	41	1.67	.97	1.43
Gender	65	1.06	.22	41	1.07	.26	<1
Length of employment (yrs)	65	7.42	6.39	40	6.73	6.69	<1
Classification	65	4.11	1.57	41	3.24	1.20	3.19**
Perceived weight	65	5.25	.97	41	4.78	1.13	2.18*
Smoking	64	2.06	1.58	40	2.13	1.56	<1
Exercise	65	3.68	1.59	40	4.03	1.48	<1
Alcohol daily	65	.33	.54	41	.28	.22	<1
Relationship	63	2.49	.84	43	2.16	.90	1.90
Shift work	65	1.85	.36	39	1.97	.16	2.47*
Trait anxiety	62	37.23	10.07	39	37.62	9.20	<1

Note. *$p<.05$. **$p<.01$. Gender, 1=female, 2=male; Relationship, 1=single, 2=married, defacto; Shift work 1=no, 2=yes.

16.3.2 Descriptive statistics

Table 16.3 shows the means, standard deviations, and reliabilities (alpha coefficients) for measures taken at T1 and T2. Also tests of significance of difference between means of dependent and independent measures of workers participating at *both* T1 and T2 are shown (related sample t-tests). There were no differences between T1 and T2 measures except level of work demand and the level of GHQ-12 scores had risen significantly, and the level of increase in stress leave approached significance.

The internal reliabilities for trait anxiety and the multi-item strain measures exceeded .70 at T1 and T2, with the exception of job change indications at T1. The internal reliabilities of the coping scales were also low.

Table 16.4 shows the intercorrelations between all the variables at T2. For ease of discussion these results are for the sample that participated at T1 and T2. In addition to internal consistency the test-retest reliability of the variables can be assessed in this study (i.e. intercorrelation between the repeated variables). Test-retest reliability provides an indication of error terms associated with the passage of time. The conventional level for a satisfactory level of test-retest reliability is .70 (Polit & Hungler, 1987). There are problems associated with this kind of measure of reliability specifically the fact that many variables change over time, independent of the actual reliability of the instrument. Consistent with this, the highest level of test-retest reliability was found with TA $r(118)=.58$, $p<.01$, which is by definition a stable personal disposition variable. Test-retest reliabilities for the work environment measures ranged from, $r(120)=.57$, $p<.01$ for control, to $r(120)=.55$, $p<.01$ for co-worker support. For the dependent measures, test-retest reliabilities suggested some of the strain measures were

Table 16.3 *Descriptive Statistics: Respondents at T1 and at T2*

	Respondents T1				Respondents T2						
						T1 measures		*T2 measures*			
	N	*M*	*SD*	α	*N*	*M*	*SD*	*M*	*SD*	α	*t*
Age	106	1.80	.96	–	65	1.90	.96	–	–	–	–
Gender	103	1.07	.25	–	65	1.06	.22	–	–	–	–
Length of employment (yrs)	105	7.15	6.48	–	65	7.42	6.39	–	–	–	–
Status	103	1.97	.33	–	65	4.11	1.57	–	–	–	–
Perceived weight	106	5.07	1.05	–	65	5.25	.97	–	–	–	–
Smoking	104	2.09	1.56	–	64	2.06	1.58	–	–	–	–
Exercise	105	3.81	1.54	–	65	3.68	1.59	–	–	–	–
Alcohol daily	107	.31	.44	–	65	.33	.54	–	–	–	–
Relationship	106	1.76	.49	–	63	2.49	.84	–	–	–	–
Shiftwork	104	1.89	.31	–	65	1.85	.36	–	–	–	–
Trait anxiety	101	37.38	9.70	.89	60	37.07	9.55	36.53	9.56	.93	<1
Total NSS	88	67.39	12.63	.90	–	–	–	–	–	–	–
Demand	96	4.71	2.63	.82	57	4.33	2.62	5.12	2.65	.81	2.41*
Control	99	5.79	1.64	.40	59	5.77	1.63	5.88	1.75	.51	<1
Co-Worker support	99	6.01	2.09	.61	57	6.00	1.97	6.17	6.17	.81	<1
Supervisor support	93	5.27	2.10	.71	55	5.35	2.13	5.01	2.50	.75	-1.18
Direct action	104	11.62	2.17	.50	–	–	–	–	–	–	–
Emotional suppression	101	4.97	1.64	.65	–	–	–	–	–	–	–
GHQ-12	106	11.49	5.71	.91	63	11.31	5.47	13.41	6.10	.92	2.68**
Job satisfaction	102	5.18	1.10	–	61	5.31	1.08	5.16	1.14	–	<1
Physical health symptoms	107	34.66	4.83	.73	63	39.44	5.74	39.95	7.12	.81	<1
Work-home conflict	96	14.20	3.05	.73	55	14.53	2.91	14.78	2.97	.83	<1
Job change indications	104	3.74	1.67	.51	–	–	–	–	–	–	–
Stress leave	106	1.10	.31	–	63	1.08	.27	1.14	.36	–	1.66
Visits to doctor	106	1.25	.44	–	61	1.26	.44	1.21	.41	–	<1
Diastolic blood pressure	91	117.68	13.63	–	43	118.35	14.71	117.21	15.94	–	<1
Systolic blood pressure	91	72.47	10.59	–	43	72.79	16.27	69.42	13.74	–	1.39
Pulse rate	101	77.69	10.33	–	–	–	–	–	–	–	–

Note. *t*, t-test assessing the difference between T1 measures and T2 measures for T2 participants. α, alpha coefficient. *$p<.05$. **$p<.01$.
In some case N was reduced because of missing values. In all cases high scores correspond with high levels on the variable. --, not measured/relevant.

more stable (diastolic blood pressure, $r(41)=.77$, $p<.01$; work-home conflict, $r(63)=.53$, $p<.01$) than others (GHQ-12, $r(63)=.61$, $p<.01$). The reliabilities for systolic blood pressure and visits to the doctor, were poor.

It was assumed that the measures of blood pressure and pulse rate were assessed by the nurses at the time using a valid procedure. There is however some literature which suggests that self-assessment of psychological characteristics could be affected by prior knowledge of hypertensive states (Irvine, Garner, Olmsted, & Logan, 1989). No doubt the same processes resulting from labelling and diagnosis could result in less valid measures of blood pressure. It was therefore important to assess validity, and this could be done by assessing patterns of correlations between the measures of blood pressure, and pulse and other measures. Evidence for congruent validity was obtained by significant positive associations between age and blood pressure at T1, and diastolic blood pressure and age at T2 ($r(41)=.51$, $p<.01$) (although age and systolic blood pressure were not significantly associated at T2, r (41) =.23). Pulse rate at T1 and diastolic blood pressure at T2 were however associated with systolic blood pressure at T2 providing some (small) evidence for convergent validity. [Some of the T2 correlations will not be significant because of the reduced *N*].

Other correlations between variables will now be described using Cohen's (1992) definitions for correlation size (small, $r=.20$; medium, $r=.30$; large, $r=.50$).

DEMOGRAPHIC/CONTROL VARIABLES

Few correlations were found between the demographic variables (all measured at T1 only). Positive medium sized associations were found between: length of service and age; length of service and being married; length of service and overtime hours; age and perceived weight; use of alcohol daily and being single; use of alcohol and being male; and use of alcohol and financial worries. Also younger workers were shift workers.

The demographic/control set were not clearly linked with the TA at T1, except for a medium negative correlation with overtime hours, and a medium positive correlation with financial worries. The latter relationship also held at T2.

Few associations were noted between demographic/control variables and the demand, control, support measures: medium positive correlations were found between financial worries and demand at T1; medium positive correlations with classification, and both control and co-worker support at T2; and finally, a negative correlation between financial worries and control at T2.

Of all the demographic/control variables financial worries was most frequently linked with measures of strain taken simultaneously and one year later. Perceived weight also showed a number of associations concurrently and a year later. Shift work was associated with lower levels of blood pressure, diastolic and systolic at T2. Higher levels of alcohol use were also associated with physical health symptoms at T1 and GHQ-12 at T2, and with taking stress leave at both T1 and T2.

Table 16.4 *Pearson Intercorrelations of Variables*

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Time 1																					
1. Gender																					
2. Service length	-.13																				
3. Age	-.02	.48**																			
4. Alcohol daily	.27**	-.24*	-.13																		
5. Relationship	-.02	.27**	.21*	-.33**																	
6. Exercise	-.02	.03	.01	-.14	.17																
7. Shift work	-.16	.01	-.23*	-.25*	.03	.16															
8. Classification	.02	-.07	.17	-.03	-.10	.03	.07														
9. Perceived weight	-.12	.02	.29**	-.21**	.14	.07	.04	.13													
10. Smoking	.03	.02	.03	.17	-.08	.09	.12	-.03	-.06												
11. Overtime hours	-.10	.31**	.07	-.12	.00	-.09	.10	.00	.05	.05											
12. Finances	.04	-.10	-.04	.28**	-.19	.03	.04	-.06	.06	.28**	-.02										
13. Trait anxiety	-.06	-.14	-.04	.12	-.09	.08	.08	-.02	.00	.10	-.28**	.37**									
14. Total NSS	-.09	-.02	-.03	.03	-.16	.07	.34**	.14	.01	.18	-.25*	.10	.48**								
15. Demand	-.05	.01	.06	.12	-.01	.09	-.23*	.06	.01	.24*	-.07	.31**	.31**	.28**							
16. Control	.08	.08	.04	-.06	.17	.05	.02	.02	.00	.03	-.14	.00	-.12	-.16	-.17						
17. Co-worker support	-.09	.07	-.14	-.05	-.04	-.14	.17	.01	.07	-.08	-.01	-.14	-.40**	-.15	-.39**	.29**					
18. Supervisor support	.02	-.04	.04	-.13	.07	.08	.04	.00	.26*	-.13	-.02	-.15	-.09	-.11	-.24*	.42**	.47**				
19 Direct action	.17	.09	.07	.06	-.06	-.02	.00	-.03	.00	-.10	.07	-.05	-.17	-.06	-.06	.13	.18	.16			
20. Emotional suppression	.10	-.06	.10	.11	-.03	.06	.04	.19	.01	-.06	-.17	.04	.28**	.18	.23*	.00	-.30**	-.12	.08		
21. GHQ-12	-.10	-.02	.02	.09	-.12	.06	.00	.04	.05	.07	-.09	.42**	.61**	.32**	.30**	-.13	-.31**	-.20	-.22*	.33**	
22. Job satisfaction	.03	-.02	.06	.03	-.03	.00	.07	-.15	.01	.01	.12	-.19	-.49**	-.29**	-.32**	.28**	.46**	.33**	.29**	-.26**	-.44**
23. Phys health symptom	-.09	-.13	.04	.21*	-.07	.13	.12	-.08	.21*	.14	-.20*	.34**	.36**	.22*	.17	.01	-.22*	-.05	-.15	.35**	.47**
24. Work-home conflict	.05	-.18	-.13	.05	.04	.04	.10	.06	.12	.16	.22*	.30**	.46**	.44**	.31**	.03	-.20	-.07	-.09	.32**	.47**
25. Job change indication	-.00	.01	-.01	.11	-.10	.09	.04	.17	.02	.19	.05	.15	.31**	.24*	.33**	-.14	-.33**	-.29**	-.17	.28*	.47**
26. Stress leave[b]	-.03	.08	.03	.19*	-.15	.11	.09	-.03	-.20*	.21*	.04	.26**	.38**	.21*	.28**	-.17	-.26**	-.25*	.00	.22*	.25**
27. Visit doctor	-.16	.00	.03	.04	-.10	.17	-.12	.02	.08	.12	.09	-.19	.03	-.17	.02	-.12	.08	.07	-.14	-.01	-.12
28. Diastolic bp	.08	.13	.36**	-.05	.05	-.01	-.12	.24*	.37**	.04	.04	.24*	.15	.08	.14	.13	-.11	.18	-.06	.25*	.21*
29. Systolic bp	.15	.07	.25*	.13	-.03	-.09	.08	.20	.31**	-.06	.02	.26*	.08	.05	.05	.03	-.04	.14	-.10	.17	.21*
30. Pulse rate	.02	.18	.03	-.03	.16	.12	.09	.03	-.01	.39**	.04	.14	.17	.17	.28**	.01	-.01	.09	.07	.11	.12
Time 2																					
31. Trait anxiety	-.18	-.05	-.15	.19	-.20	.06	.00	-.25	-.07	.16	-.04	.38**	.72**	.44**	.25	-.14	-.20	-.03	-.11	.10	.41**
32. Demand	-.05	.07	.01	-.15	-.17	.06	.04	-.13	.07	.16	.18	.21	.19*	.15	.57**	-.13	-.35**	-.16	-.04	.27*	.26*
33. Control	.15	-.02	.07	.05	-.11	.05	-.16	.31*	-.08	.03	-.09	-.31*	-.23*	-.20	-.20	.45**	.56**	.23*	.02	-.10	-.26*
34. Co-worker support	.07	-.02	-.03	.20	-.12	-.11	.03	.28*	-.20	.08	-.16	-.19	-.23*	.00	-.31**	.35**	.66**	.26**	.10	-.14	-.29*
35. Supervisor support	.14	.11	.10	.21	-.03	.09	.07	-.04	-.06	-.05	-.21	-.21	-.12	-.12	-.13	.47**	.54**	.50**	.27*	-.01	-.20
36. GHQ-12	-.03	.01	.06	.26*	-.04	.10	.04	-.09	.21	.14	-.21	.24	.19	.17	.19	-.01	-.00	-.06	.00	.17	.43**
37. Job satisfaction	.10	.22	.15	.05	.01	-.04	-.23	.15	-.03	.03	.03	-.17	-.32*	-.23	-.00	.54**	.41**	.37**	.16	-.25	-.34**
38. Phys health symptom	-.19	.01	.03	-.09	.03	.11	.06	-.26*	.26*	.00	-.07	.07	.26*	.24	.12	-.10	-.11	-.07	-.12	.35**	.36**
39. Work-home conflict	.02	-.21	-.16	.10	-.05	.29*	.06	-.16	.14	.20	-.17	.45**	.43**	.38**	.20	-.01	-.30*	-.01	-.12	.22	.46**
40. Stress leave	-.08	-.24	.10	.29*	-.13	.08	.07	.08	-.39**	.02	.15	.22	.47**	-.04	-.11	-.31*	-.27*	-.24	.18	.33**	.56**
41. Visits to doctor	-.14	.11	.11	.23	-.04	.07	-.17	.00	.13	.31*	-.17	-.09	.00	-.01	.14	.03	-.04	-.17	.09	-.08	-.15
42. Diastolic bp	.03	.41**	.51**	-.16	.20	-.12	-.36**	-.13	.25	.08	.03	-.04	.00	-.20	.24	-.11	-.09	.01	-.07	.17	.05
43. Systolic bp	.13	-.02	.23	-.13	.02	-.05	-.29*	-.18	.02	.12	.03	-.20	-.12	-.26	.09	-.03	-.06	.17	.11	-.11	-.16

Table 16.4 *Pearson Intercorrelations of Variables (cont'd)*

Measure	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Time 1																					
22. Job satisfaction																					
23. Phys health symptom	-.25*																				
24. Work-home conflict	-.40**	.44**																			
25. Job change indicat	-.58**	.28**	.35**																		
26. Stress leave[b]	-.32**	.14	.25*	.17																	
27. Visit doctor	-.01	.06	-.22*	.12	-.06																
28. Diastolic bp	-.16	.16	.16	.14	-.02	.07															
29. Systolic bp	-.04	.21*	.04	.05	-.03	.08	.74**														
30. Pulse rate	-.11	.05	.16	.08	-.11	-.07	.26*	.20													
Time 2																					
31. Trait anxiety	-.34**	.23	.40**	.24	.33*	.08	.17	.02	.05												
32. Demand	-.27*	.10	.36**	.32*	-.06	.15	.12	.01	.21	.32*											
33. Control	.25*	-.13	-.15	-.13	-.38**	.09	-.10	-.07	.00	-.29*	-.17										
34. Co-worker support	.26*	-.13	-.19	-.19	-.32*	-.22	-.17	-.13	-.11	-.20	-.50**	.63**									
35. Supervisor support	.21	-.02	-.03	-.13	-.24	.11	.02	.06	-.05	-.04	-.15	.48**	.52**								
36. GHQ score	-.27*	.27*	.32*	.20	-.05	.13	.31*	.18	.13	.45**	.11	-.11	-.11	-.09							
37. Job satisfaction	.40**	-.19	-.30*	-.18	.24	.13	-.04	-.06	-.05	-.25*	-.13	.37**	.43**	.51**	-.33**						
38. Phys health symptom	-.24	.56**	.29*	.17	.04	-.03	.24	.08	.16	.44**	.17	-.22	-.29*	-.04	.61**	-.41**					
39. Work-home conflict	-.34**	.52**	.64**	.14	-.07	-.23	.23	.17	.10	.50**	.25	-.15	-.33*	-.21	.44**	-.41**	.46**				
40. Stress leave	.40**	-.29*	-.20	-.34**	.55**	-.22	.10	.03	.13	-.38**	-.06	.38**	.32*	-.24*	-.18	.39**	-.06	-.24			
41. Visits to doctor	-.26*	.06	.10	.18	.00	.13	.25	.01	.15	.18	-.01	.05	-.01	.01	.50**	.11	.20	.02	.13		
42. Diastolic bp	-.19	-.05	.01	.22	.04	-.11	.77**	.65**	.25	-.12	.08	.00	-.13	.13	.15	.05	.18	-.01	.08	-.09	
43. Systolic bp	.33*	.13	-.05	-.18	.04	-.07	.09	.15	.34*	-.17	-.11	.00	-.15	.02	-.22	.06	.15	-.11	.09	-.20	.31*

Note. *p <.05 **p<.01 (two-tailed). NSS, indicates Nursing Stress Scale. Gender 1=female, 2=male; relationship 1=single, 2=married, defacto; visits to doctor, 1= no, 2=yes; shift work 1=no, 2=yes; 1=no stress leave, 2=stress leave. All correlations at Time 2, N=65: *df* vary due to missing values. Other correlations available from the author.

