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Work Stress and Well-being of
Hospital Doctors

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ABSTRACT

The purpose of this study was to examine the work stress and well-being of hospital doctors and to determine whether underlying personality dispositions and stressful life events impacted on this relationship. The sample population consisted of 680 (full-time and part-time) medical practitioners from Auckland Hospital, Green Lane Hospital and Starship Hospital. The final sample was comprised of 173 medical practitioners (junior and senior) with a 25.4% response rate. The questionnaire method was utilized with the Physician Stress Inventory measuring work stress and the General Health Questionnaire 12 measuring well-being. The Social Readjustment Rating Scale was used to assess the number of stressful life events experienced by the doctors in a year and the Attributional Style Questionnaire was used to assess the role personality dispositions can play in the work stress-well-being relationship. The doctors indicated that perceived work productivity and idealistic traits were the most prevalent sources of work stress. Junior doctors experienced more stressful life events than senior doctors. Overall, 35% of the doctors were at risk to experiencing some degree of psychological morbidity, but the criteria for determining morbidity is questionable. An underlying personality disposition, attributional style of stability for good events was associated with positive well-being and acted as a mediator in the relationships of physicians' stress and life events to negative well-being. These findings however cannot be generalized due to the small sample size and future research in this domain will help unfold a more clear and definite association between work stress and well-being of hospital doctors.

CHAPTER ONE: INTRODUCTION

Introduction

This chapter begins with a description of the problem area behind this study and then focuses on its relation to previous studies in this area and possible theoretical implications of this study. Thereafter, the purpose and rationale for this study will be presented in the form of hypotheses. It is important to note that the literature reviewed in this chapter will be discussed in greater detail in Chapter two.

Medicine is an inherently stressful discipline. The doctor is subjected to outstanding competitive entrance requirements, stringent medical examinations and further registration examinations once qualified. The practising doctor works in an environment of acute and chronic stress. Unsatisfactory working conditions and the lack of resources to meet patient needs further exacerbate the feelings of low morale and job dissatisfaction. Ultimately resulting in distress (exhaustion, frustration, physical ailments or poor performance) for some and eustress (a type of fulfillment or satisfaction of a job well done despite the obstacles encountered) for others. Although there has been no clear link between work stress and job performance in doctors there has been indications that work stress results in lowered clinical care. It is therefore imperative that work stress and well-being of hospital doctors is assessed in order to prevent poor health service delivery and to maintain the well-being and job satisfaction of the people delivering such services i.e. the doctors. This study will serve as a base for future empirical research in trying to elucidate the specific work stressors of doctors.

Attribution theory is the foundation of this study. It is perceived that doctors differ in their individual experiences of stressful life events. Some doctors may perceive the event as being stressful whereas others may not. Then there are doctors who thrive on stress whereas others may experience symptoms of fatigue, burnout or depression. It is my intention to use the theory of attribution to explain these individual differences in perceiving the causes of behaviour. Further a negative attributional style will increase the work stress of the doctor and will serve as a risk factor for depressive deficits. This area of research has not been studied in a sample of doctors, therefore the results will be beneficial to future studies in this domain. Before presenting information on how the present study relates to past research in this area, I will describe the current situation with doctors in New Zealand focussing on their current state of health, indications of job dissatisfaction and sources of outlets for these doctors.

Current Situation in New Zealand

The only form of statistical information regarding New Zealand doctors' present concerns and future plans once again comes from the press, the New Zealand Doctor News, the New Zealand GP weekly and the medical council. Information regarding their health comes from the Doctor Health Advisory Service (DHAS). The latest statistics collected by the DHAS was between July and December 1998 and between December 1998 and June 1999. The 1998 statistics revealed that 20 males and 6 females were referred with GPs the largest group represented (13) and specialists the second largest (9). Fifteen were referred for psychological problems, ten were referred for personal stress and five for alcohol and drug use problems. In the first half of 1999, 20 males and 6 females were again referred and of these, twenty were GPs. Three of the

twenty GPs seeking help were involved in four cases where a possible risk to the public existed. One doctor's work performance had deteriorated due to work overload, another was assessed for psychiatric problems and the third was assessed for possible narcotic drug related problems (Topham-Kindley, 2000). One case of the protracted effects of stress on doctors is indicated in the article by Topham-Kindley (2000) where a GP was struck off the medical register for professional misconduct on three accounts between 1991 and 1996. This doctor was under increasing stress due to long working hours, unrecognized alcoholism, a failed marriage and severe financial stress since 1990. As indicated above, work stress may have deleterious effects on the well-being of the doctors, on work performance and patient care. Doctors who are unsatisfied with their jobs will leave the profession or emigrate to more 'greener pastures'.

The UK government (National Health Service) is in the process of recruiting doctors from New Zealand, Australia, Canada, the US and Europe in order to fill their recruitment gaps (NZ Doctor, 30 August 2000). New Zealand doctors are being enticed by the high salaries (minimum £45,000) being offered for a period of three to four years. The September IMS Health poll indicated that 60% of GPs would consider working in the UK given their current low morale (NZ Doctor, September 2000).

In addition to world wide propositions that stress in doctors is on the increase, recent publicity in New Zealand has highlighted job dissatisfaction amongst junior doctors and general practitioners. The recent nationwide industrial action taken by junior doctors was an attempt to express their dissatisfaction with current working conditions and pay (New Zealand Medical Association, August 2000). It has been stated that junior doctors are hard working and dedicated and for them to resort to industrial action is a clear indication that they have serious concerns (Moss, 1999). Industrial action has serious consequences for hospital staff and patients. It should be avoided at all costs. Therefore I propose that regular reviews on the stress and well-being of doctors and related health professionals would ensure that management, the government and the public are aware of the working conditions of its public servants. The New Zealand government is aware of the pending doctor recruitment strategies of the UK government and opinion polls in the New Zealand Doctor (September, 2000) has indicated that a significant percentage of general practitioners are keen to "jump ship" in search of better pay and working conditions. If the New Zealand government does not address the issues of work stress of doctors then they may be faced with the possible exodus of NZ trained doctors to the UK and other parts of the world.

A previous study on New Zealand resident medical officers (Booth & Smith, 1990) found that 66% of the doctors in their sample were satisfied with their jobs and their working conditions. Since then there has been no reported studies known to the researcher on job satisfaction, working conditions or stress and well-being of hospital doctors. There has been one reported study on job satisfaction, psychological morbidity and job stress among New Zealand general practitioners (Dowell, et al., 2000) and another on the well-being of general practitioners and hospital doctors (Richards, 1999). According to Richards, doctors are still not maintaining their own health and engage in self-treatment of themselves and their families. Overall it appears that NZ doctors are positive about their current state of health. The present study aims to confirm this assumption.

The Prevalence of Work Stress Research

A substantial body of literature suggests that doctors' jobs are more stressful than many other forms of work (Simpson & Grant, 1991). Despite considerable concern about the stress levels of doctors, job stress among doctors has rarely been studied in the UK (Caplan, 1994; Simpson & Grant, 1991) and least of all in New Zealand (Booth & Smith, 1990; Richards, 1999). Existing studies in New Zealand have focused on general practitioners (Dowell, 2000; Richards, 1999) and nurses (Watson & Feld, 1996). Majority of studies overseas have tended to focus on general practitioners (Caplan, 1994; Firth-Cozens & Greenhalgh, 1997; Firth-Cozens, 1998; Revicki & May, 1985; Simpson & Grant, 1991; Swanson, Power & Simpson, 1997) and to a lesser degree on health professionals in general (Weinberg & Creed, 2000). Studies on job stress of hospital doctors have focussed on junior doctors or student doctors (Booth & Smith, 1990; Firth-Cozens, 1987; Schweitzer, 1994) and to a lesser degree on consultants (Agius et al., 1996; Blenkin et al., 1995; Caplan, 1994). Some studies of hospital doctors found that junior doctors tend to be more stressed than senior doctors (Fielden & Peckar, 1999; Tattersall et al., 1999) given their long hours of work and increased responsibility, but some literature have refuted this notion indicating that senior doctors are more stressed (Caplan, 1994). This has been a very controversial issue and research in this area is currently under study in the UK. The British Medical Association reviewed literature on stress and doctors since their last reports on stress in the medical profession in 1992 and the morbidity and mortality of doctors in 1993. The BMA report was released in June 2000 and still maintained that senior doctors were highly stressed.

Stressors of Work

Work stress in doctors is influenced by several factors. Doctors work under extreme pressure in environments of acute and chronic stress. They have high personal expectations with regard to their job input and output in order to be able to deliver effective health services to their patients. Anecdotal reports have alluded that psychological distress (Caplan, 1994; Firth-Cozens, 1986, 1987; Tattersall, Bennett & Pugh, 1999; Weinberg & Creed, 2000), high workloads and job complexity (Revicki & May, 1985), long working hours (Fielden & Peckar, 1999), lack of sleep (Firth-Cozens & Moss, 1998; Arnetz et al., 1990) and dysfunctional working relationships (Firth-Cozens & Moss, 1998; Goodfellow et al., 1997) were the most prevalent sources of work stress of doctors.