PERSONAL DISPOSITION

Trait anxiety (TA) at T1 was positively associated with the total NSS measure. It was also positively associated with demand at T1 and T2, and negatively correlated with co-worker support at T1 and T2. Finally it was negatively correlated with control at T2. TA at T1 showed medium to large correlations with strain measures at T1 and T2. TA at T2 was also associated with five measures of strain at T2 .

COPING MEASURES

There were quite a few correlations between coping and strain. Emotional suppression showed the most associations with strain at T1 and T2, higher levels of coping associated with higher level of strain. Direct action was associated with lower levels of GHQ-12 and higher job satisfaction at T1 only.

WORK ENVIRONMENT MEASURES

The intercorrelations between the work environment measures showed, as expected, some medium to large correlations, indicating the scales measured distinct although somewhat related aspects of work environments (Moos, 1986). In particular, at T1 and T2 cross-sectionally, the correlation between demand and co-worker support was large and negative and between control and co-worker and supervisor support, were also medium to large, and positive. The support measures were also moderately correlated. There were no correlations between demand and control at T1 or T2.

As shown in the Table 16.4 there were many correlations between the work environment scales and measures of strain cross-sectionally at T1 and T2, and prospectively.

DEPENDENT MEASURES

As shown in the Table 16.4 there were a number of intercorrelations between dependent measures but not large enough to raise concerns about the independence of the measures. Of the strain measures taken at T1, job satisfaction showed the most associations with strain measures taken a year later (6) followed by GHQ-12 (5), physical health symptoms (5) and work-home conflict (4).

16.3.3 Relationships between job characteristics, strain and coping

Hierarchical regression was used to estimate effects of the work environment on continuous measures of strain and coping as described in Chapter 14. Logistic regression was used to estimate effects for the dichotomous variable, stress leave and visits to the doctor.

For each outcome measure, five sets of variables were entered. First, demographic variables were entered in a stepwise fashion to control for their possible main effects but to maximise the degrees of freedom. Second, the main effects due to trait anxiety were entered. Third, the main effects of the work stress measures demand and control were entered, controlling for the effect of all other main effects, to determine their unique contribution. Fourth, the multiplicative interaction term Demand x Control was entered. Fifth, the separate support

measures were entered followed at the next step by two way interactions between support measures and the work stressor measures, and three way interactions.

Variables were entered in sets and the individual effects were examined only if the R^2 for the set was significant. To facilitate interpretation of the analyses, and to ensure that multicollinearity between the main effects and corresponding interaction effects did not distort the analysis (Finney, Mitchell, Cronkite, & Moos, 1984) independent continuous variables were standardised before the analysis. This procedure has been used by others in occupational stress research (Parkes, 1990: 1991; Terry, Nielsen, & Perchard, 1993).

Cross-sectional data were examined. The first set of analyses considered the association between the independent and dependent variables assessed at T1. The second set considered demographic, and initial levels of strain measured at T1, and TA, work environment as independent measures and strain at T2 as the independent measures.

Longitudinal data were also examined. To assess the impact of the DC/S variables on levels of strain 12 months later the following procedure was used as a method for analysing change (Cronbach & Furby, 1970). Hierarchical regression analysis was used with quantities on the outcome measures initially assessed at T1 entered and controlled, before the work environment measures (T1) were entered and assessed for their impact. The procedure enabled control of a range of confounding variables which is not possible using cross-lagged panel correlation (Campbell, 1963; Rozelle & Campbell, 1969).

All analyses were performed to assess whether work stressors, demand, control, and support would exert independent (direct) effects on the outcome measures or would produce interactive effects in a way consistent with DC/S theory.

To reduce the possibility of spurious relations due to negative affectivity, TA at T2 was included in the longitudinal analysis and the cross-sectional T2 analysis rather than TA at T1. The reason for this is that it could be expected that self-report of measures at T2 would be affected by current state of TA rather than prior state of TA (at T1). Control for TA at T2 would reduce spurious relations between dependent and independent measures taken simultaneously at T2. Separation of the independent and dependent measures in the longitudinal design should further reduce effects due to common method as outlined earlier.

Missing data. At T2, to conserve as much data as possible from the sample, the following procedure was used to deal with missing data. For the demand, control, supervisor support and coworker support scales when at least seven items were available on the scale, the missing items were assigned the mean value for the item. This was considered to be the fairest way of maximising data for the small sample.

T2 data transformations. Data were examined for skew. Job satisfaction measured at T2 was square root transformed to correct for a negative skew (Tabachnick & Fidell, 1989), but this did not change the outcome of the regression analyses, so it was left unmodified. GHQ-12 scores were logarithmically transformed to correct for strong positive skew at T2.

Only results providing support for the DC/S model are presented and discussed here. There was no support for either an additive or interactive DC/S model in the cross-sectional T1 analysis. Although a significant three-way interaction was found for job-change indications

(DCS-coworker support) it was not consistent with the theory (high turnover associated with low strain, high support jobs). Some results were found for single work environment dimensions: level of control $t(105)=2.30$, $p<.05$ was positively associated with job satisfaction.

In the longitudinal data (see Table 16.5) and the cross-sectional T2 data (see Table 16.6) some support for the model was found.

Table 16.5 *Longitudinal Hierarchical Regression Analyses Predicting Strain Measured at T2, from Demographic Variables, Antecedent Risk Factors, Trait Anxiety and Work Environment Measured at T1.*

	Work-home conflict (N=50)			*Job satisfaction (N=55)*			*Physical health symptoms (N=59)*		
Sets	ΔR^2	*t*	*B*	ΔR^2	*t*	*B*	ΔR^2	*t*	*B*
#Demographic	-	-	-	-	-	-	.076	2.19*	1.94*
# Initial strain T1	.380	5.48§	.47†	.237	4.10†	2.34	.307	5.33§	.59§
# Trait Anxiety T2	.020	1.29	.76	.019	-1.17	-1.31	.015	1.21	.72
#Work Environment	.037			.124			.005		
Demand		< 1	3.05*		1.31	-6.79		< 1	5.09
Control		1.60	2.31*		2.93	-.82		< 1	2.64
#Demand x Control	.048	-2.05*	-14.65*	.036	1.74~	44.49~	.036	-1.84~	-26.68·
#Support	.057			.013			.004		
Peer support		-2.15*	-		< 1	-		< 1	-3.93
Supervisor support		< 1	-		< 1	-		< 1	7.18
#DCS Interactions	.059		-	.077			.048		
Overall R^2	.602			.508			.491		
	$F(13,37)=4.30$, $p<.001$ Constant is 12.62.			$F(13,42)=3.33$, $p < .01$. Constant is 36.45.			$F(13,46)=3.10$, $p < .01$. Constant is 12.09.		

Note. # indicates a new block in the hierarchical analysis. The B values are the unstandardised coefficients from the stage at which the Demand X Control variable was entered.
~$p<.08$, * $p < .05$; ** $p < .01$; † $p < .001$; § $p< .0001$.

Work-home conflict. In the longitudinal analysis, T1 levels of work-home conflict were significant predictors of work-home conflict at T2. The Demand x Control interaction was also significant $t(44)=-2.05$, $p < 05$, and is illustrated in Figure 16.1. Consistent with the demand-control hypothesis the combination of high demands and low control was associated with the highest levels of work-home conflict. Co-worker support showed a direct association with work home conflict, higher levels of support at T1 associated with lower levels of work-home conflict at T2 $t(45)=-2.15$, $p<.05$.

At T2 however, initial levels of strain $t(52)=5.46$, $p<.0001$, TA $t(51)=2.45$, $p<.05$, and the Demand x Control interaction term predicted work-home conflict $t(47)=-2.57$, $p<.01$. As shown in Figure 16.2, the form of the interaction is consistent with Karasek's model, the highest level of work-home conflict occurring at high levels of demand and low levels of control.

Job satisfaction. In the longitudinal model, job satisfaction measured at T1 was a highly significant and positive predictor of job satisfaction at T2, $t(54)=4.10$, $p<.001$. Control was also significant, showing a positive association with job satisfaction $t(51)=2.93$, $p<.01$. The Demand x Control interaction approached significance at $t(50)=1.74$, $p<.09$ and was significant at $t(49)=3.00$, $p<.01$ when initial levels of satisfaction were not included in the model. As shown in Figure 16.3 the interaction is consistent with Karasek's model with lowest levels of job satisfaction for workers with high demands and low control.

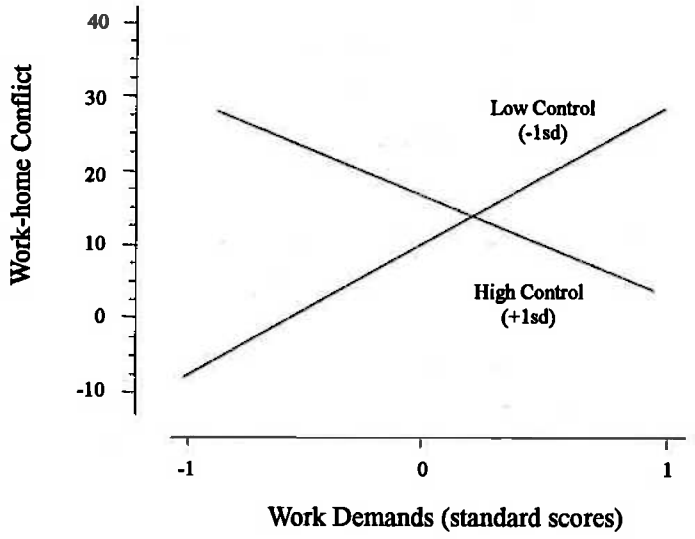


Figure 16.1 *The Relation Between Work Demand and Work-home Conflict at High and Low Levels of Control (longitudinal design).*

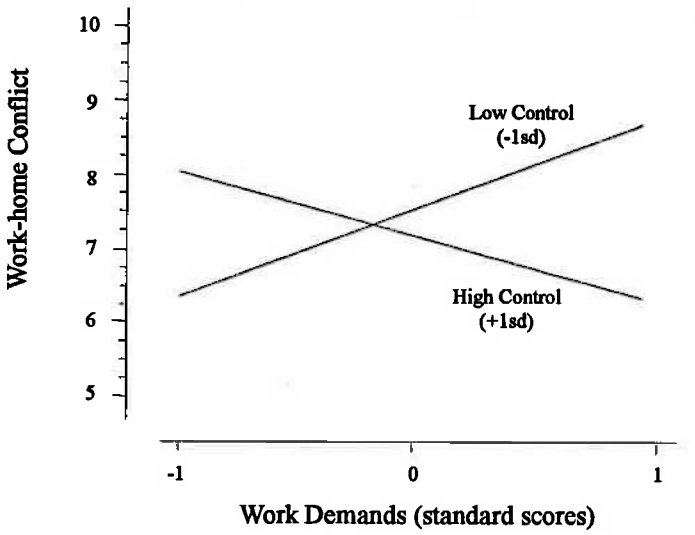


Figure 16.2 *The Relation Between Work Demand and Work-home Conflict at High and Low Levels of Control (concurrent design).*

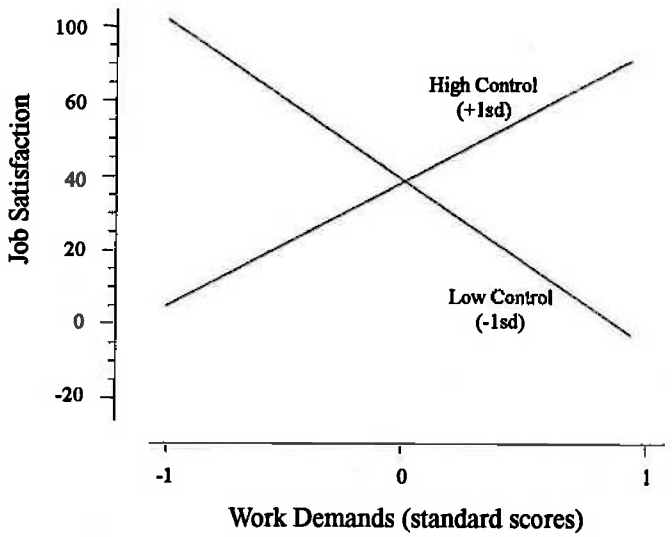


Figure 16.3 *The Relation Between Work Demand and Job Satisfaction for High and Low Levels of Control (longitudinal design).*

At T2, initial levels of job satisfaction $t(55)=3.40$, $p<.01$, and supervisor support, $t(50)=2.70$, $p<.01$, were significantly positively associated with job satisfaction. No interactions were detected in the cross-sectional models.

Table 16.6 *Cross-sectional Hierarchical Regression Analyses at T2, Predicting Strain from Demographic Variables, Antecedent Risk Factors, at T1 and Trait Anxiety and Work Environment Measured at T2.*

	Work-home conflict (N=52)			*Physical health symptoms(N=58)*		
Sets	ΔR^2	*t*	*B*	ΔR^2	*t*	*B*
#Demographic	-	-	-	-	-	-
# Initial level of strain at T1	.369	5.46§	.50	.447	6.79§	.70§
# Trait Anxiety	.067	2.45*	.61	.079	3.06*	1.30*
#Work Environment	.001			.002		
Demand		< 1	.08		< 1	.29.
Control		< 1	-.23		< 1	-.56
#Demand x Control	.070	-2.57*	-.84	.042	-2.27*	-1.44*
#Support	.048			.004		
Peer support		-.65	-		< 1	
Supervisor support		-.43	-		< 1	
#Demands Control Supports Interactions	.066		-	.056		
Overall R^2	.622			.634		
	$F(13,39)=4.93$, $p<.001$ Constant is 7.31.			$F(13,45)=6.00$, $p < .0001$. Constant is 10.35.		

Note. # indicates a new block in the hierarchical analysis. The B values are the unstandardised coefficients from the stage at which the Demand x Control variable was entered. ~$p<.08$, * $p < .05$; ** $p < .01$; † $p < .001$; § $p< .0001$.

Physical health symptoms. In the longitudinal analysis, initial levels of health symptoms predicted symptoms at T2, $t(57)=5.33$, $p<.0001$. The Demand x Control interaction only approached significance at $t(40)=-1.84$, $p<.08$, the highest levels of physical health symptoms associated with high levels of demands combined with low levels of control as illustrated in Figure 16.4.

At T2, initial levels of physical health symptoms, $t(57)=6.79$, $p<.0001$, and TA, $t(56)=3.07$, $p<.01$, showed positive associations with physical health symptoms. The Demand x Control interaction was a significant predictor of physical health symptoms, $t(53)=-2.27$, $p<.05$. As shown in Figure 16.5 the combination of high demands and low control was associated with the highest levels of physical health symptoms.

GHQ-12 scores. In the longitudinal model, initial levels of psychological distress was the only predictor of logarithmic GHQ-12 scores at T2 $t(56)=2.77$, $p<.01$. In the cross-sectional models, TA measured at T2, $t(56)=3.00$, $p<.01$ combined with initial levels of GHQ-12 $t(57)=2.97$, $p<.01$, to predict GHQ-12 at T2. Work environment variables showed no significant main effects or interaction effects on GHQ-12 scores.

Stress leave. There was no evidence from the longitudinal data or the concurrent data at that the work environment variables of TA were associated with stress leave at T2. In concurrent data at T2, TA made a significant contribution, $\chi^2(1) =7.41$, $p<.01$, as well as also control $\chi^2(2) =10.21$, $p<.01$, higher levels of control associated with lower levels of stress leave.