The Effects of Work Stress

Doctors have to comply with a highly competitive entry standard in medical school, societal demands and expectations to be hard working, strong and confident. Doctors commonly neglect their healthcare particularly in the psychosocial areas. They self diagnose and self medicate (O'Hagan, 1996; Richards, 1999) deny or even conceal problems. Further to this they may resort to the use of alcohol and substances to escape from the pressures of work (Berliner, 1999; Birch et al., 1998). This behaviour leads to prolonged effects of stress resulting in lowered clinical care (Firth-Cozens & Greenhalgh, 1997; Maslach, 1976). With the increase in pressures at work the doctor is inevitably susceptible to errors at work. Errors in medicine are unavoidable and extremely frequent (BMA, 2000). Doctors tend to have strong personalities and set very high standards for themselves. They create a culture of perfection in which mistakes are

intolerable. The public's expectation of them to perform at optimal levels, to be strong and responsible individuals does not make it any easier for them. In fact it adds to their pressures. Mistakes often are associated with feelings of failure, and shame and consequently results in symptoms of depression, loss of sleep, loss of appetite and poor concentration (BMA, 2000). In some cases mistakes result in incorrect diagnoses, treatment and even deaths (Firth-Cozens & Greenhalgh, 1997). The impact of mistakes is compounded by complaints and litigation, which are becoming more frequent as patients become more assertive in their criticism of professionals. Common responses to litigation include depression, anger, shame and guilt (BMA, 2000).

Mediators in the Work Stress-Well-Being Relationship

In investigating the stress-well-being relationship many researchers have included mediating variables in the relationship (Revicki & May, 1985; Tattersall et al., 1999). Mediating variables refer to variables that are responsible for the transmission of an effect, but does not alter the nature of that effect (Cooper & Payne, 1991). Mediating variables under investigation include social support, personality characteristics (locus of control, self-esteem and affectivity) and coping techniques. Personality characteristics are important in stress research because they explain why people differ in their experiences of stress. They influence the cognitive appraisal of stressful life events and the responses to such appraisals (Cooper & Payne, 1992). What is considered stressful for one may not be considered stressful for another. Thereafter coping mechanisms come into play. Lack of coping resources such as social support (peer and family) and stress management techniques for example may prevent the individual from the deleterious effects of stress such as depression and physical illnesses (e.g. coronary heart disease).

Attributional Style has received increased attention as a possible mediating variable in the stress-illness relationship (Abramson et al., 1989; Peterson & Seligman, 1984). Attributional style refers to a cognitive personality variable reflecting the way in which people habitually construe the causes of events along three dimensions: Firstly, the cause is perceived internally ("It's my fault") versus externally ("It's their fault"). Secondly, stability ("It's not going to change") versus instability ("It will last for a short period"). Thirdly, globality ("It will influence all areas of my life") versus specificity ("It will influence just this situation"). An internal, stable and global explanation for the cause of bad events indicates pessimistic attributional style and it is this style that is associated with depression (Peterson & Seligman, 1984).

The general trend of work stress research has been the focus of locus of control, social support, anxiety and Type A behaviour as possible mediators in the work stress-well-being relationship of doctors. The present study differs from previous studies in that it is concerned with the possible mediating effects of attributional style and life events on stress and well-being of hospital doctors which has not been investigated overseas and in New Zealand.

Internationally there is a growing recognition of the importance of research on work stress and well-being of doctors however, this line of research with hospital doctors per se has not been pursued in New Zealand before. Thus, the present research represents an initial step in this direction.

Purposes of the Present Study

1. To compare New Zealand doctors with comparative samples of people in other countries on life stress, well-being and professional stress.
2. To compare New Zealand trained doctors with overseas trained doctors working in New Zealand on work stress, well-being and life events such as immigration.
3. To compare junior doctors with senior doctors on work stress, well-being and life events.
4. To assess the level of well-being of hospital doctors.
5. To examine the effects of gender, marital status, and having children on work stress and well-being of hospital doctors.
6. To examine the role of individual factors (personality) as mediators in the work stress - well-being relationship of hospital doctors.

Rationale for the Present Study

The present study aimed to assess work stress and well-being of doctors in three of Auckland Healthcare hospitals. It was hypothesized that overseas trained doctors would be more stressed and exhibit poorer well-being than New Zealand trained doctors given that overseas doctors have undergone serious life changes such as immigration and hence are more vulnerable to the effects of work stressors than non-immigrant doctors. There has been inconsistent evidence as to whether junior doctors or senior doctors are more stressed. This study hypothesized that junior doctors would be more stressed than senior doctors given the fact that they lack experience in dealing with stressful situations, work longer hours than senior doctors and lack autonomy over their workload. It was expected for doctors to have poor well-being given that they are perceived to be highly stressed and in keeping with comparative levels of well-being of overseas doctors. With regards to gender differences it was hypothesized that female doctors would experience more work stress than male doctors due to their domestic responsibilities, the juggling of work and home commitments and career decision making conflicts as depicted in previous studies. It was hypothesized that New Zealand hospital doctors would have comparative levels of work stress to similar groups of studies overseas. Individual personality differences, attributional styles in particular will have a partial or complete mediating effect on the work stress and well-being of hospital doctors given that individuals differ in their experiences of stress. Past research has also influenced this expectation.