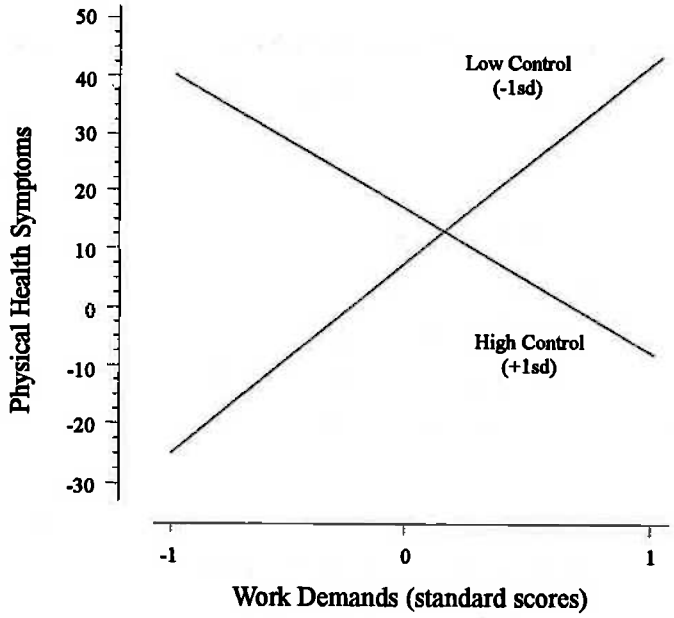


Figure 16.4 *The Relation Between Work Demand and Physical Health Symptoms for High and Low Levels of Control (longitudinal design).*

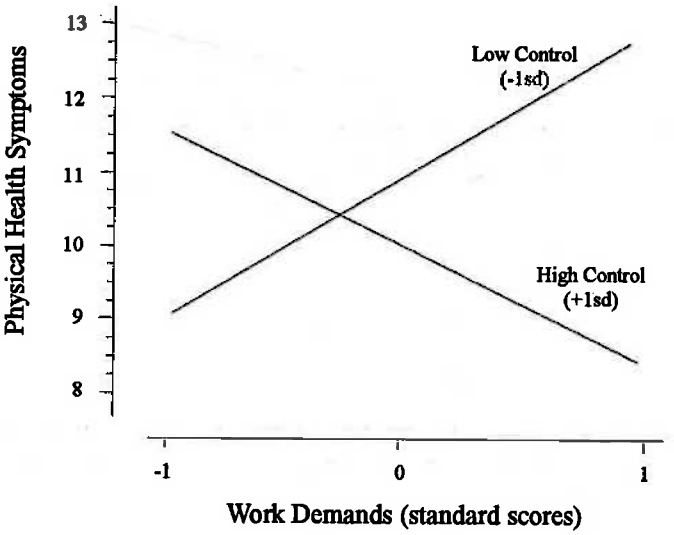


Figure 16.5 *The Relation Between Work Demand and Physical Health Symptoms at High and Low Levels of Control (concurrent design).*

Visits to the doctor, diastolic blood pressure, systolic blood pressure. There was no evidence that the work environment measures were associated with these T2 measures either concurrently or prospectively.

16.3.4 Sociological vs psychological theory

To assess the relative merits of the DC/S model versus the cognitive appraisal model at T1, a further series of hierarchical regression analyses were conducted. Results from the regression analyses enabled comparisons of the theories in terms of the percentage of variance accounted for by the DC/S direct and interaction effects and the composite Nursing Stress Scale. After control for demographic and personal disposition variables, the percentage of variance accounted for in the dependent measures by the psychological model (appraised work stress) and the sociological model (demand, control, support and interactions) was assessed (see Table 16.7). The average proportion of variance for each category was as follows: demographic variables, 10.51%; personal disposition variables, 4.99%; the psychological model, 1.26%; and the sociological model 7.42%.

Table 16.7 *Percentage of Variance in Strain Accounted for by Demographic, Personal Disposition, Psychological and Sociological Variables*

	Dependent Measures				
Source	GHQ-12	Job Satisfaction	Physical Health Symptoms	Work-home Conflict	Job Change Indications
Demographic	17.80	0.00	18.50	8.70	0.00
Personal Disposition (TA)	23.70	2.17	4.20	1.20	8.70
Psychological	0.00	1.60	.20	5.20	1.60
Sociological	3.90	12.60	17.00	3.80	16.30
Source	Diastolic BP	Systolic BP	Pulse Rate		Average %
Demographic	24.80	17.80	17.50		10.51
Personal Disposition (TA)	0.00	0.00	0.00		4.99
Psychological	0.20	0.00	1.30		1.26
Sociological	5.70	3.40	11.50		7.42

16.4 Discussion

16.4.1 Discussion of results

The main aim of the study was to test the DC/S model in an occupationally homogeneous sample and ascertain whether work conditions, demand, control, support or their interactions predicted strain. Longitudinal data showed some support for the interactive DC model: workers facing high demands and low control showed the highest levels of strain. The interaction was found in data relating to work-home conflict, and weak interactions were found in data relating to job satisfaction and physical health symptoms. Cross-sectional data analysed at T2 also showed interactions consistent with DC theory for physical health symptoms and work-home conflict. No interactions were found in the cross-sectional data of T1. No support for the interactive DCS "iso-strain" hypothesis was found.

The interactive results for *physical health symptoms* vary from the additive results reported by Landsbergis (1988), and three way interaction effects Demand X Control X Support in both cross-sectional and longitudinal designs reported by Parkes, Mendham, and von Rabenau, (1994). The present results, in contrast showed the adverse effects of high demand could be moderated by an increase in level of control, independent of the level of support, to reduce physical health symptoms.

Results for *work-home conflict* showed strong support for J-DC theory, and some support for an additive DC/S (co-worker) model. Fox, Dwyer, & Ganster (1993) have shown that nurses are affected physiologically at home. They found that the Demands x Control interaction was associated with systolic and diastolic blood pressure at home. However, no other study could be found that assessed Karasek's theory in relation to whether the demands and time pressures at work detract or interfere with the quality of home/ family life. Together the results suggest extensions to the end points specified in the DC/S model to include the negative effects of the work environment on home/family life and other non-work outcomes.

The DC/S model was not sufficient to predict differences in levels of psychological distress in nurses. The reason for this is not clear, as other studies have found additive (Landsbergis, 1988) and interactive effects (De Jonge et al., in press) when the outcome is mental health and the sample is predominantly female. In a study that did control for gender, Parkes (1991) found that the impact of demands and control on mental health was further moderated by a personal variable, locus of control.

In many studies it is assumed that changes in the independent measures will lead to changes in the dependent measures virtually simultaneously. The assumption of simultaneous change may however be mistaken as some research has shown a temporal lag between the independent and dependent measures (Wall & Clegg, 1981). In the present study the result for job satisfaction was consistent with a sleeper effect: the effect of work conditions becomes manifest at a later time (Frese & Zapf, 1988). In other words the work environment had a chronic effect on job satisfaction.

This could account for the lack of support for the interaction hypothesis in predicting job satisfaction in the cross sectional designs reported here and elsewhere in samples involving nurses (Hurrell & McLaney, 1989; Landsbergis, 1988). Two cross-sectional studies that have reported a significant interaction for job satisfaction have used a different occupation (e.g. COs, Morrison, et al., 1992) and a heterogeneous sample of health care professionals (Parkes et al., 1994). Clearly further information needs to be provided by stress researchers on the process by which the work environment affects job satisfaction, and when to test for impact. The present study provided some information on the work stress process through cross-sectional analyses at both T1 and T2.

In Australia it is widely believed that although the number of women working outside the home has increased substantially, women still experience greater demands at home than men. It seems reasonable to expect that the demands at work combined with the demands at home, lead to what Hall (1992) has called "double exposure". Given that the sample of nurses was predominantly women, this could help to explain the unexpected finding at T1 that nurses in

active jobs rather than high strain jobs showed the highest levels of strain. This was ascertained by examining cell means split at the mean on demands and control. Even though the women had high control at work, the double demands meant their levels of strain, in their active job, were like having high strain jobs. Nurses attending a feedback session after the completion of the first study validated this belief.

This is an interesting variation on the activity level hypothesis. Karasek (1979) noted in his original paper that the model was based on data of male samples, and that "research has shown that the relationship between work and mental status for women is often complicated by the additional demand of housework" (Karasek, 1979, p.289).

There is however another possible explanation for the T1 data. Inspection of independent measures showed that the level of demands increased significantly from T1 to T2. It is plausible to assume that this increased level of demands tipped the balance, jobs combining demands at a certain upper threshold, combined with low control, deviated sufficiently from those combining high control, for an interaction to be detected. Johnson and Hall (1988) have also raised this point. Given that no other significant differences were found between T1 and T2 for the independent measures, this explanation of the variations in findings seems plausible.

The idea is in part, consistent with Sauter (1989) who proposed that the multiplicative interaction holds only for those jobs which combine higher than average levels of demand and lower than average levels of control. The idea that the interaction may be detectable only at certain thresholds of demand or control, clearly merits further investigation.

The results from the present study are consistent with the interpretation that the impact of the work environment was chronic (i.e. observable only twelve months later) when work demands were of a certain magnitude, and that as the level increased, without congruent increases in level of control, acute or immediate consequences (i.e. cross-sectional T2 results) could be detected on some outcomes. This has implications for the management of work, because jobs that feature demand and control, even at a certain lower level of discrepancy, may have longer range negative effects on workers. It also has implications for researchers because the process will not be detected with cross-sectional methodology.

As far as the data for somatic symptoms, work-home conflict or job satisfaction goes, the present study suggests that the DC/S framework may be an adequate framework for the study of women. Certainly however, the framework does not appear to be adequate to explain variations in level of mental health, and a range of other end points. Also the double exposure model, needs more explicit analysis by additional assessment of variation in the work demands and control women experience at home.

Although not central to the aims of the study, the data provided the opportunity to assess the role of TA in the work stress process. In addition to its potential confounding role the results suggested that TA plays a substantive role, because the cross-sectional zero-order correlations with strain indices were substantiated by longitudinal zero-order correlations, even with the more objective outcome, stress leave (but not with visits to the doctor, diastolic blood pressure, or systolic blood pressure).

However, TA failed to correlate with any outcome, after controlling for initial levels of strain, when independent and dependent measures were temporally separated. Initial levels of strain symptomatology appear to mediate the relationship between TA at T1 and strain at T2. In other words TA, a stable personality trait, combined with work environment, leads to reporting of strain at T1, and this is in turn predicts levels of strain at T2.

To account for the possibility that the relationship between the work environment and strain could be due to individual differences the results suggest: (1) that future cross-sectional research needs to control for the confounding effects due to TA; and (2) that longitudinal designs need to control for initial levels of strain symptomatology. This idea is consistent with the methodology used by Parkes (1991).

Consistent with the study of COs, greater variance was accounted for by DC/S variables and interactions, than by the cognitive appraisal model. This adds to the evidence highlighting the importance of the more "objective" work context in influencing strain rather than merely the appraisals of the workers.

The results demonstrate that interventions can be focused on redesigning the work environment to reduce the level of strain for workers. For example, increasing control at T1 would improve job satisfaction at T1. This result is consistent with a recent meta-analysis of 48 nursing studies, which concluded that autonomy is the variable most frequently cited as a cause of job satisfaction for nurses (Blegen, 1993). Raising the level of supervisor support at T2 would improve job satisfaction at T2. Enhancing co-worker support would reduce prospective levels of work-home conflict, independent of the impact of the Demand x Control interaction.

The results show that increasing levels of autonomy for nurses should help reduce levels of strain, while the level of demands need not necessarily be reduced. This information should add to the current debate about expanding the role of the nurse. For nurses to achieve professional autonomy, an imperative is to increase the level of decision making authority and accountability (Keatinge, 1995). Examples of how this could be achieved include, participative management (Counte, Barhytem & Christman, 1987), shared governance (Jones & Ortiz, 1989), nurse managed care (Ethridge, 1987), and collegiality and collaboration with other professionals (Keatinge, 1995). Costs to hospitals through the use of employee involvement strategies can also be reduced in this way (Hanlon, 1986).

16.4.2 Methodological issues

The present study provides a better test of the DC/S model than previous studies (e.g. Landsbergis, 1988) for a number of reasons. First the sample was homogeneous, thereby ruling out the possibility that conclusions could be based on SES or other inter occupational differences. Second, the analyses enabled statistical control for initial levels of functioning, demographic factors and TA, thereby increasing the likelihood of assessing the true relationship between work environment with strain, without the influences of psychological, or physical status of the individual at T1. In other words, high levels of strain did not lead to an exaggeration of demands, low control, or low support. Thirdly, prospective analysis enabled the predictive potential of the model to be assessed.

It was previously argued that a lack of interactive relationships found in self-report cross-sectional studies could be due to common method artifacts. There are two reasons to assume that method effects were not influential in the present study. In the longitudinal design the dependent and independent measures were measured at different times, and it has been suggested that similar method effects may be reduced as a result (Ganster, Mayes, & Fusilier, 1986). Finally, it is held that the detection of interaction effects is not likely to occur in the presence of strong method effects (Parkes, 1991) and the interactive relationships detected here cannot readily be ascribed to method variance effects.

Despite the methodological improvements in the study, a number of problems still remain. First, the study is limited in that it examined work demands as work load, consistent with Karasek's (1979) original operationalisation of demands. The DC/S model could be expanded by examining role stress, interpersonal conflict (Spector, 1987a), insufficient training or ambiguous demands (Payne & Fletcher, 1983). Other variables considered to be important in predicting strain for nurses such as patient interaction, task significance, recognition, feedback, personality or coping resources (e.g. type A, locus of control, union behaviour) (Landsbergis, 1988) are not accounted for by the DC/S model, and may be included in future studies. Also modern nursing management and care systems may also add to the stress nurses experience (Jonge, Janssen, & van Breukelen, in press).

Second, the reliability of the control measure was somewhat low compared to the level reported by Moos (1986) (.73). Perhaps future research should focus on the conceptual clarity and appropriateness of the control scale. One scale that purports to measure *personal* control and is receiving current favour was developed by Greenberger (1981) with revisions by Ganster (1984). Another, which measures autonomy, is the Maastricht Autonomy Questionnaire (MAQ: De Jonge, Landeweerd, & Breukelen, 1994).

The third issue, relates to the adequacy of the dependent measures. Overall, there was a lack of support for the interactive DC/S model when the outcomes were GHQ-12, stress leave, visits to the doctor, diastolic, systolic blood pressure, and pulse rate. It could be argued that as GHQ-12 is a transitory state of psychological distress it is not really an appropriate assessment of response to work environment influences over a 12 month period, or indeed to chronic stress. Another concern was the large correlation between TA and GHQ-12, which raises concern about the discriminant validity of the measures. Notwithstanding this important methodological problem, results for affective well-being were reanalysed without control for TA, and still no interactions were found. Also it is likely that reliability problems remain with the self-report assessment of the other objective measures of strain. For this reason a further assessment of the DCS model nurses is planned using urinary cortisol as an objective measure of strain (Schaubroeck & Ganster, 1993). Cortisol production is thought to be associated with chronic stress situations, ineffective coping, and situations in which the individual is having difficulty mastering the demands (Dienstbier, 1989).

Objective assessments of diastolic and systolic blood pressure on more than one reading, and by the same observer (Fox et al., 1993; Schaubroeck & Ganster, 1993) and the use of more objective ratings of the work environment i.e. patient numbers (e.g. Fox et al., 1993),

might be useful. There are of course still problems associated with objective ratings of the work environment and objective indices of strain (Frese & Zapf, 1988). Finally, when to examine for influences is not clear (Frese & Zapf, 1988).

Fourth, the lack of evidence for main or interactive effects of the work support variables in the regression analysis (cf. to the zero-order correlations) could be due to the shared variance that existed between support and control measures, although a more plausible explanation is the small sample size, and resultant lack of power to detect DCS effects, once other variables were accounted for.

16.4.3 Summary

The present study makes several contributions to an understanding of occupational stress. First, it provided a test of Karasek's theory within an occupation rather than at the occupational level, and found some minor support for Karasek's interaction hypothesis. Second, the longitudinal design used in the study, suggested a probable causal link between the work environment and strain, after control for a range of demographic variables, TA, and initial levels of strain symptomatology. Third, the results showed that the work environment interacted to predict not only outcomes which have implications for worker health and job satisfaction, but also outcomes which affect the quality of other spheres of life. This suggests that the model should be expanded to include predictions about non-work outcomes, specifically the way the work environment impinges on the quality of the individual's home life. Fourth, the results suggest that the impact of the work environment as predicted by Karasek may take time to become manifest if levels of demand are not sufficiently high. This implies that in many cases a cross-sectional methodology may be inappropriate to assess the work stress process.

PART IV

Comparison between Correctional Officers and Nurses

Chapter 17

PREDICTING DIFFERENCES BETWEEN OCCUPATIONS, CORRECTIONAL OFFICERS AND NURSES

17.1 Introduction

It was clear in the CO study that the DC/S model *as proposed* was not very helpful in explaining why COs seem to experience or report more strain than other occupations. However, without comparative studies using similar measures of both job characteristics and strain, it is difficult to draw definitive conclusions. The aim of this study is to assess the utility of the DC/S model in predicting differences in levels of strain *between* two occupations, COs and nurses.