CHAPTER TWO

Definitions

Conceptual definitions will be presented as a preface to this chapter given the diversity of literature reviewed and mixtures of terminology used.

Stress, Distress/Eustress and Strains

The term stress has been used in various contexts over the years. According to Monat and Lazarus (1991) stress has evolved from the original physiological definition by Selye (1946) to a psychologically oriented transactional one (Lazarus, 1966; Leventhal, 1970). Selye (1946) defined stress as “the reaction of the organism to some sort of outside threat”(Monat & Lazarus, 1991, p. 37). This model focussed on the physiological stressors experienced by the organism and measured physiological and endocrinological changes as indications of stress.

Researchers then began to focus on the interaction between a person and his or her environment and have evidently become known as the transactional approach. This approach defined stress as “the outcome of interactions between the organism and the environment”(Monat & Lazarus, 1991, p. 37). In this model the event in the environment is considered to be a *stressor* only if the organism appraises it as being a source of threat. Stressors refer to “conditions of threat, demands, or structural constraints that, by the very fact of their occurrence or existence, call into question the operating integrity of the organism”(Kaplan, 1996, p. 32). *Stressors* are in effect aspects of the working environment that causes stress for the individual. *Stress appraisal* refers to the way in which a situation is perceived as being stressful or not. The way a stressor is appraised depends on personality, customs and attitudes of the individual.

Strain refers to “ the state of being stressed as evidenced by physiological, psychological or medical indices” (Fletcher, 1988).

It is important in stress research to distinguish between stress, distress and stressor definitions (Kaplan, 1996). Koslowsky (1998) distinguishes between the term *distress* and *eustress*. “A particular stressor such as organizational demands may indeed lead to distress such as exhaustion, frustration, physical ailments or poor performance, but for another worker the same demand may bring about eustress, a type of fulfillment or satisfaction of a job well done despite the obstacles encountered ” (p. 6). Both Kaplan (1996) and Koslowsky (1998) assert that the stress-strain link is quite complex and although two workers may be exposed to the same stressor, the response is individualistic.

The Meaning of Work Stress

Occupational stress has been defined as “a negatively perceived quality which as a result of inadequate coping with sources of stress, has negative mental and physical ill health consequences” (Cooper, Sloan & Williams, 1988, p. 7). This definition portrays a general overview of stress but when applied to the work place then it is termed occupational /work stress. Work stress refers to the negative environmental factors or stressors (e.g., work overload, poor working conditions, unsatisfactory working relationships etc.) associated with a particular job (Cooper, Mallinger & Kahn, 1978).

In addition to the environmental factors they believe that personality characteristics and the behaviour of the individual may contribute to work stress.

The term *burnout* which is the result of prolonged stress is characterised by “progressive loss of idealism, energy and purpose experienced by people working in the human services”(Agius et al., 1996, p. 223). In this study and other studies of work stress of health professionals the construct of burnout is either measured or discussed. Pines and Maslach define burnout as “a syndrome of emotional exhaustion involving the development of a negative self-concept, negative job attitudes and loss of concern and feelings for clients”(Schweitzer, 1993, p. 352).

The Meaning of Well-being

Well-being refers to the physical and psychological health of an individual. In this study the GHQ-12 was used to measure psychological well-being (Goldberg & Williams, 1988). Due to time constraints physical well-being was not measured. In most stress research the presence of depressive symptomatology has been regarded as an indication of negative well-being. The GHQ-12 measures negative well-being only and in work stress studies it is the most appropriate of the GHQ measures as it is shorter and serves as an estimate of the severity of psychiatric illness in groups or individuals (Banks et al., 1980). The term ‘mental health’ has been used interchangeably with psychological well-being.

Work stress is often associated with poor mental and physical health. According to the British Medical Association [BMA] (2000), Levi (1996) devised a useful model to better understand how the work environment affects individual health and well-being. This model in essence indicates that stress is created when a person appraises a situation as being a threat and responds with emotional, behavioural and physiological reactions, which then in turn results in illness or disease. Levi further indicates that social support and coping mechanisms may serve to reduce or promote negative well-being.

Attributional Style

The term Explanatory style is analogous to Attributional style and refers to the habitual patterns of explanations an individual makes for good and bad events (Schulman et al., 1989). The reformulated learned helplessness model (Abramson et al., 1978) from which the term attributional style was derived, associated this cognitive style with well-being (i.e., depression). Attributional style thereafter was associated with negative well-being and subsequently referred to as “a cognitive personality variable reflecting the way in which people habitually explain bad events involving themselves” (Peterson, 1991, p. 179).

Individuals habitually construe the causes of events along three dimensions: internality (personal blame) versus externality (attributing blame to others), stability (cause is chronic) versus unstable (cause is temporary), and globality (cause affects all areas) versus specific (cause affects just this situation). An internal, stable and global explanation for the cause of bad events indicates pessimistic attributional style and it is this style that is associated with depression (Peterson & Seligman, 1984). An association between a pessimistic attributional style and negative well-being is one of the aims of this study.