A major assumption of the DC/S model is that occupations can be characterised by their specific combination of demands, control and support (cf. Karasek et al., 1988). If the occupations can be defined structurally, can this definition help explain differences in levels of strain between occupations? The aim of the present study was to examine the DC/S model as a framework for predicting differences in level of strain *between* the CO and nurse occupations.

Some studies have attempted to categorise jobs along the demand-control-support dimensions. For example Karasek, Theorell, Schwartz, Schnall, Pieper, & Michela (1988) classified guards in the "passive" job category, where both demands and control are low. On the other hand nurses were classified in the "active" job category, where demands and control were both relatively high (also Karasek, 1992). To the extent that prison officers are similar to guards it could be expected that COs would be classified in the passive job category.

If the COs and nurses occupy "passive" and "active" jobs respectively then according to DC/S theory the occupations will vary along the active learning dimension rather than the residual strain dimension (see Figure 4.1). The active learning hypothesis predicts that the level of job satisfaction should be higher for active jobs than passive jobs. "The highest satisfaction occurs with "active jobs," where both the challenge of high job demands and the opportunity for significant use of judgement and discretion are available (Karasek, 1979, p. 301). Further the level of active coping should be higher in the nurse occupation.

As the jobs do not differ along the residual strain dimension no difference should be found between the jobs for other measures of strain, or in passive coping.

In the CO study it was found that compared to a large reference sample (Moos, 1986), COs were categorised, as passive, isolated workers (Johnson & Hall, 1988). Can the further categorisation of jobs along support dimensions help explain any observed differences in level of strain between the two occupations?

17.2 Method

17.2.1 Samples

Two occupationally homogeneous samples were compared: 419 correctional officers (as described in Chapter 8 and 9) and 107 nurses (see Chapter 16). While nursing and correctional work differ they do possess some similar attributes. They are both human service work occupations. COs and nurses both work in large bureaucratic hierarchical structures where control is centralised and resides in the management structure (Karasek & Theorell, 1990). Both are involved in work that is required continuously over 24 hours, and they are therefore involved in shift-work schedules. Moreover both COs and nurses, in common with other South Australian Government employees work under similar legislative requirements: The Government Management and Employment Act, 1985, The Workers Rehabilitation and Compensation Act, 1986, and The Occupational Health, Safety and Welfare Act, 1986.

17.2.2 Measures

Gender, years of service, age, daily alcohol use, relationship status, exercise level, shift work status, perceived weight, number of cigarettes smoked daily, overtime hours in the past fortnight, and frequency of serious financial worries in the past month, and trait anxiety were measured as described in Chapter 8. WES measures were used as described in Chapter 8.

Coping. Active coping styles were operationalised as "direct action" and passive emotional coping as "emotional suppression" as described in Chapter 8. Other coping strategies were assessed including use of religion, disengagement, symptom management, avoidance, and two composite scales, emotion focused coping and problem focused coping. These are all described in Chapter 8.

Dependent measures. These were GHQ-12, job satisfaction, physical health symptoms, work-home conflict, job change indications, visits to the doctor and stress leave as described in Chapter 8.

17.3 Results

17.3.1 Differences between occupations, compared to a reference group

Means and standard deviations for the WES scales are shown in Table 9.11. Recall from Chapter 10 that the CO job could be classified as "passive" by comparing mean scores on measures of demand and control against a large representative heterogenous work group (Moos, 1986). Using the two dimensional job strain paradigm (see Chapter 4, Figure 4.1), the centre point can be defined arbitrarily as the mean of the reference group on the demands, and control measures respectively (4.40, 5.54). Based on this classification, Figure 17.1 shows that the nurse sample falls into the "active" job category, which features high demands, and high decision latitude. The majority of nurse cases (27) fell in the "active" job category, followed by 18 equally spread in the "high strain" and "low strain" classification.

Compared to the reference sample, nurses also showed less supervisor support and more peer cohesion. The slightly higher level of control coupled with a slightly higher level of co-worker support means that most nurses are "participatory leaders" when it comes to coworkers (ie active collective Johnson & Hall, 1988). This is consistent with Karasek & Theorell (1990) who using US Data from Quality of Employment Surveys rated nurses in the "participatory leadership" quadrant.

The level of supervisor support was however slightly less than the reference group which would also place nurses in the "cowboy hero" quadrant, where workers operate in isolation from supervisor support with a fair degree of control (i.e. active isolated, Johnson & Hall, 1988). In summary the nurses can be classified as active workers, isolated from supervisor support, but in collective conditions with their co-workers.

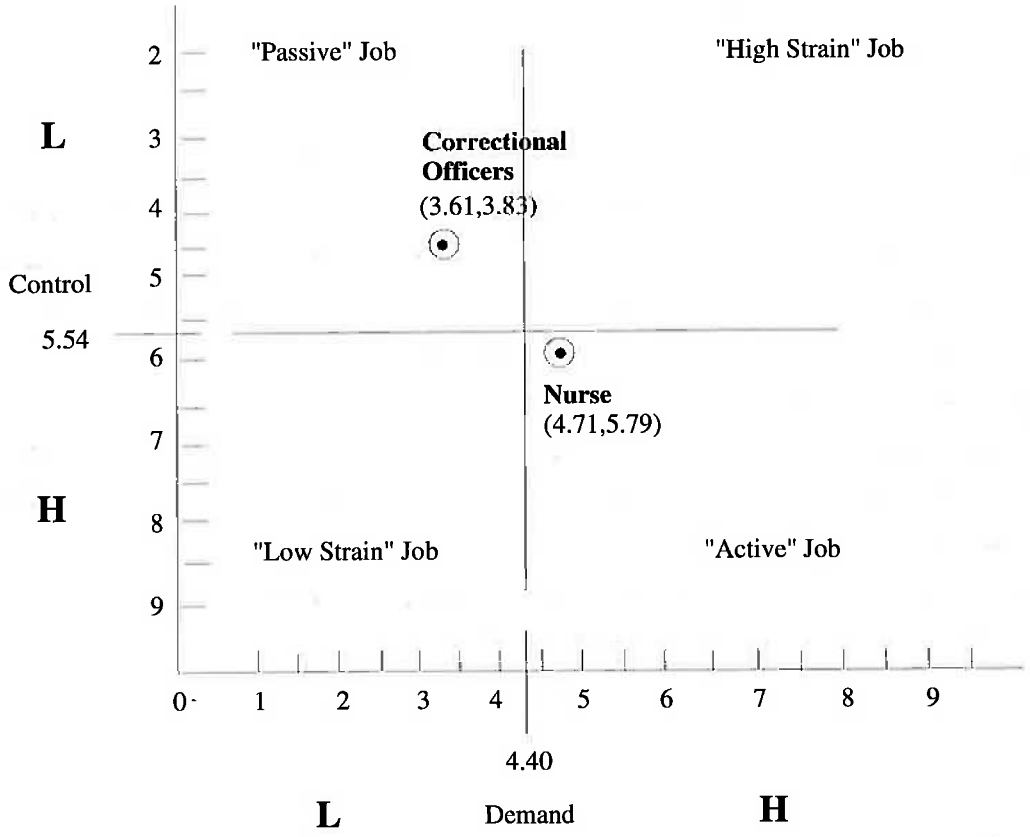


Figure 17.1 Arbitrary Arrangement of Quadrants based on Means for Demand and Control for a General Work Group (Moos, 1986)

17.3.2 Differences between occupations

Table 17.1 shows the means and standard deviations of all measures taken from the nurses and the COs, and the results of differences between the samples on these measures (unrelated sample t-test). For the demographic measures, the nurse sample and CO sample differed on a number of measures. The nurse sample had significantly more women, had worked for a longer period of time, were younger, drank less alcohol, perceived themselves to be heavier, and worked fewer overtime hours than the COs (See Table 17.1 for probability levels). There

were no differences between the samples on the level of exercise, the relative proportion of workers in shift work, level of smoking, or financial worries.

Table 17.1 *Comparisons between COs and Nurses*

	COs			Nurses				
Variable	*N*	*M*	*SD*	*N*	*M*	*SD*	*t*	*p*
Demographic								
1. Gender	409	1.86	.35	106	1.07	.25	27.30	.001
2. Service length	402	5.60	4.78	105	7.15	6.48	-2.31	.05
3. Age	412	2.44	.89	106	1.80	.96	4.27	.001
4. Alcohol daily	419	.62	.78	107	.31	.44	5.34	.001
5. Relationship	409	1.84	.37	106	1.76	.49	1.58	ns
6. Exercise	412	3.55	1.60	105	3.81	1.54	-1.54	ns
7. Shift work	413	1.21	.41	104	1.11	.31	<1	ns
8. Perceived weight	411	4.68	.87	106	5.07	1.05	-3.66	.001
9. Smoking	413	2.32	1.74	104	2.09	1.56	<1	ns
10. Overtime hours	419	7.69	11.08	107	.64	1.80	12.47	.001
11. Finances	415	2.05	1.12	105	1.98	.98	<1	ns
12. Trait anxiety	410	16.11	5.52	101	17.95	5.28	3.23	.01
13. Pressure	408	3.61	2.33	96	4.71	2.63	-3.79	.001
14. Autonomy	395	3.83	2.03	99	5.79	1.64	-8.65	.001
15. Peer cohesion	401	3.56	2.21	99	6.01	2.09	-15.64	.001
16. Involvement	404	3.24	2.42	99	6.51	2.22	13.58	.001
17. Innovation	399	3.17	2.19	98	4.91	2.47	-6.39	.001
18. Task orientation	403	3.79	2.20	98	7.11	1.52	-18.44	.001
19. Supervisor support	388	3.01	2.34	93	5.27	2.10	-9.19	.001
20. Direct action	413	9.65	2.61	104	11.62	2.17	-7.65	.001
21. Action focused resource#	419	3.85	1.19	104	3.25	.65	6.98	.001
22. Religion	411	1.21	.60	105	1.40	.79	1.36	ns
23. Disengagement	410	8.78	2.44	106	8.49	2.06	1.26	ns
24. Emotional suppression	408	4.40	1.92	101	4.97	1.64	-3.28	.001
25. Symptom management#	406	3.40	1.61	104	3.08	1.35	2.03	.05
26. Avoidance	412	1.61	.82	104	1.94	.75	-4.00	.001
27. Problem focused	419	1.81	.37	107	2.06	.32	-7.02	.001
28. Emotion focused	419	2.01	.35	107	2.08	.32	-2.00	.05
29. GHQ-12	414	12.18	7.22	106	11.49	5.71	1.06	ns
30. Job satisfaction	416	4.20	1.60	102	5.18	1.10	7.42	.001
31. Physical health symptoms	419	37.66	8.65	107	36.55	5.18	1.70	ns
32. Work-home conflict	400	15.51	4.01	96	14.20	3.05	3.76	.001
33. Job change indications#	413	3.77	1.72	104	3.73	1.66	<1	ns
34. Visits to doctor	414	1.24	.43	106	1.25	.44	1.00	ns
35. Stress leave	416	1.19	.40	106	1.10	.31	1.00	ns

Notes. Relationship 1=single, 2=married, defacto. Stress leave, 1=no leave, 2=leave. Visits to doctor, 1=no visits, 2=visits. # variables modified so exact items are compared between samples.

For trait anxiety there were no differences between nurse males (M=17.00, SD=4.69, N=7) and females (M=18.02, SD=5.33, N=97) on level of TA $t(102)=.24$, *ns*. For COs there was no significant difference between males and females on the level of TA $t(402)=.56$, *ns* (see Table 9.6). Scores for males and females were therefore combined and comparisons made between the samples. Overall, nurses showed a significantly higher level of TA in comparison to the correctional officers, $t(512)=3.23$, $p<.01$.

For the DC/S variables, the samples differed significantly on all of these measures. Nurses reported higher levels of work demands, higher autonomy (control), higher supervisor support, and more peer support than the COs. [Also consistent with the activity level hypothesis, nurse reported higher levels of involvement, task orientation, and innovation than COs].

For coping, nurses reported significantly greater levels of direct action, more emotional suppression, and more avoidance. They also reported less symptom management, and less action focused resource. Finally nurses reported significantly more emotion focused coping and problem focused coping than the COs. While COs reported significantly more emotion focused coping than problem focused coping, there was no difference between the relative levels of these two forms of coping for the nurses.

17.3.2 Comparison of levels on dependent measures between samples

Consistent with the activity level hypothesis, nurses reported significantly higher levels of job satisfaction than COs, and higher levels of direct action coping.

As the jobs did not vary along the residual strain dimension, no significant differences in level of strain for other measures were expected. This was confirmed with no differences in level of GHQ-12, physical health symptoms, visits to the doctor, stress leave, or intention to quit or change career. There were however significantly higher levels of work-home conflict for COs than for nurses. In both samples there were no significant differences in level of work home conflict by gender.

Finally, no differences were expected in the level of passive coping between the occupations. However, nurses reported significantly more passive coping (emotional suppression) than COs which was not expected.

[In comparison to other samples, nurses showed no significant difference with a national sample on level of GHQ-12, X^2 (2)=4.39, *ns* (cf. COs see Chapter 9). Similarly for job satisfaction there was no indication that level of job satisfaction was elevated in comparison to a sample of blue collar male workers (Warr et al., 1979), M=5.37, SD=1.44, N=390). The level of job satisfaction was significantly less for correctional officers t(804)=11.70, p<.001, but was not significantly different for nurses t(490)=1.58, *ns*].

17.4 Discussion

The results of the present analysis show that classification of the occupations as active and passive on the basis of the combined levels of demand and control, could provide a basis for explaining similarities and differences between the occupations on level of activity and strain.

COs differed from nurses along the activity level dimension and this helped explain the lower job satisfaction for COs. This is consistent with Karasek & Theorell (1990) who argued that workers in active jobs "have by far the highest job satisfaction" (p. 42). Further nurses reported higher levels of direct action coping than COs.

No differences were found between the occupations on any other measures of strain (GHQ-12, physical health symptoms, stress leave, visits to the doctor and intention to change jobs) as would be expected if the jobs varied along the residual strain dimension. However nurses did report higher levels of passive coping (emotional suppression) which was not expected.

Finally, higher levels of work-home conflict in COs could not easily be explained using the DC/S model at the occupational level. Indeed the work-home conflict construct does not feature as an indicator of strain in elaborations of the DC/S model. One possible explanation for the result is the passive *isolated* job of the CO occupation. In the applied study it was shown that lower levels of supervisor support were associated with higher levels of work home conflict. The isolation and lack of supportive structures that COs experience at work, might result in a spillover of the demands of the work environment, that impacts upon and/or disrupts family/home life. Work-home conflict might also be higher for COs for a range of intrinsic reasons (e.g. working with inmates, work schedule concerns, and work role ambiguity) suggested in the CO study.

Given the large differences in level of support experienced between the occupations, it might have been expected that the level of strain for COs would be higher compared to nurses. For each strain measure the level was slightly higher for the COs, and significantly so for work-home conflict and job satisfaction. There was one other clue that the situation may be worse for COs. Even though nurses used more passive coping, they tended to use balanced proportions of problem focused and emotion focused coping, whereas the COs used significantly more emotion focused coping. It has been suggested previously that this excess use of emotion focused coping over problem focused coping might be an outcome of enduring chronic stress. In the context of higher levels of TA reported by the nurses, and its known links with higher levels of strain, the impact of the poorer work conditions for COs is further highlighted. Even though some differences were shown between demographic variables, there is no indication from the CO study that these differences would underpin the differences in level of strain shown by the occupations.

Of course the differences between the occupations may also be due a range of other variables: occupation selection effects; and occupation-related SES (Fox et al., 1993). Although not measured specifically the nurses probably earned more money than the COs, and this is also typical of other active jobs. Level of income has been linked to job satisfaction in other studies and this connection may also underpin the different levels of job satisfaction. It needs to be acknowledged explicitly that a whole range of selection effects and interactions between them may influence the level of strain in each occupation. Examples include Sex, Age, Sex x Age, Sex x SES, Sex x Age x SES interactions.

Despite the possibility of alternative explanations for occupational similarities and differences in level of strain, the DC/S provides a tenable explanation of variations in the strain/activity data across the two occupations. However the classification of the CO job as passive does not help to explain within occupational differences. In fact, in Chapter 13 it was argued that the CO job is a "high strain" job *for some COs*, although not simply due to the configuration of demands and control. The possibility that occupational comparisons are crude in their neglect of variability in job characteristics within occupations (Ganster & Fusilier, 1989) can not be ignored.

Finally, some methodological points need to be raised. First, the fact that the mean work environment features of the two occupational samples were similar to those reported in other

studies (Karasek et al., 1988) gives confidence that the samples were representative of the occupations.

Second, the construct validity of the work environment measures used in the study was confirmed. Levels on the job characteristics discriminated between the two occupations, along the joint dimensions demand and control, in a way consistent with that proposed by Karasek et al., (1988).

Thirdly, it needs to be acknowledged that the application of significance tests in order to contrast samples from different studies may be objectionable. More specifically, the data were collected at different times and for different reasons. Lastly, as the two occupations differed along the activity level hypothesis they were well chosen to some degree. Studies with occupations in other contrasting positions in the DC/S model are also required (Kristensen, 1995).

PART V

Conclusion

Chapter 18

CONCLUSION

18.1 Introduction

The previous chapters examined different conceptualisations of work stress and the implications of these approaches for research methodology and workplace intervention. Two paradigms were investigated, the sociological and psychological. The main psychological model investigated was the cognitive phenomenological model of stress which emphasises the important role of perception as the mediating process between stressors and outcomes (Lazarus & Folkman, 1984). Emphasis was however given to the sociological paradigm, specifically the Demand-Control/Support model, because of its dominance in the work stress literature, and its continued ability to account for health and productivity outcomes. Further there is overall agreement that the approach holds promise for further empirical investigation and primary prevention, of psychological distress, hypertension, and CVD (Ganster & Schaubroeck, 1991; Schnall, Landsbergis, & Baker, 1994).

In this final chapter, an overview of the main findings will be discussed and reconsidered in the broader context of work stress as a public health issue. The implications of the results for the DC/S theory are given. Some suggestions for further research are offered. Finally, some concluding remarks about the role of psychologists are presented in the final section.

18.2 The main findings and the "big picture"

The DC/S model, has stimulated a paradigm shift in work stress research, from the conceptualisation of occupational stress as an individual issue to that of a pressing public health issue. These changes coincide with changes in the dominant paradigm underpinning health. The traditional medical paradigm, with its focus on disease and individual health behaviour has been challenged by a new public health paradigm, that takes account of how people experience disease, and how the various social, environmental, economic, and political factors affect the health of individuals and populations (Humphreys, 1995). The public health view recognises that health is more than an absence of disease, and is a function of the complex interaction of many social, environmental, political and economical factors (Evans & Stoddart, 1990). The complexity of these relations, was uncovered in the studies of COs. The mental and physical health of these workers, their well-being, the impact of work on their home and family life, their consideration of changing jobs, taking stress leave and visiting the doctor were all associated with a multiple array of variables.

Along with a shift in thinking regarding the nature of health, has been the need to reconsider the adequacy of existing methodologies, particularly the emphasis on traditional epidemiological techniques (Humphreys, 1995; Lilienfeld & Stolley, 1994). Similarly, the adequacy of

traditional epidemiological techniques in assessing the DC/S model has been questioned. One of the attractions of the DC/S model is that it is well-defined model, and easily assessed using traditional epidemiological techniques. It is also amenable to research based on positivism, reductionism, and employing quantitative techniques. While this kind of "arms length" research is important for theory development and testing, it is however at odds with the philosophy of the DC/S model. The lack of control of the workers over job demands, is mirrored in the lack of the control of the worker in the positivist approach to work stress research. As in the broader health paradigm new methodologies are required to canvas the complex diversity of factors thought to be important in the work stress process.

Participative research, for example, provides knowledge for participants, and is more congruent with the DC/S philosophy (i.e. providing more control to workers). It provides a framework for partnership between the researcher and the workers, in controlling both the research and the agenda. It is about assisting the workers to know more and work toward changing the status quo (Baum, 1995). There is no doubt in DC/S theory that centralised decision making and centralised job design expertise are a large part of the work stress problem (Karasek, 1979).

A strong tradition in DC/S research has involved occupational level studies. Not only do these studies overlook the importance of occupationally specific influences (Ganster & Schaubroeck, 1991) but they assume invariance in levels of job characteristics within occupations. Two studies reported here, showed as much variance on the job characteristics within the CO and nurse occupations as shown in a large multi-occupational sample (Ganster & Fusilier). Moreover, the level of strain in jobs defined by the model within the occupations, tended to support the central DC/S hypotheses. These results add to the evidence about the utility of the model in accounting for differences between jobs *within* occupations. Caution must be therefore be exercised against occupational level analyses of the work stress problem because they disregard so much variation between individuals in work conditions. Analyses of the work environment of homogeneous populations at an individual level, must also be undertaken.

While the DC/S model has stimulated a shift in focus from the individual to the environment, the model as it is currently articulated shows some severe limitations when it is applied to real life situations. For example, conceptualising the CO job in terms of demands, control, and support, at the task level provides a restricted view of the experience of work for COs, and how diverse factors affect their health (Kristensen, 1995). It does not take account of a range of other important variables, such as shift work, nor occupationally specific influences, such as dealing with clients. In the CO studies it was clear that specific aspects of the job were important predictors of occupational health. Moreover, the operationalisation of job characteristics using generic "objective" work variables may not have the same meaning in different occupations. In other words the model is too general for use at the worksite (Kristensen, 1995)

The simplicity of the model has been hailed by some as one of its strengths. Future research has been advocated that focuses on just one or two variables (Ganster & Schaubroeck,

1991). However the complex interaction of so many different variables, shows that a reductionist approach will be limited in any applied sense, for example, when real life interventions are required.

In response to initial criticisms that the model was too simple, the model was expanded to include social supports, and more recently personality and coping in a dynamic two stage model (Karasek & Theorell, 1990). As such it has been identified as developing more in the psychological social psychological level rather than in the sociological social psychological level. Muntaner and O'Campo (1993) argued that at the *applied* level the DC model assumes a sociological causality and aims to change work organisations rather than individual behaviour. They argued that the model is dominated by the psychological tradition of social psychology because its point of entry is the person-environment interaction at the work place, and it relies on psychological level analysis (self-report of work conditions). Because of the exclusive reliance on self-report measures as the method of measurement used to apply the model in many studies, they argue that interpretations of the model are essentially individual and idealist/subjective. This is a valid criticism of the tests of DC/S theory undertaken in this thesis.

They argue, that while *conceptually* the emphasis on the structural impact of the organisation of work distinguishes it from the psychological person-environment fit models, it fails to study anything broader than the interaction between the individual and his/her immediate environment. Further, assuming an emergentist ontology in social sciences [the notion that what happens at a sociological level can not be understood solely through study at the psychological level] Muntaner and O'Campo (1993) argued that the model is unable to explain how social structures (including economic, political and cultural relations) determine psychosocial work environments. They suggest that the model falls critically short of explaining sociological influences on health and productivity.

They conclude that the DC/S model shares more with cognitive theories than sociological social psychological theories:

> "cognitive theories are, thus, more likely to fuel the theoretical development of the demand/ control model in the future. This direction of development would be unfortunate as it will implicitly place the burden of workplace change on individual factors rather than on work organization" (p. 1513).

These comments are important to consider because DC/S theory has been instrumental in shifting thinking from the individual to the environment as causal in the development of occupational strain. Moreover, the developments may reduce the very components of the model that Karasek and Theorell (1990) argue set it apart from most psychological models, and remind us of the important sociopolitical context with-in which we as psychological creatures work. Developments at the sociological level may be required to balance the inclusion of additional psychological concepts in the expanded DC model which could tend to erode the sociological thrust epistemologically and practically.

It is true that psychological models have influenced, and continue to influence the development of DC/S theory. However, recent additions to the model, personality and coping,

are considered products of the environment rather than merely dispositional properties of the individual. Indeed in the study of COs results were consistent with the idea that exposure to work stressors, as indicated by service length, was associated with higher levels of trait anxiety, and coping styles that were in turn associated with poorer outcomes.

Nevertheless, it is easy to see how this elaboration could be misinterpreted. There are of course pressures for DC/S theory to respond to the growing cognitive-phenomenological literature and to growing evidence about personal "need for control" as an explanatory factor for individual differences in reaction to levels of control (Siegrist, 1991; Warr, 1987). It is assumed that physiological toughening is only likely to occur in the presence of psychosocial work conditions of high demand and high control (Dienstbier, 1989). Presumably high control would provide the opportunity for recovery. However the situation is not always clear cut with experimental studies involving non-humans and humans, indicating that behavioural control and lack of control are not simple products of the organisation of environmental contingencies. Steptoe (1989) suggests that:

> "people may voluntarily elect not to exert control, and conversely may engage in active behavioural coping even when conditions are not favourable" (p.199). "The possibility therefore arises that individual differences in coping predisposition are as important as situational determinants. Some people may have a predilection to respond to environmental stimulation in this fashion, attempting to cope actively with situations even when such responses may not be appropriate" (p.196).

Other individual difference variables that may be relevant are Type A coronary-prone behaviour, trait anxiety and locus of control. Indeed it is clear that workers (COs and nurses) with a higher level of TA responded with higher levels of emotional suppression. Further research is required to examine these extensions of the model.

On the other hand to position the DC/S model as a sociological social psychology paradigm it may be necessary to bring into the model information at the social level, such as social class, the process of production, appropriation and distribution of surplus labour, and use more objective methods of assessing the work environment (Muntaner & O'Campo, 1993). This would capture the influence of social factors on disease and the notion of "upstream political/ economic forces...influencing the onset of illness" in the workplace (McKinlay, 1975, p.7).

There is no doubt in the assessment of the wide range of work stress theories that the sources of stress are multi-factorial, with influences at a range of levels (economic, sociological individual). It is a matter of emphasis, as Ganster and Schaubroeck (1991), Karasek and colleagues go to great lengths to point out. The origin of work stress and the focus of intervention for work stress according to the DC/S model is with the work environment.

Karl Popper (1968) concluded that the only good evidence is negative evidence, that is, an unsuccessful attempt to refute a particular theory. On this premise, the DC/S model can not be refuted in this thesis as a plausible explanation for occupational differences, and individual differences in levels of strain in workers.

18.3 Directions for future research

In order to capture the diversity of variables thought to be important in the work stress process, triangulation of different research methods seems important (Israel, Schurman, & House, 1989). For instance, in-depth case analysis undertaken here, using both quantitative and qualitative data, enabled a more holistic perspective of the person interacting with the environment. Emergent themes not only provided support for the DC/S model but also uncovered themes highlighting complex interactions between exposure, intrinsic stressors, and personal disposition, and further, the impact of critical incidents. Across a range of other areas social scientists are being challenged to use multiple methods to provide new insights, and greater understanding of the phenomenon under study (Fryer, 1992; Kenny, 1995). For example in the unemployment literature Jahoda (1992) noted the tendency to neglect descriptive fieldwork and avoid qualitative data; "In some reports on modern studies it is hard to realize that the unemployed are human beings" (Jahoda, 1992, p. 358). Recent research has emphasised the need to consider alternative methodologies in understanding the stress and coping process, and the meaning of events for workers (Dewe, 1992a:b; Newton, 1989).

The DC model has been specifically targeted to make it more useful in workplace assessment and intervention studies (Schnall et al., 1994). Suggestions include: adding other aspects of job demands aside from workload to the demands construct e.g. cognitive demands; including workplace social support as a third dimension; domains of demand, latitude and support other than the task level should be included (e.g. influence over work group, departmental and organizational functioning, promotion opportunities, and a supportive workplace climate); and measurement of other work conditions (e.g. shift work), employment opportunities, and non-work demands, control and support (e.g. family) and work-specific conditions is needed.

A theoretical criticism of the DC/S model is that the range of possible end points to be "explained" by the model is poorly defined. One outcome measure used here and not previously used in tests of the DC/S model assessed the impact of the work environment in other spheres of life. Burke (1988) has discussed the myth of the separate worlds of work and family. The changing character of home and work life has highlighted the potential influences from one domain to another. Whether the work domain causes stress in non-work domains or vice versa has been the subject of a research trend in occupational stress.

A number of studies are relevant. For example, Schaubroeck and Ganster (1993) showed that untoughening due to work related stress did spillover to non-work situations. Bromet et al., (1988) found that relative to occupational stress, marital stress was not predictive of poorer mental health, whereas occupational stress arising from high job demands and low work control (decision latitude) were significant predictors of mental health in a longitudinal study of male employees. Finally, Fox et al. (1993) found the impact of the work environment in physiological arousal at home in nurses.

Other recent theoretical frameworks for occupational stress, have in fact contemplated the effect of stressors arising from the work domain exacerbated by the simultaneous occurrence of pressures in non-work domains and vice versa (Greenhaus & Parasuraman, 1987). Conflicts can occur between work and non-work domains because of the time demands required for the different roles (Greenhaus & Beutell, 1985).

In the present study the DC model accounted for significant variance in work-home conflict in an additive way for COs, and in an interactive way for nurse both cross-sectionally and prospectively. Together these findings highlight the interplay between work and non-work domains. Moreover, they suggest the importance of examining stress in the home domain as an outcome of work stress, or as a compounding source of work stress in future research. The DCS model could also consider the interface between work and home and its relationship to strain.

Given that work-home conflict was a significant outcome of the impact of the work environment (shown in both CO and nurse studies) the measure may be particularly useful to utilise in future studies. Moreover, the work-home conflict measure, constructed specifically for the study, showed good internal and test-retest reliability.

End points other than those investigated in the study could be examined in future research, for example, other kinds of activity that might result from the work environment and their impact on occupational strain. A number of studies reported in Karasek and Theorell (1990) using Swedish data showed that workers in active job situations showed high rates of participation in socially active leisure and political activities. One interpretation of this is that workers with jobs that permit little exercise of judgement and no opportunity for challenge are severely restricted in "total political participation" in organisational processes. However they did find that workers with high demands and low control were the most active in labour and political organisations in "mass political activity" suggesting a protest reaction to the job itself. Political activity could be assessed in future studies, as an outcome of job types within organisations.

With regard to the dynamic two stage personality model, it is assumed that active jobs stimulate active coping which in turn could lead to changes in the work environment, or to feelings of mastery (Karasek & Theorell, 1990). Both would have the net effect of reduced strain. Active coping can be viewed as an adaptive strategy, workers seeking support and feedback to deal with their concerns. The possibility that new learning may change the perception of the work environment would be a worthwhile proposition to follow up in future prospective research.

Consistent with recent elaborations of the DC/S model future research could also focus on the relationship between the objective work environment, strain and coping. Most coping studies are conducted within the cognitive framework. There is a lack of research on the extent to which the objective work environment stimulates coping. In one study, Kirmeyer and Dougherty (1988) found that perceived workload rather than objective workload was significantly correlated with coping behaviour. The reason for this needs to be uncovered.

The physiological processes underlying the work stress process also requires urgent attention. Most research including the research presented here makes assumptions about physiological processes underpinning the work stress process. Research with these objective strain indices may also provide an important key to improved methodology in stress research.

It would also be important in future research to extend the research described here and further examine the possibility that some individual characteristics and coping styles are not fixed traits but result from socialisation on the job (Landsbergis, 1988). Sauter (1989) also noted the lack of recognition of personal or situational moderators including coping styles on the control-health relationship in the occupational control and health literature. Parkes (1990) showed a role for coping in ameliorating the effects of the work demands. The role of coping needs further exploration in the sociological model.

Specific studies are required to examine the role of suppression, or the harbouring of emotion, in the work-stress process. If workers deal with a stressful work environment by not raising their concerns, the potential for early intervention is lost and deterioration in well-being is *likely*. Certainly there is a growing body of evidence that the inhibition of emotional expression may be associated with an increased risk of stress-related illness (Karasek & Theorell, 1990). Indeed a forthcoming international conference to be held in the Netherlands in August 1996, will have as its major theme, the (non) expression of emotions and health and disease. Further studies are also required to assess the relationship between strain and coping over time.

Another valuable suggestion is that the model needs to be tested in different populations particularly women and non-Northern European groups to test its validity (Schnall et al., 1994). The relevance of the DC/S model for female workers needs further investigation, because of the increasing number of women entering the workforce. Moreover, in the last decade researchers have set out to challenge the assumption that experiences of men at work correspond to those of women at work (Keita & Hurrell, 1994). The literature on gender suggests different roles for men and women at home and often at work. At work, women more frequently report jobs with low authority over decisions and low skill discretion (Karasek & Theorell, 1990).

The issue of whether job strain is equally dangerous to men and women has not been adequately addressed in research to date. There is some evidence to suggest that job strain is associated with risks for women as least as strong as those for men (Karasek & Theorell, 1990), however typically lower levels of cardiovascular disease could be expected for women compared to men on a biological basis. However, the total burden of work-paid and unpaid-is argued to be greater for working women than working men (Karasek & Theorell, 1990). In Australia, working women are still found to have higher demands (responsibility for children, working hours) at home than working men. This double exposure (Hall, 1992) could mean that women in active jobs also show high levels of strain. Although there was some support for this in the nurse study, the hypothesis needs further exploration.

As the samples in the research presented in this thesis were either predominantly male or predominantly female, they were not appropriate for examining gender differences. Future

research on the DC model could examine the impact of high strain jobs for women and men in homogenous samples.

With the increasing awareness of the deleterious effects of job stress, there is growing need for social scientists to do more field work. Gaps between research and practice have been previously outlined (Burke, 1993). Areas for work include more intervention activities undertaken at the organisational level, evaluation of intervention studies at both the individual and organisational level, and integration of research findings for intervention and policy development (Burke, 1993; Karasek, 1992).