Locus of control is another personality construct that refers to “the extent to which individuals believe that they influence their life events or exert personal control over their experiences”(Revicki & May, 1985 p. 63). It is important to understand the meaning of locus of control since this construct has been used extensively (as evidenced later on in this study) in work stress research.

Stressful Life Events

Stressful life events refer to the occurrence of events in the life of an individual that are considered to be a source of stress e.g. (death of a spouse, marriage, divorce, loss of job etc.) and a potential threat to individual well-being. Holmes and Rahe (1967) proposed that environmental events have certain stress values and that these events had a cumulative effect on well-being. In this study stressful life events have been extracted from Holmes and Rahe’s Social Readjustment Rating Scale and applied to the hospital setting.

Stressful life events have been referred to as *objective stressors* in some research studies (Cooper & Payne, 1992). Life events such as death, marriage, divorce or loss of a job are stressful events and can be objectively measured by means of a life events checklist (Holmes & Rahe, 1967). *Subjective stressors* on the other hand are self-reported sources of stress example, subjective role conflict, role overload and interpersonal relations. Studies using self-reported subjective stressors tend to correlate them with self-reported physical and psychological symptoms (Cooper & Payne, 1992).

Stress and Well-being

I will begin this section with a general overview of stress and well-being and will pave the way for Attribution Theory, which will be discussed later on. The major focus of this study is on work stress and its relation to psychological well-being but in studying these areas one must be aware of the interplay of general and work stressors on the physical and psychological well-being of the individual.

The Origins of Stress

Selye (1946) was one of the first proponents of the stress-illness model (Arnold, Cooper & Robertson, 1995). This model focussed on the physiological stressors experienced by the organism and measured physiological and endocrinological changes as indications of stress. Following this evolved the interactionist or transactional models of stress. According to Revicki & May (1985) “stress occurs when environmental or internal demands exceed the adaptive resources of an individual”(Lazarus, 1966; Lazarus & Launier, 1978). The interactional theorists such as Lazarus & Folkman (1984) expanded on this theory in the 1980’s. The transactional model further refers to a stressor as a potential threat in the environment and it is not assumed that the situation is stressful unlike the stress-illness model (Singer & Davidson, 1991). Selye’s work provided an explanation for the effects of stress on the body but failed to explain how stressors operate (Lazarus, 1999).

Stress and Appraisal

Lazarus then went on to develop the Appraisal Theory whereby, the situation is considered to be stressful only if the person appraises it as such. Lazarus' theory on cognitive appraisal and coping is an attempt to explain how stressors work. Cognitive Appraisal is "an evaluative process which determines why and to what extent a particular situation is perceived as stressful by a given individual" (Stroebe & Stroebe, 1995). Lazarus distinguishes three basic forms of appraisal: primary appraisal, secondary appraisal and reappraisal. Firstly, primary appraisal- where the person decides whether the situation is stressful or not. Secondly, secondary appraisal- where the person looks at coping options. Thirdly, reappraisal- where the person reviews the situation and if coping resources are present then the situation is no longer perceived as being stressful. Although the transactional and appraisal theories were able to give plausible explanations for the stress-strain relationship due to cognitive traits, they were unable to account for the individual personality differences that come into play when appraisals are being made. They however emphasised the need to measure such individual differences (Singer & Davidson, 1991).

Individual Differences and Stress

Lazarus (1999) criticised Selye's stimulus-response approach to the study of stress and argued that individual personality characteristics to some extent influence whether the stimulus is perceived as stressful or not. Lazarus (1999) reports that individuals react differently when faced with the same stressor as found in previous studies by himself and Erikson in 1952. Other theorists then began to study individual differences in the stress-strain relationship. Studies by Kaplan (1996) proposed that the genetic make-up of the person determine whether they are negatively or positively affected by the stressful experience. In other words personality or individual differences may contribute to how stress is appraised (Kaplan, 1996). Kaplan also reports on other vulnerability factors such as negative affectivity, pessimistic explanatory style, hardiness, optimism and psychological control that may have a moderating or mediating effect on the stress and well-being of the individual. Individual differences and stress will be discussed later on in this chapter. Other theorists (Abramson et al., 1978; Seligman, 1975) identified perceived lack of control as a key contributory factor of stress. As a result the learned helplessness model came into being.

The Learned Helplessness Model

Seligman (1975) introduced the learned helplessness model in which he postulates that when individuals experience an event that they cannot control, they develop an expectation of lack of control in similar situations. This learning then results in the individual developing a sense of helplessness with motivational, cognitive and emotional deficits. The individual in future situations fails to initiate a response to the aversive stimulus, thereby failing to learn new responses to avoid aversive outcomes and the only known response is to react with fear and then depression (Stroebe & Stroebe, 1995).