Further, researchers should be encouraged to engage in cross-sectional and longitudinal analysis to appreciate fully the nature of the work stress process. For instance an implicit assumption in many tests of the DC/S model is that the level of demands and control are invariant in jobs, yet the study of nurses showed changes in the level of demands over a twelve month period.

18.4 Final remarks

The accumulation of research findings now suggest the existence of a significant work stress problem, with implications for worker health, motivation and productivity, that warrants a concerted research effort at a local level and as a national policy response. Sweden has created a strong platform for humane work environment change with full attention to both physical and psychosocial hazards, with an institutional and legislative program and with a positive contribution to industrial productivity. In this way local action strategies are supported and complemented by action at a national level (Karasek, 1992).

Dramatic changes in the world of work are underway. These include global competition, the impact of information technology, a shift from vertically integrated hierarchies to networks of specialists, smaller companies that employ fewer people, and the growing disappearance of "the job" as a fixed bundle of tasks (Casio, 1995; Landy, Quick, Kasl, 1994). There is no doubt that these changes are driven by management imperatives, for increase productivity. But in the context of these changes there are great opportunities for industrial and organisational psychologists to contribute to the betterment of human welfare. To this end the challenge for psychologists is to create multi-disciplinary research teams with psychologists and sociologists, that focus on employee well-being, and engineers and economists that focus on productivity goals, closer to the interests of management (Karasek, 1992). The research agenda for applied psychologists is to provide research based answers to pressing organisational problems, and provide the impetus for humane change, where best practice for organisational intervention is modelled in a participatory stress prevention/ work reorganisation process (Karasek, 1992). It is hoped that this thesis has contributed to the resolution of the work stress problem by its efforts to examine the principal theories of occupational stress and their methodological, practical and political implications.

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Appendices

Appendix 1

LIST OF ABBREVIATIONS

%	percentage
α	Coefficient alpha
ABC	Australian Broadcasting Commission
β	Beta - standardised regression coefficient
B	Unstandarised regression coefficient
B. Sc.	Bachelor of Science
B.A.	Bachelor of Arts
BMI	Body mass index
BP/bp	Blood presssure
c	constant
C	Control
$\chi 2$	Chi-square
CEO	Chief Executive Officer
cf	compared to
CHD	Coronary heart disease
CO	Correctional Officer
Comp	Compensation
cont'd	Continued
Cum.	cumulative
CVD	Coronary vascular disease
D	Demand
DC/S	Both the JD-C and the DCS
DCS	Demand-Control-Support
DCS	Department of Correctional Services
dept.	Department
df	Degrees of freedom
E	Emotion focused
EAP	Employee Assistance Program
ED	Executive Director
et al.	and others
F	Ratio of two variance estimates
FTE	Full time equivalents
GAS	General Adaptation Syndrome
GHQ-12	General Health Questionnaire, 12 item version
Govt	Government
GP	General Practitioner
JD-C	Job Demand-Control
JDS	Job Diagnostic Survey
M	Mean
MAQ	Maastricht Autonomy Questionnaire
MR	Multiple R
MRC	Multiple regression/ correlation
N	Number
NA	Negative affectivity
NHF	National Heart Foundation
NIOSH	National Institute for Occupational Safety and Health
NOSHSC	National Occupational Health and Safety Commission
ns	Not significant
NSS	Nursing Stress Scale
p	Probability level
P	Problem focused
P-E	Person-Environment
p.	Page
PAR	Participatory Action Research
PhD	Doctor of Philosophy

pp.	Pages
PSA	Public Service Association
Q	Question
r	Correlation coefficient
R^2	Squared multiple correlation, proportion of variance
Rehab	Rehabilitation
RSI	Repetitive Strain Injury
S	Support
SD	Standard deviation
SES	Socioeconomic status
SPSS	Statistical Package for the Social Sciences
STA	State Transport Authority
t	t-value
T1	Time one
T2	Time two
TA	Trait anxiety
U.K.	United Kingdom
U.S.	United States
WES	Work Environment Measure
X	Multiply
yrs.	Years
Δ	change

Appendix 2

RESEARCH LETTERS TO CORRECTIONAL OFFICERS

From the Legal Fund Secretary:

From the researchers:

LEGAL FUND

All correspondence to:-
Legal Fund, Secretary
52 Miller Street NORTH UNLEY 5061
Phone (08)272 5881; Fax (08)272 6293

6th September, 1991

To all members of the Legal Fund,

I would like to bring to your attention the attached questionnaire.

As you know, one of the major problems we, as correctional officers face in our work, is an exceptionally high level of stress.

In an attempt to identify the problem areas, and the causes of this stress in our work situation, it is intended to conduct a study into various aspects of our work. All correctional officers are asked to take part in the research.

You may recall that in the August Legal Fund Newsletter I personally cautioned members of the Legal Fund about taking part in this survey.

My reasons for making that recommendation, at that time, were quite simple.

While I was not against a survey of this type being conducted, I did not want officers providing material, which the department could later twist and use against the officers.

I could, and would, only encourage officers to take part in a survey if I was completely satisfied that,

[1] the material obtained would remain completely confidential, so that there was no way that an individual officer could be identified;

[2] only the people conducting the research would have access to the raw data;

[3] the material obtained from the survey could be checked by a representative of the Legal Fund, to ensure that the findings presented by the researchers, represents the actual information obtained from the officers.

As a result of that newsletter article, the team conducting the research, (Techsearch, a group who are totally independent of the department), asked to be able to discuss the proposed project with representative of the Legal Fund.

They met with the President, Barry Smith, and myself to discuss these issues.

We found them most cooperative, and, as a result, an agreement has been reached whereby the Legal Fund will monitor the research, to ensure the confidentiality of the officers taking part, as well as that of the material gathered.

While you are under no obligation to take part, I would ask you that, as a member of the Legal Fund, you take part in this study, by completing the enclosed questionnaire. The information which you provide will be of great value to the future welfare of all correctional officers.

Laurie Eddie,
Legal Fund Secretary

techsearch UNIVERSITY OF SOUTH AUSTRALIA

9 September 1991

Dear Sir/Madam

A major study into the causes and nature of stress amongst Correctional Officers in the Department of Correctional Services has been initiated in response to concern about the number of stress injuries recently noted. We have been asked as external consultants to undertake a research project and to make recommendations to reduce the incidence of stress related injury in the work place.

The research team comprises members independent from the Department of Correctional Services - Maureen Dollard, Lecturer, University of South Australia; Dr. Tony Winefield, Associate Professor, University of Adelaide and Terry McGuirk, Director, MDR Consultants.

We are writing to you to ask for your **voluntary** participation in the study. All Correctional Officers are being invited to participate. This is an opportunity to say how you like your work, how it affects you, and to give your ideas about improvement in the **quality of your worklife.** You do not have to participate in the study.

Recommendations will be made to departmental management and to the Public Service Association on the basis of what you say. A copy of the recommendations will also be made available to you. To protect your interests this study has Public Service Association and Legal Fund support.

Please be assured that what you say will be **confidential** because your **name is not required.** In addition the researchers will **group** data so that individual people can not be identified. Completed questionnaires should be placed in the box provided which will be collected and delivered direct to Techsearch, or mailed to us in the stamped self addressed envelope provided.

We are operating in a fairly tight time frame so we would appreciate your quick response. Don't dwell too long over the questions, just give your first natural response. This is a very comprehensive study and so the questionnaire is long. We think it covers all aspects which might influence the incidence of stress. You can complete the questionnaire in your work time.

We hope that you will find some personal interest in being part of this major study by completing the questionnaire and having your say. The research team plans to understand and accurately assess the causes of stress at work and to make some useful recommendations. These will have a positive effect on your professional life, and in the lives of your friends and collegues in the service. We look forward to your prompt response to the questionnaire.

If you have any queries regarding completion of this questionnaire please contact Jan Wood at Techsearch on telephone (08) 267 1755.

Yours sincerely,

Maureen Dollard,
Principal Researcher

Appendix 3

QUESTIONNAIRE SENT TO CORRECTIONAL OFFICERS

CONFIDENTIAL

QUALITY OF WORKLIFE SURVEY

1991

This booklet contains a variety of questions designed to see how you feel about your current workplace. There are a number of sections in the booklet each with its own instructions. Please proceed through the booklet until you have completed all the answers.

There are some important points for you to keep in mind as you answer.

1. The results are entirely confidential between the researchers and you. Questionnaires will be destroyed after their use in the study.

2. We are interested in **group results rather than individual scores**.

3. Try to give your first natural response. That is do not spend too long thinking about answers.

4. There is no time limit. The questionnaire should take about 45 minutes to complete. Be as quick as you can but try to be accurate.

Please remember that this is an opportunity for you to provide useful and practical information to enable us to better understand how people fit with their working environment, so answer as honestly as possible.

WHEN YOU HAVE FINISHED PLEASE PLACE IN THE ENVELOPE PROVIDED AND MAIL AS SOON AS YOU CAN.

PART A FAMILY AND HEALTH

1. What is your age? (please circle appropriate number)

18-30Years	1	51-60years	4
31-40years	2	Over 60	5
41-50years	3		

2. What is your gender? (circle number) Female 1 Male 2

3. Are you currently living with a partner? (circle number) Single 1 Married 2 Defacto 3

4. Do you have any dependent children? (circle number) Yes 1 No 2

5. If so, how many do you have?_____children

6. What is your height? _____ (in cm)

7. What is your weight? _____(in kilograms)
_____ (stones and lbs)

8. Do you consider yourself to be: (circle number)

(a)	very underweight?	1
(b)	somewhat underweight?	2
(c)	a little underweight?	3
(d)	normal weight?	4
(e)	a little overweight?	5
(f)	somewhat overweight?	6
(g)	very overweight?	7

9. Please **circle** how often you exercise for 30 mins or more

Every day	1	Once a fortnight	5
5-6 days a week	2	Less than once a month	6
3-4 days a week	3	Less than once a year	7
1-2 days per week	4		

10. Have you visited a doctor in the last two weeks? (circle number) Yes 1 No 2

If yes, how many times? _____

11. How often do you usually drink alcohol? (circle number)

I don't drink alcohol	1	On 3 or 4 days a week	4
Less than once a week	2	On 5 or 6 days a week	5
On 1 or 2 days a week	3	Every day	6

12. On a day when you drink alcohol, how many drinks do you usually have? (circle number)

1 or 2 drinks	1	9 to 12 drinks	4
3 or 4 drinks	2	13 to 20 drinks	5
5 to 8 drinks	3	More than 20 drinks	6

13. (a) How often do you usually smoke cigarettes per day? (circle number)

I don't smoke cigarettes	1	11 to 20 cigarettes	4
1 to 5 cigarettes	2	21 to 40 cigarettes	5
6 to 10 cigarettes	3	More than 40 cigarettes	6

(b) How often do you smoke cigars or pipes per day? (circle number)
None 1 1-5 2 5-10 3

(c) If you do **not** smoke now, have you smoked in the past? (circle number) Yes 1
No 2

14. Are you involved in shift work? (circle number) Yes 1
No 2

If YES please answer the following questions. If NO please go to **PART B**

(a) Over the past three months what percentage of your time on average did you spend doing the following shifts? **(circle number)**

	25%	50%	75%	100%
Day	1	2	3	4
Evening	1	2	3	4
Night	1	2	3	4
Swing	1	2	3	4

(b) Do you have difficulty falling asleep after any of the shifts you work? **(circle number)**
Never 1
Sometimes 2
Many times 3
Always 4

(c) Do you have midsleep awakenings after the night shift (or 2nd Watch)? **(circle number)**
Never 1
Sometimes 2
Many times 3
Always 4

(d) How would you rate the quality of your sleep? **(circle number)**
Poor 1
Fair 2
Good 3
Excellent 4

(e) Do you take sleeping pills or medicine to help with sleep? **(circle number)**
Never 1
Sometimes 2
Many times 3
Always 4

(f) How many hours overtime have you worked in the last two weeks? _____hours

(g) Did you want to work this overtime? Yes 1 No 2 Not relevant 3

15. Have you ever been off on stress leave? Yes 1 No 2

If yes please answer the following questions. If no please go to **Part B.**

(a) In what year did you first take leave due to stress?_____

(b) In total how long did you spend on stress leave (circle number)

Less than 2 weeks	1	2 to 6 months	4
3 to 4 weeks	2	7 to 12 months	5
5 to 8 weeks	3	Over 12 months	6

(c) What were the first signs of stress that you noticed when you were at work?

(d) What action did you take when you noticed the stress?

(e) How long after you first felt stressed did you let the organisation know?

(f) What happened then?

(g) How long after the first signs did you take leave?

(h) What do you think are the main things that cause stress at work?

(i) What do you think was the major reason for you becoming stressed?

(j) What else was happening in your life at the time you felt most stressed?

(k) How do you think the organisation could have helped to reduce the stress you felt?

Please continue with the following questions according to your work experience as a Correctional Officer

PART B ABOUT YOUR JOB AND YOUR EDUCATION

1. What is your present location? (circle number)

Adelaide Remand Centre	1
Yatala Labour Prison	2
Northfield Prison Complex	3
Mobilong Prison	4
Port Augusta Gaol	5
Port Lincoln Prison	6
Mount Gambier Gaol	7
Cadell Training Centre	8
Courts Complex	9
Dog Squad	10

2. In what year did you commence work as a Correctional Officer? _____

3. Prior to the award changes what was your substantive classification? (circle number)

PO-5	Chief Correctional Officer	1
PO-4	Assistant Chief Correctional Officer Grade II	2
PO-3	Assistant Chief Correctional Officer Grade I	3
PO-2	Senior Correctional Officer	4
PO-1	Correctional Officer	5
Correctional Industrial Officer		6

4. In what year were you appointed to your current position_____

5. Is your present position, substantive or acting? (circle number) Substantive 1, Acting 2

6. Are you on probation? (circle number) Yes 1, No 2

7. Do you know what your new award job classification is? Yes 1, No 2

   If yes please write it here _____

8. Have you previously had defence services employment or experience? (circle number) Yes 1, No 2

9. In your present position are you responsible for supervision of other staff? (circle number) Yes 1, No 2

   If YES, please specify how many _____

10. (a) What was your education level completed at school? **(circle number)**

Less than 3 yrs High School	1
Completed 3 years High School	2
Completed 4 years High School	3
Completed 5 years High School	4

(b) Have you completed any further study? Yes 1, No 2

If yes, please state: _____

11. How important to you were the following reasons for initially taking your job? Using the following scale **circle the number** to indicate the importance of **each** reason (why you took your job?).

	Very Important	Important	Not sure	Not Important
employment, salary, fringe benefits.	1	2	3	4
prisoner rehabilitation type work.	1	2	3	4
promotional opportunities.	1	2	3	4
security guard work preference	1	2	3	4
capacity to transfer to other government agencies	1	2	3	4
job security	1	2	3	4

12. Thinking back over the past month, how often have you had serious financial worries?

(a)	Never	1
(b)	Hardly ever	2
(c)	Frequently	3
(d)	Nearly all the time	4
(e)	All the time	5

13. In the past twelve months have you applied for a (circle number)

(a)	Transfer within your own institution	1
(b)	Transfer to another location	2
(c)	Promotion	3
(d)	Position outside Department	4
(e)	None of the above	5

14. How often have you considered resigning from the department ?(circle number)

(a)	Never	1
(b)	Sometimes	2
(c)	Often	3
(d)	Frequently	4

15. How often have you considered a complete career change ? (circle number)

(a)	Never	1
(b)	Sometimes	2
(c)	Often	3
(d)	Frequently	4

16. Taking everything into consideration how do you feel about your job? (circle number)

Extremely dissatisfied	1	Moderately satisfied	5
Very dissatisfied	2	Very satisfied	6
Moderately dissatisfied	3	Extremely satisfied	7
Not sure	4		

17. Since you began work with the department do you think the work has (circle number)

Become more demanding?	1
Become less demanding?	2
Not changed in its demands?	3

PART C RELATIONSHIP BETWEEN WORK AND HOME

The following questions relate to the relationship between your work and home life. Indicate your response by circling the appropriate number.

1. (a) How often do the demands of work interfere with your family life?

Never	1	Many times	3
Sometimes	2	Always	4

(b) How often do the demands of work interfere with your social life?

Never	1	Many times	3
Sometimes	2	Always	4

2. (a) Does the time you spend at work detract from your family life?

Never	1	Many times	3
Sometimes	2	Always	4

(b) Does the time you spend at work detract from your social life?

Never	1	Many times	3
Sometimes	2	Always	4

3. (a) Does your work have disadvantages for your family life?

Never	1	Many times	3
Sometimes	2	Always	4

(b) Does your work have disadvantages for your social life?

Never	1	Many times	3
Sometimes	2	Always	4

4. (a) Do you have enough time for your family life?

Never	1	Many times	3
Sometimes	2	Always	4

(b) Do you have enough time for your social life?

Never	1	Many times	3
Sometimes	2	Always	4

5. If you had a problem generally would there be at least one sympathetic person (friend or family) who would listen and care

Never	1	Many times	3
Sometimes	2	Always	4

6. Does your work harden your emotions so that you become less sensitive to family needs?

Never	1	Many times	3
Sometimes	2	Always	4

7. Do you take home 'prison attitudes and behaviour' to the detriment of family relationships?

Never	1	Many times	3
Sometimes	2	Always	4

8. Does your partner comment that you are affected by your work?

Never	1	Many times	3
Sometimes	2	Always	4

9. Do you have (circle number)

(a)	no friends	1
(b)	1 friend	2
(c)	a few friends	3
(d)	many friends	4

PART D WORK ROLE

The following statements are about your work role. Please respond by indicating how often these apects of your work role concern you by circling the appropriate number.

		does not apply	rarely concerned	sometimes concerned	often concerned	very often concerned
1.	I am unclear about just what the scope and responsibilities of my job are.	0	1	2	3	4
2.	I feel that I am not fully trained to handle my job.	0	1	2	3	4
3.	I do not know just what the people I work with expect of me.	0	1	2	3	4
4.	I feel that the goals and objectives of my job are not very clear or carefully planned.	0	1	2	3	4
5.	I feel that there is a lack of policies or guidelines to help me.	0	1	2	3	4
6.	I don't know what my responsibilities are.	0	1	2	3	4
7.	I have to 'feel my way' in performing my duties.	0	1	2	3	4
8.	I receive assignments that are not within my training or capability.	0	1	2	3	4
9.	I feel uncertain about what is expected of me.	0	1	2	3	4
10.	I feel the explanation of what is to be done is unclear.	0	1	2	3	4
11.	I have to work under vague directives or orders.	0	1	2	3	4
12.	I feel that the job has changed and I have not been trained to deal with those changes	0	1	2	3	4
13.	I feel the job has changed and I disagree with the changes.	0	1	2	3	4

PART E COPING STYLES

This final set of questions lists a number of potential ways that you may deal with problems or worries that you may have at work. By circling the appropriate number please rate how often you do the following things in order to cope with worries or work issues you have.

		Almost Never	Sometimes	Often	Almost Always
1.	Seek support from my superivisors.	1	2	3	4
2.	Hold back emotions and try not to let the stress show.	1	2	3	4
3.	Use my home as a refuge.				
4.	Deliberately separate 'home' and 'work'.	1	2	3	4
5.	Expand interests and activities outside work.	1	2	3	4
6.	Try to forget about work worries by focussing energies on other aspects of my life.	1	2	3	4
7.	Try to look at work as a challenge.	1	2	3	4
8.	Accept the situation and learn to live with it.	1	2	3	4
9.	Try to avoid the situation.	1	2	3	4
10.	Use relaxation, meditation techniques.	1	2	3	4
11.	Seek feedback on my performance.	1	2	3	4
12.	Smoke cigarettes, pipes or cigars.	1	2	3	4
13.	Share my worries with my friends or spouse outside work.	1	2	3	4
14.	Do physical exercise using Departmental facilities or sponsored programmes.	1	2	3	4
15.	Seek clarification on what I have to do in my job.	1	2	3	4
16.	Eat.	1	2	3	4
17.	Use alcohol or drugs.	1	2	3	4
18.	Seek religious support.	1	2	3	4
19.	Seek counselling.	1	2	3	4
20.	Speak to occupational health, safety and welfare personnel.	1	2	3	4
21.	Speak to union officials.	1	2	3	4
22.	Do physical exercise privately.	1	2	3	4
23.	Speak to Legal Fund.	1	2	3	4
24.	Seek support from other officers.	1	2	3	4

PART F WORK ENVIRONMENT

The next 72 statements are about the place in which you work. The statements are intended to apply to all work environments, however, some words may not be quite suitable for your work environment. For example, the term supervisor is meant to refer to your boss, manager, unit leader, or the person or persons to whom you report.

You are to decide which statements are true of your work environment and which are false. If you think the statement is *true* or mostly *true* of your work environment, circle the 'T' (TRUE). If you think the statement is *false* or mostly *false* of your work environment, circle the 'F' (FALSE).

Please be sure to answer every statement.

1.	The work is really challenging.	T	F
2.	People go out of their way to help a new staff member feel comfortable.	T	F
3.	Supervisors tend to talk down to staff members.	T	F
4.	Few staff have any important responsibilities.	T	F
5.	People pay a lot of attention to getting work done.	T	F
6.	There is constant pressure to keep working.	T	F
7.	There's a strict emphasis on following policies and regulations.	T	F
8.	Doing things in a different way is valued.	T	F
9.	Ther's not much group spirit	T	F
10.	The atmosphere is somewhat impersonal.	T	F
11.	Supervisors usually compliment staff who do something well.	T	F
12.	Staff have a great deal of freedom to do as they like.	T	F
13.	There's a lot of time wasted because of inefficiencies.	T	F
14.	There always seems to be an urgency about everything.	T	F
15.	People must wear uniform.	T	F
16.	New and different ideas are always being tried out.	T	F
17.	A lot of people seem to be just putting in time.	T	F
18.	People take a personal interest in each other.	T	F
19.	Supervisors tend to discourage criticisms from staff.	T	F
20.	Staff are encouraged to make their own decisions.	T	F
21.	Things rarely get "put off till tomorrow".	T	F
22.	People cannot afford to relax.	T	F
23.	People are expected to follow set rules in doing their work.	T	F
24.	This place would be one of the first to try out a new idea.	T	F
25.	People seem to take pride in the organisation.	T	F

26.	Staff rarely do things together after work.	T	F
27.	Supervisors usually give full credit to ideas contributed by staff.	T	F
28.	People can use their own initiative to do things.	T	F
29.	This is a highly efficient, work-oriented place.	T	F
30.	Nobody works too hard.	T	F
31.	Supervisors keep a rather close watch on staff.	T	F
32.	Variety and change are not particularly important.	T	F
33.	People put quite a lot of effort into what they do.	T	F
34.	People are generally frank about how they feel.	T	F
35.	Supervisors often criticize staff over minor things.	T	F
36.	Supervisors encourage staff to rely on themselves when a problem arises.	T	F
37.	Getting a lot of work done is important to people.	T	F
38.	There is no time pressure.	T	F
39.	Rules and regulations are pretty well enforced.	T	F
40.	The same methods have been used for quite a long time.	T	F
41.	Few people ever volunteer.	T	F
42.	Staff often eat lunch together.	T	F
43.	Staff generally feel free to ask for a raise.	T	F
44.	Staff generally do not try to be unique and different.	T	F
45.	There's an emphasis on "work before play".	T	F
46.	It is very hard to keep up with your workload.	T	F
47.	Supervisors are always checking on staff and supervise them very closely.	T	F
48.	New approaches to things are rarely tried.	T	F
49.	It is quite a lively place.	T	F
50.	Staff who differ greatly from the others in the organisation don't get on well.	T	F
51.	Supervisors expect far too much from staff.	T	F
52.	Staff are encouraged to learn things even if they are not directly related to the job.	T	F
53.	Staff work very hard.	T	F
54.	You can take it easy and still get your work done.	T	F
55.	Supervisors do not often give in to staff pressure.	T	F
56.	Things tend to stay just about the same.	T	F
57.	It's hard to get people to do any extra work.	T	F
58.	Staff often talk to each other about their personal problems.	T	F
59.	Staff discuss their personal problems with supervisors.	T	F
60.	Staff function fairly independently of supervisors.	T	F

61.	People seem to be quite inefficient.	T	F
62.	There are always deadlines to be met.	T	F
63	Staff are expected to conform rather strictly to the rules and customs.	T	F
64	There is a fresh, novel atmosphere about the place.	T	F
65.	The work is usually interesting.	T	F
66.	Often people make trouble by talking behind others' backs.	T	F
67.	Supervisors really stand up for their people.	T	F
68.	Supervisors meet with staff regularly to discuss their future work goals.	T	F
69.	There's a tendency for people to come to work late.	T	F
70.	People often have to work overtime to get their work done.	T	F
71.	If officers come in late, they can make it up by staying late.	T	F
72.	Things always seem to be changing.	T	F

PART G PERSONAL PERCEPTION

For the following questions indicate the extent to which you agree or disagree with them by circling the appropriate number.

		Strongly Agree	Agree	Undecided	Disagree	Disagree Strongly
1.	There are two kinds of people in the world: the weak and the strong.	1	2	3	4	5
2.	A person either knows the answer to a question or does not know the answer to a question.	1	2	3	4	5
3.	There are two kinds of people; the pure and the bad.	1	2	3	4	5
4.	You can classify almost all people as either honest or crooked.	1	2	3	4	5
5.	First impressions are very important.	1	2	3	4	5
6.	It doesn't take very long to find out if you can trust a person.	1	2	3	4	5
7.	There is only one right way to do anything.	1	2	3	4	5

PART H GENERAL HEALTH

In this section we are interested in how you have felt over the past TWO weeks. Please circle a number for each question

It is important that you try to answer ALL questions.

1.	Have you recently been able to concentrate on whatever you're doing?	better than usual	1
		same as usual	2
		less than usual	3
		much less than usual	4
2.	Have you recently lost much sleep over worry?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
3.	Have you recently felt that you are playing a useful part in things?	more than usual	1
		same as usual	2
		less so than usual	3
		much less than usual	4
4.	Have you recently felt capable of making decisions about things?	more than usual	1
		same as usual	2
		less so than usual	3
		much less capable	4
5.	Have you recently felt constantly under strain?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
6.	Have you recently felt that you couldn't overcome your difficulties?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
7.	Have you recently been able to enjoy your normal day-to-day activities?	more so than usual	1
		same as usual	2
		less so than usual	3
		much less than usual	4
8.	Have you recently been able to face up to your problems?	more so than usual	1
		same as usual	2
		less so than usual	3
		much less than usual	4
9.	Have you recently been feeling unhappy and depressed?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
10.	Have you recently been losing confidence in yourself?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
11.	Have you recently been thinking of yourself as a worthless person?	not at all	1
		no more than usual	2
		rather more than usual	3
		much more than usual	4
12.	Have you recently been feeling reasonably happy, all things considered?	more so than usual	1
		about the same as usual	2
		less so than usual	3
		much less than usual	4

PART I HEALTH SYMPTOMS

The following questions are about your general physical health symptoms **in the last month**. Please indicate how often you have suffered from the following problems by circling the number in the appropriate column.

		Never	Sometimes	Many times	Always
1.	Colds/influenza	1	2	3	4
2.	High blood pressure	1	2	3	4
3.	Hay fever	1	2	3	4
4.	Sleeping difficuties	1	2	3	4
5.	Migraine/severe headache	1	2	3	4
6.	Eye strain	1	2	3	4
7.	Tics	1	2	3	4
8.	Ulcers	1	2	3	4
9.	Indigestion	1	2	3	4
10.	Stomach pains	1	2	3	4
11.	Hearing problems	1	2	3	4
12.	Upper back problems	1	2	3	4
13.	Lower back problems	1	2	3	4
14.	Chest pains	1	2	3	4
15.	Heart disease/trouble	1	2	3	4
16.	Paralysis/tremor or shaking	1	2	3	4
17.	Asthma	1	2	3	4
18.	Kidney trouble	1	2	3	4
19.	Nervous breakdown	1	2	3	4
20.	Liver trouble	1	2	3	4
21.	Skin trouble	1	2	3	4
22.	Feeling run down/low	1	2	3	4
23.	Shortness of breath	1	2	3	4
24.	Arthritis	1	2	3	4
25.	Muscular aches/pain	1	2	3	4
26.	Grinding teeth	1	2	3	4
27.	Neck tension	1	2	3	4
28.	Loss of appetite	1	2	3	4
29.	Dizziness	1	2	3	4
30.	Other significant illness	1	2	3	4

PART J SELF ANALYSIS QUESTIONNAIRE

Directions: A number of statements that people have used to describe themselves are given below. Read each statement and then tick the appropriate space on the answer sheet 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.

		almost never	some-times	often	almost always
1.	I am a steady person.	1	2	3	4
2.	I feel satisfied with myself.	1	2	3	4
3.	I feel nervous and restless.	1	2	3	4
4.	I wish I could be as happy as others seem to be.	1	2	3	4
5.	I feel like a failure.	1	2	3	4
6.	I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4
7.	I feel secure.	1	2	3	4
8.	I lack self-confidence.	1	2	3	4
9.	I feel inadequate.	1	2	3	4
10.	I worry too much over something that really does not matter.	1	2	3	4

PART K ASPECTS OF A CORRECTIONAL OFFICER'S JOB.

Listed below are a series of statements that represent issues/aspects of your work as a Correctional Officer. Please indicate below your level of concern about each of the following items by circling the appropriate number.

		does not apply	rarely concerned	sometimes concerned	often concerned	very concerned
1.	Availability of items of uniform.	0	1	2	3	4
2.	Suitability of uniform issued.	0	1	2	3	4
3.	Boredom with the constant routine of the job.	0	1	2	3	4
4.	Not enough training to work with Aboriginal inmates	0	1	2	3	4
5.	Inmates acquiring knowledge about personal and family affairs.	0	1	2	3	4
6.	An increasing number of inmates on drugs.	0	1	2	3	4
7.	Mainly custodial nature of the job.	0	1	2	3	4
8.	Conflict between controlling and helping inmates.	0	1	2	3	4
9.	Working with members of the opposite gender	0	1	2	3	4
10.	Difficulty in arranging annual leave.	0	1	2	3	4
11.	Difficulty in controlling feelings towards certain types of inmates.	0	1	2	3	4
12.	Working with mentally retarded inmates.	0	1	2	3	4
13.	Need to keep up a 'false front' for the other staff.	0	1	2	3	4
14.	Fear of catching infectious diseases. at work.	0	1	2	3	4
15.	Inconsistent penalties given to inmates for misconduct.	0	1	2	3	4
16.	Inadequate information about inmate's previous behaviour allowing the development of crises (e.g. suicide attempts, disfigurements, etc.).	0	1	2	3	4
17.	Too easy for inmates to improve their educational qualifications while in prison.	0	1	2	3	4
18.	Not knowing what is going on among the inmates.	0	1	2	3	4
19.	Ex-inmates wanting "revenge" on prison officers.	0	1	2	3	4
20.	Gang members bringing into prison their outside affiliations and inter-rivalry.	0	1	2	3	4
21.	Irregular working hours.	0	1	2	3	4
22.	Continual shift work.	0	1	2	3	4
23.	Relief breaks.	0	1	2	3	4

24.	No meal breaks on certain shifts.	0	1	2	3	4
25.	Lack of concern for prison officers who have been assaulted.	0	1	2	3	4
26.	Lack of appropriate management by senior institutional staff.	0	1	2	3	4
27.	Lack of encouragement to reform inmates.	0	1	2	3	4
28.	No recognition of attempts to aid reform.	0	1	2	3	4
29.	Not sufficient training on the job	0	1	2	3	4
30.	Not enough training provided for people promoted into new positions.	0	1	2	3	4
31.	Lack of promotion opportunity.	0	1	2	3	4
32.	Lack of job opportunity.	0	1	2	3	4
33.	Lack of community involvement in the prison system.	0	1	2	3	4
34.	Abuse of the roster system.	0	1	2	3	4
35.	Continual callbacks from off duty.	0	1	2	3	4
36.	Lack of notice of days off on the roster.	0	1	2	3	4
37.	Budget too low for the prison service to achieve its aims.	0	1	2	3	4
38.	Feeling that you are inadequately paid for the work you do.	0	1	2	3	4
39.	Interruption of regular social activities (e.g. clubs, sports, etc.).	0	1	2	3	4
40.	Fear of being placed under investigation by the Department.	0	1	2	3	4
41.	Possible need to account for and justify actions after an "explosive situation".	0	1	2	3	4
42.	Different interpretations or regulations by different officers on different shifts.	0	1	2	3	4
43.	Prison officers not being given opportunity to defend complaints made by inmates.	0	1	2	3	4
44.	Shortage of areas where staff can get away from inmates.	0	1	2	3	4
45.	Not kept informed on the reasons behind policies adopted by your supervisors.	0	1	2	3	4
46.	Senior prison officers do not understand the problems of officers.	0	1	2	3	4
47.	Insufficient Departmental acknowledgement for your good work.	0	1	2	3	4
48.	Performance assessment procedures unsatisfactory.	0	1	2	3	4
49.	Pressure on children in community due to my occupation.	0	1	2	3	4