The learned helplessness model and its association with depression raised a number of concerns. Stroebe and Stroebe (1995, p.187) report that Seligman in 1975 had originally emphasised that uncontrollability rather than aversiveness of outcomes was responsible for motivational and emotional deficits. It then seemed implausible that

people would get depressed because uncontrollable good things tended to happen to them. Further, depressed people usually tend to attribute self-blame but if they feel helpless then it is inconceivable for them to be able to feel responsible for the outcome as well. Stroebe and Stroebe (1995) reports another inadequacy raised by Abramson et al. (1978) concerning the generality of helplessness across situations and duration over time.

The Reformulated Learned Helplessness Model

Abramson et al. (1978) then formulated the revised learned helplessness model. According to this model the individual's causal attributions mediates the relationship between the experience of uncontrollability and depressive symptoms. This theory led to the development of attributional styles as a trait method of assessing causal explanations of behaviour. Attributional styles will be discussed later on in this chapter.

Measurement of Stress

Traditionally according to Cooper and Payne (1992) stress research has focussed on measuring objective stressors (life events) and subjective stressors (self-reported sources of stress e.g. role conflict), coping strategies (meditation, stress management, relaxation and social support), the outcomes of coping attempts (burnout, well-being, depression and anxiety, job satisfaction, job performance and general working conditions) and the mediating or moderating role of personality variables (attributional style, trait anxiety, locus of control and Type A behaviour).

Methodological Designs in Stress Research

The methods used in stress research have received extensive criticism. Most of the stress research comes from the United States and has tended to influence the methods used in other countries. Stress research has been dominated by empiricism. Experimental studies of stress are also numerous but are criticised by some for their low ecological validity (Cooper & Payne, 1992). Some researchers in Cooper and Payne (1992) have emphasised the need for longitudinal studies largely due to the prolonged nature of the stress process.

Theories Prevalent in Stress Research

Theories of stress have included Life Events Theory, Person-Environment Fit Theory, Job constraints and job demands and personality dispositions (Type A, locus of control, self-esteem, negative and positive affectivity and attributional style). Theories of work stress have centred on job satisfaction, job performance, emotion, personality dispositions and other areas related to the work environment. Most of these theories have included the concept of attribution in an attempt to understand individual differences in perceiving the causes of behaviour (Landy, 1989). Attribution Theory then evolved in an attempt to interpret human behaviour in response to an event.

Attribution Theory, Work Stress and Well-being

A brief outline of attribution theory will be presented, followed by ephemeral descriptions of other theories frequently used in work stress research.

Attribution Theory

Attribution theory originated from the work of Heider (1958) who proposed that people ascribe meanings to their experiences and these meanings whether interpreted as stressful or not determines their behavioural responses. Peterson et al. (1993) state that Jones and Davis (1965) and Kelly (1967, 1972) expanded on Heider's ideas and became the founders of Attribution Theory. This theory focuses on internal and external causes of behaviour. Rotter (1966) developed a theory similar to attributional theory and called it Internal-External Locus of Control. Rotter proposed that people differ in their causal interpretations of their experiences and in doing so they either internalise (i.e. attributing self-blame or self-praise) or externalise the causes (i.e. attributing the cause to others or situations beyond their control). Weiner in 1986 developed a theory of achievement motivation that was considered to be a self-attribution theory concerning how individuals explain their own successes and failures and the consequences of those explanations (Martinko, 1995).

Attributions as indicated above are specific causal explanations for events. People tend to attribute causes internally as a result of their own abilities and effort or externally, due to others, chance or luck. Along these lines it has been suggested that causes of events are attributed according to dimensions. Weiner et al. (1971) suggested that there are two attributional dimensions: locus of causality and stability. Locus of causality refers to whether the individual believes that the cause is internal or external (similar to Rotter's theory). Stability indicates the variability of cause over time. Thereafter, Peterson et al. (1982) coined the term attributional style and proposed that this particular cognitive style attributes the causes of events along three dimensions: internal versus external, stable versus unstable and global versus specific. Attributional style will be discussed later on in this chapter.

Other theories of work stress as briefly described below were also used frequently in the stress-well-being research. The present study however is concerned with attribution theory as applied to the stress-well-being link.

The General Stress-Strain Model

The work environment has many potential sources of stress and the response is individualistic despite individuals being exposed to the same stressor (Kaplan, 1996; Koslowsky, 1998). The responses to work stress may be physical (ulcers, heart disease or raised blood pressure), behavioural (poor sleep patterns, increase in alcohol intake or smoking, lack of exercise or poor eating habits) or psychological (depression, suicidal ideations or poor self-esteem). Koslowsky asserts that a particular stressor such as job demands may lead to distress (exhaustion, frustration, poor performance etc.) or eustress (a type of satisfaction or fulfilment in their work performance). He developed the General Stress-Strain Model (a multilevel approach) and proposes that an investigation of the effects of stressors on the well-being of the individual in his total context will yield a better understanding of this relationship. In a similar vein, Kaplan (1996) proposed that in understanding the stress- well-being link, stress and coping

must be viewed as a dynamic process by which personal, social and external resources moderate the stressful experience and the person's coping strategies.