50.	Effects of moving on families.	0	1	2	3	4
51.	Lack of co-operation from inmates.	0	1	2	3	4
52.	Not knowing how the inmates are going to react.	0	1	2	3	4
53.	Having to prevent inmates from assaulting each other.	0	1	2	3	4
54.	Constant backchat from inmates.	0	1	2	3	4
55.	Inmate's attitude towards prison officers.	0	1	2	3	4
56.	Possibility of assault by inmates.	0	1	2		4
57.	Rudeness and arrogance of inmates.	0	1	2	3	4
58.	The possibility of violent episodes between groups of inmates.	0	1	2	3	4
59.	Use of drugs by inmates	0	1	2	3	4
60.	Use of alcohol by inmates	0	1	2	3	4
61.	Threats of assault by inmates.	0	1	2	3	4
62.	Delays and errors in processing wages	0	1	2	3	
63.	Administration inconsistent in working out penalty payments for rosters.	0	1	2	3	4
64.	Having to search inmates after visits.	0	1	2	3	4
65.	Having to do escort duties in public places (e.g. hospitals, etc.)	0	1	2	3	4
66.	Difficulty in dealing with friends and relatives of inmates during visits.	0	1	2	3	4
67.	Having to uphold petty prison regulations.	0	1	2	3	4
68.	Job makes friendships with people who are not prison officers difficult.	0	1	2	3	4
69.	Meeting ex-inmates in social situations away from prison.	0	1	2	3	4
70.	General public's ignorance of what happens in a prison.	0	1	2	3	4
71.	Head office out of touch with the realities of prison administration.	0	1	2	3	4
72.	Long delays before receiving information about official inquiries into inmate's complaints.	0	1	2	3	4
73.	Head office does not seek advice from prison officers.	0	1	2	3	4
74.	Sole responsibility for a group of inmates.	0	1	2	3	4
75.	Having to be constantly alert and on guard.	0	1	2	3	4
76.	Having to push inmates to do a reasonable standard of work.	0	1	2	3	4
77.	Fellow officers not doing their job.	0	1	2	3	4

78.	Unfair allocation of jobs.	0	1	2	3	4
79.	Uneven discipline of inmates by prison officers.	0	1	2	3	4
80.	Large number of moves from place to place needed for promotion etc.	0	1	2	3	4
81.	Having to study for examination by correspondence.	0	1	2	3	4
82.	Uneven application of discipline to prison officers.	0	1	2	3	4
83.	Fear that other officers may not support you when you need them.	0	1	2	3	4
84.	Disagreements between staff members.	0	1	2	3	4
85.	Overcrowding of inmates in the prison.	0	1	2	3	4
86.	Staff shortages.	0	1	2	3	4
87.	Lack of clear rules and standards.	0	1	2	3	4
88.	No room for own initiative.	0	1	2	3	4
89.	Too many rules and instructions to deal with.	0	1	2	3	4
90.	Having to wear a uniform.	0	1	2	3	4
91.	Partner's fear for your safety at work.	0	1	2	3	4
92.	Fear of catching communicable diseases at work.	0	1	2	3	4
93.	Lack of clear rules and standards for inmates.	0	1	2	3	4
94.	Fear of catching A.I.D.S. at work.	0	1	2	3	4
95.	Fear of catching Hepatitis B. at work.	0	1	2	3	4
96.	Negative community attitudes to corrections	0	1	2	3	4
97.	Lack of community involvement in corrections	0	1	2	3	4

If you have any suggestions to make as to how the pressures you experience at work might be reduced and what the Department could do to help, please write them here.

Write here any suggestions you may have about how the Department could better reward good job performance and improve team spirit.

THANK YOU VERY MUCH FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.

ON THE BASIS OF THE DATA YOU HAVE PROVIDED RECOMMENDATIONS WILL BE MADE TO MANAGEMENT AND TO THE PUBLIC SERVICE ASSOCIATION TO IMPROVE THE QUALITY OF YOUR WORK LIFE.

THE DATA YOU HAVE PROVIDED WILL REMAIN THE PROPERTY OF TECHSEARCH INC.

Appendix 4

REDUCTION OF SOURCES OF WORK CONCERN (PART K) FROM 97 ITEMS TO 42 COMPOSITE ITEMS

```
COMPUTE AC1=CO1+CO2.
COMPUTE AC2=CO3.
COMPUTE AC3=CO5+CO6+CO59+CO60+CO12.
COMPUTE AC4=CO7+CO8.
COMPUTE AC5=CO11.
COMPUTE AC6=CO10.
COMPUTE AC7=CO13.
COMPUTE AC8=CO93+CO15+CO16.
COMPUTE AC9=CO18+CO19+CO20.
COMPUTE AC10=CO26.
COMPUTE AC11=CO21+CO22.
COMPUTE AC12=CO23+CO24.
COMPUTE AC13=CO25.
COMPUTE AC14=CO27+CO28.
COMPUTE AC15=CO29+CO4+CO30.
COMPUTE AC16=CO31+CO32.
COMPUTE AC17=CO34+CO35+CO36.
COMPUTE AC18=CO37+CO38.
COMPUTE AC19=CO43.
COMPUTE AC20=CO40+CO41+CO42.
COMPUTE AC21=CO39.
COMPUTE AC22=CO45+CO46.
COMPUTE AC23=CO51+CO52+CO53+CO54+CO55+CO56+CO57+CO58+CO61.
COMPUTE AC24=CO62+CO63.
COMPUTE AC25=CO64+CO65+CO66.
COMPUTE AC26=CO68+CO69.
COMPUTE AC27=CO67.
COMPUTE AC28=CO76+CO74+CO75.
COMPUTE AC29=CO71+CO72+CO73.
COMPUTE AC30=CO83+CO84+CO82.
COMPUTE AC31=CO79+CO78+CO77.
COMPUTE AC32=CO87+CO88+CO89+CO47+CO48.
COMPUTE AC33=CO92+CO94+CO95+CO14.
COMPUTE AC34=CO90.
COMPUTE AC35=CO49+CO70+CO96+CO97+CO33.
COMPUTE AC36=CO91.
COMPUTE AC37=CO80+CO81.
COMPUTE AC38=CO44.
COMPUTE AC39=CO9.
COMPUTE AC40=CO50.
COMPUTE AC41=CO85+CO86.
COMPUTE AC42=CO17.
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Appendix 5

RESEARCH LETTERS TO NURSES

Information Sheet:

Information sheet Time 2:

Follow up postcard, Time 2:

UNIVERSITY OF SOUTH AUSTRALIA AND UNIVERSITY OF ADELAIDE

NURSES AT WORK SURVEY 1992

INFORMATION SHEET

Dear Participant,

We are presently undertaking a ***confidential*** research project to examine how people feel about their jobs especially in times of change. All nursing staff at the Whyalla Hospital are being approached to become volunteers in the study.

We are particularly interested in the study of the psychological impact of the work environment on employees. We have just completed a major study into the cause and nature of stress among Correctional Officers in the Department of Correctional Services. Numerous other stress studies have been conducted but few have used a longitudinal design. As you might be aware, longitudinal studies that collect information from the same individual over time are the most valuable in terms of providing information that can implicate connections between work and psychological or physical health.

Such a study design requires voluntary participation at more than one time and we will be asking for your cooperation again at a later time. But firstly we need you to complete a comprehensive questionnaire which should take approximately 45 minutes. Hospital management have agreed to allow you to complete the questionnaire in work time. To participate will take your time and effort but the study will greatly increase knowledge about how people cope in a changing work environment, an area about which there is little current knowledge. Hopefully the information will enable us to provide information about work at the Whyalla Hospital and suggest ways to reduce stress levels. We would greatly value your involvement in the study and we will provide you with a summary of findings after this first stage of data collection.

Contact with you is vital over time and so this is the reason for asking for your name. This information will be coded immediately so that your name becomes separate from the data you provide.

Please be assured that although this research project has been approved by the Hospital Board, the Australian Nursing Federation and the Public Service Association, it is an *independent* initiative by the two universities. All data will be treated with the strictest confidence and will remain the property of the researchers. When the study is complete your personal data will be destroyed.

If you have any queries about the study please ring me on 457744, at the University of South Australia. Nursing staff happy to provide information about the study are Jacki Warren and Paul Fennell. If you have any trouble reading the questions Andrew Alderdice, Staff Development, ext 518 is available to help also. When you have completed the questionnaire please place it in the envelope provided, seal it and place it in the locked post box on level one, beside the new lift.

We trust that you may find some personal interest in participating in this major study and you can expect quality feedback. Thank you for your time,

Yours Sincerely.

Maureen Dollard
Lecturer in Psychology
Registered Psychologist
University of South Australia

In Conjunction with,
Dr. Tony Winefield
Associate Professor
Dept. of Psychology
University of Adelaide

Information sheet Time 2:

UNIVERSITY OF SOUTH AUSTRALIA AND UNIVERSITY OF ADELAIDE

NURSES AT WORK SURVEY AUGUST 1993

INFORMATION SHEET

Dear ,

Last year you were one of 107 nurses who participated in the first stage of a longitudinal study which aims to find out how work and health relate over time. It is now twelve months since the initial data was collected and we now asking for you to complete the questions attached. This will take much less time than before.

The study is going well and we would like to provide some feedback to you about the results later this year. Please indicate below if you would be interested in attending such a session. Thank you in advance for you assistance and your time,

Yours Sincerely,

Maureen Dollard,

In Conjunction with Dr. Tony Winefield,
University of Adelaide.

Important Points.

(1) As before, your answers are entirely confidential.
(2) Try to give your first natural response. That is do not spend too long thinking about answers.

Would you be interested in attending a presentation of the study later this year? (tick box).

Yes ❑ No ❑

Do you give your consent for the researchers to obtain and use your sick leave information from the last two years from administration? (tick box).

Yes ❑ No ❑

WHEN YOU HAVE FINISHED PLEASE PLACE IN THE REPLY PAID ENVELOPE PROVIDED AND MAIL AS SOON AS YOU CAN.

Thankyou

Follow up postcard, Time 2:

UNIVERSITY OF SOUTH AUSTRALIA AND UNIVERSITY OF ADELAIDE

NURSES AT WORK SURVEY SEPTEMBER 1993

Dear ,

Last pay week you were sent a questionnaire seeking your response on a range of work and health related issues. If you have already completed and returned the questionnaire to us please accept our sincere thanks. If not, please do so today. The follow up questionnaire has been sent only to those who responded to the initial questionnaire a year ago. It is therefore extremely important that you also respond to this questionniare if the results are to represent accurately the situation for the nurse group.

If by some chance you did not receive the questionnaire, or it got misplaced, please collect one from < > in administration, or call me on < >, and I will send one to you today.

Yours Sincerely

Maureen Dollard,

In Conjunction with Dr. Tony Winefield,
University of Adelaide.

Appendix 6

QUESTIONNAIRES: NURSE STUDY

Trait anxiety, 20 item scale:

Directions: A number of statements that people have used to describe themselves are given below. Read each statement and then tick the appropriate space on the answer sheet 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.

		almost never	some-times	often	almost always
1.	I feel pleasant.	1	2	3	4
2.	I feel nervous and restless.	1	2	3	4
3.	I feel satisfied with myself.	1	2	3	4
4.	I wish I could be as happy as others seem to be.	1	2	3	4
5.	I feel like a failure.	1	2	3	4
6.	I feel rested.	1	2	3	4
7.	I am "calm, cool, and collected".	1	2	3	4
8.	I feel that difficulties are piling up so that I cannot overcome them.	1	2	3	4
9.	I worry too much over something that really doesn't. matter.	1	2	3	4
10.	I am happy	1	2	3	4
11.	I have disturbing thoughts.	1	2	3	4
12.	I lack self-confidence.	1	2	3	4
13.	I feel secure.	1	2	3	4
14.	I make decisions easily	1	2	3	4
15.	I feel inadequate.	1	2	3	4
16.	I am content	1	2	3	4
17.	Some unimportant thought runs through my mind and bothers me.	1	2	3	4
18.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
19.	I am a steady person.	1	2	3	4
20.	I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

Nursing Stress Scale (NSS):

PART J STRESS AMONG NURSING STAFF

Below is a list of situations that commonly occur on a hospital unit. For each item indicate by means of a tick ✓ how often on your present unit you have found the situations to be stressful.

		NEVER	OCCASIONALLY	FREQUENTLY SO	VERY FREQUENTLY	
1.	Breakdown of the computer.	①	②	③	④	265
2.	Criticism by a doctor.	①	②	③	④	266
3.	Performing procedures that patients experience as painful.	①	②	③	④	267
4.	Feeling helpless in the case of a patient who fails to improve.	①	②	③	④	268
5.	Conflict with a supervisor.	①	②	③	④	269
6.	Listening or talking to a patient about his/her approaching death.	①	②	③	④	270
7.	Lack of an opportunity to talk openly with other unit personnel about problems on the unit.	①	②	③	④	271
8.	The death of a patient.	①	②	③	④	272
9.	Conflict with a doctor.	①	②	③	④	273
10.	Fear of making a mistake in treating a patient.	①	②	③	④	274
11.	Lack of an opportunity to share experiences and feelings with other personnel on the unit.	①	②	③	④	275
12.	The death of a patient with whom you developed a close relationship.	①	②	③	④	276
13.	Doctor not being present when a patient dies.	①	②	③	④	277
14.	Disagreement (with other nurses) concerning the treatment of a patient.	①	②	③	④	278
15.	Feeling inadequately prepared to help with the emotional needs of a patient's family.	①	②	③	④	279
16.	Lack of an opportunity to express to other personnel on the unit my negative feelings toward patients.	①	②	③	④	280
17.	Inadequate information from a doctor regarding the medical condition of a patient.	①	②	③	④	281
18.	Being asked a question by a patient for which you do not have a satisfactory answer.	①	②	③	④	282
19.	Making a decision concerning a patient when the doctor is unavailable.	①	②	③	④	283
20.	Floating to other units that are short-staffed.	①	②	③	④	284

		NEVER	OCCASIONALLY	FREQUENTLY SO	VERY FREQUENTLY	
21.	Watching a patient suffer.	①	②	③	④	285
22.	Difficulty in working with a particular nurse (or nurses) outside the unit.	①	②	③	④	286
23.	Feeling inadequately prepared to help with the emotional needs of a patient.	①	②	③	④	287
24.	Criticism by a supervisor.	①	②	③	④	288
25.	Unpredictable staffing and scheduling.	①	②	③	④	289
26.	A doctor ordering what appears to be inappropriate treatment for a patient.	①	②	③	④	290
27.	Too many non-nursing tasks required such as clerical work.	①	②	③	④	291
28.	Not enough time to provide emotional support to a patient.	①	②	③	④	292
29.	Difficulty in working with a particular nurse (or nurses) on the unit.	①	②	③	④	293
30.	Not enough time to complete all of my nursing tasks.	①	②	③	④	294
31.	A doctor not being present in a medical emergency.	①	②	③	④	295
32.	Not knowing what a patient or a patient's family ought to be told about the patient's medical condition and its treatment.	①	②	③	④	296
33.	Uncertainty regarding the operation and functioning of specialized equipment.	①	②	③	④	297
34.	Not enough staff to adequately cover the unit.	①	②	③	④	298

Job satisfaction, 16 item scale:

The following set of items deals with various aspects of your job. Please indicate how satisfied or dissatisfied you feel with each of these features of your present job, by circling the appropriate number next to question using the following scale

Extremely dissatisfied	1	Moderately satisfied	5
Very dissatisfied	2	Very satisfied	6
Moderately dissatisfied	3	Extremely satisfied	7
Not sure	4		

1.	The physical work conditions	1 2 3 4 5 6 7
2.	The freedom to choose your own methos of working	1 2 3 4 5 6 7
3.	Your colleagues	1 2 3 4 5 6 7
4.	The recognition you get for good work	1 2 3 4 5 6 7
5.	Your immediate boss	1 2 3 4 5 6 7
6.	The amount of responsibility you are given	1 2 3 4 5 6 7
7.	Your rate of pay	1 2 3 4 5 6 7
8.	Your opportunity to use your abilities	1 2 3 4 5 6 7
9.	Industrial relations between management and workers in your hospital	1 2 3 4 5 6 7
10.	Your chance of promotion	1 2 3 4 5 6 7
11.	The way your hospital is managed	1 2 3 4 5 6 7
12.	The attention paid to suggestion you make	1 2 3 4 5 6 7
13.	Your hours of work	1 2 3 4 5 6 7
14.	The amount of variety in your job	1 2 3 4 5 6 7
15.	Your job security	1 2 3 4 5 6 7
16.	Now, taking everything into consideration how do you feel about your job?	1 2 3 4 5 6 7

Appendix 7

THESIS PUBLICATIONS

Dollard, M.F. & Winefield, A.H. (1994) Organizational response to recommendations based on a study of stress among correctional officers.
International Journal of Stress Management, v. 1(1), pp. 81-101

NOTE:
This publication is included on pages 369-389 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

http://doi.org/10.1007/BF01857284

Dollard, M.F. & Winefield, A.H. (1995) Trait anxiety, work demand, social support and psychological distress in correctional officers.
Anxiety, Stress and Coping, v. 8(1), pp. 25-35

NOTE:
This publication is included on pages 391-401 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

http://doi.org/10.1080/10615809508249361

Dollard, M.F. & Winefield, A.H. (1996) Managing occupational stress: a national and international perspective.
International Journal of Stress Management, v. 3(2), pp. 69-83

NOTE:
This publication is included on pages 403-417 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

http://doi.org/10.1007/BF01857716