The Person-Environment-Fit Model

The Person-Environment-Fit Model (P-E) developed by French et al. (1982) is a popular theory of work stress which proposes that stress results from a lack of correspondence between the personal characteristics of the worker and the environmental demands. In addition this model suggests that environmental events are not universal stressors, instead their stress value depends on the perceptions of the individual (Landy, 1989). This model has been used in several studies attempting to link work stress and well-being (Cooper & Payne, 1988).

The Karasek Job Strain Model

The Karasek Job Strain Model is another commonly used model that looks at the interaction between job demands and decision latitude (job control). According to Simpson and Grant (1991), Karasek in 1979 reported that the most stressful jobs are those with high psychological demands and low decision latitude (e.g. a nurse). Doctors' jobs are also high in psychological demands but have high decision latitude and in this way counterbalance the negative components of work. He also states that the degree of control a person has over his work is important because it affects how well he copes with the demands of his job (Bonn & Bonn, 2000). This holds true for consultants who due to a high sense of autonomy, age and past experience in dealing with work pressures and job demands are able to cope and maintain good health (Agius et al., 1996; Fielden & Peckar, 1999). This model has been widely used in studies of work stress.

The Fletcher Stressor-Strain Model

Work stress is one of the most prominent impacts on psychological well-being. Fletcher (1988) proposed a stressor-strain model of work stress (Figure1) which may be used to delineate the possible intrinsic factors of work stress, their effects on well-being and the role of mediators and moderators in the link between stress and well-being. These factors will be discussed in the next sections. This model focuses on the role of occupational stressors in psychological and physical disease and has been based on numerous similar conceptualisations (Fletcher, 1988). Fletcher criticised these similar models in saying that they failed to predict the levels of strain associated with work stressors, the subtle interaction effects of variables and made no attempt to facilitate in the understanding of the occupational stress concept.

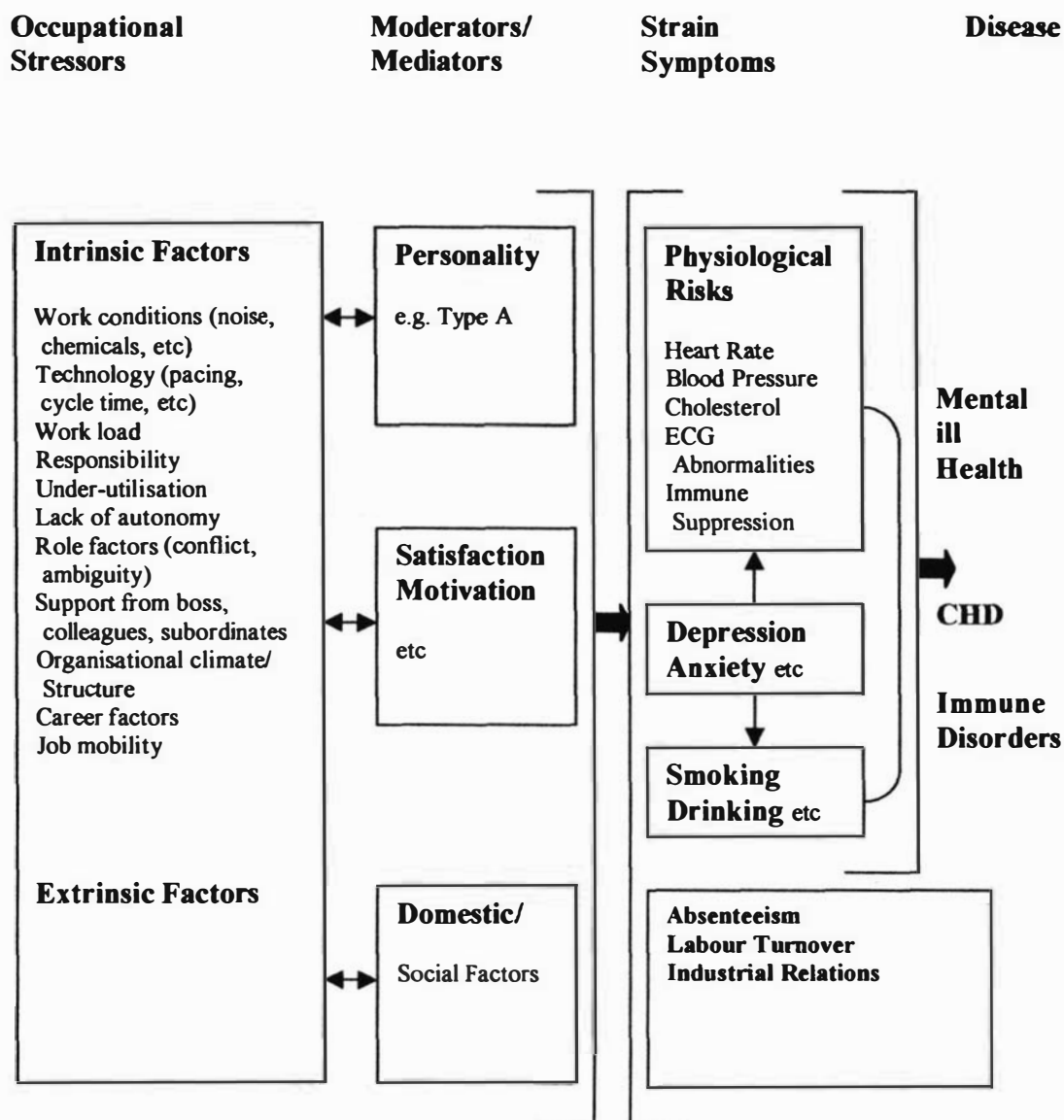


Figure 1. A stressor-strain model of occupational stress.

From "The Epidemiology of Occupational Stress," by B. C. Fletcher (1988). In C.L. Cooper & R. Payne (Eds). *Causes, coping and consequences of stress at work* (p. 11). New York: John Wiley & Sons

Work Stress, Strain and Well-being

Theoretical accounts suggest that work stress of doctors can result in psychological distress (Caplan, 1994; Firth-Cozens, 1986, 1987; Tattersall, Bennett & Pugh, 1999; Weinberg & Creed, 2000), burnout or fatigue (Hardy, Shapiro and Borrill, 1997; Schweitzer, 1993), job dissatisfaction (Booth & Smith, 1990; Sutherland & Cooper, 1993), increased physical illnesses and a greater propensity to leave the organisation (Arnetz et al., 1990; Bonn & Bonn, 2000). Fatigue and sleep deprivation are reported to have detrimental effects on work performance in industrial studies but this is not so clear cut in studies of doctors (Firth-Cozens & Greenhalgh, 1997). Stress definitely lowered standards of patient care in Firth-Cozen and Greenhalgh's study of sleep loss and performance of hospital doctors and general practitioners (GPs). They reported that 40% of doctors expressed anger and irritability, 7% were responsible for serious mistakes with two incidents of patient death as a result of their negligence. 57% of doctors attributed lowered care to tiredness, 28% due to pressures of work, 8% due to depression or anxiety and 5% due to the effects of alcohol. According to Firth-Cozens these incidents usually are unreported. Sharing such pertinent information would undoubtedly shed some light on the effects of sleep deprivation on work performance thereby invoking a sense of urgency to investigate this area of research and to attempt to formulate strategies in dealing with these problems.

Previous studies of stress in health professionals have indicated a probable high prevalence of distress but there is no clear link between the stressful nature of the work and distress (Weinberg & Creed, 2000). Some studies have looked at the effects of family life on work stress (Swanson, Power & Simpson, 1997) or the sources of work stress (Fielden & Peckar, 1999; Simpson & Grant, 1991) but very few have examined the stress inside and outside the work environment and anxiety and depressive disorders (Caplan, 1994; Weinberg & Creed, 2000). Further to this majority of studies have used self-report measures to assess stress. This method has been criticised by Weinberg and Creed (2000). Firstly high distress does not correlate with anxiety or depressive disorders which occur at half the rate of self-reported distress. Secondly, spurious associations of stress may result from subjective judgements made by distressed respondents perceiving their work loads as heavier and their work situation as being more stressful than non-distressed respondents who are functioning well in the same situation.

Stressors in the Workplace

Although there is no single cause of stress in the workplace, it appears that the major stressors reported by doctors has been emotional distress (Revicki & May, 1985), job demands such as high workloads and high patient responsibility and high job complexity (Revicki & May, 1985). Other studies indicate that onerous on-call duty (Martin, 1999) and long working hours (Fielden & Peckar, 1999), lack of sleep (Arnetz et al., 1990; Firth-Cozens & Moss, 1998) and dysfunctional working relationships (Firth-Cozens & Moss, 1998; Goodfellow et al., 1997) were the most prevalent sources of doctor work stress. Previous studies have not found a direct link between the number of hours worked and stress levels of doctors but Fielden and Peckar (1999) report the contrary. In their study of junior doctors they found that despite the reduction in the number of working hours implemented by the National Health Service in 1997, junior doctors still reported long working hours as a major source of stress.

A possible explanation for this is that the reduction in work hours results in an increase in workload and the doctors are expected to double up on the work but in less time (Hsu & Marshall, 1987). An interesting finding in Fielden and Peckars' study is that they found no significant relationship between on call hours and increased stress levels which is contrary to the reports of Martin (1999). In fact junior doctors working on call hours perceived less stress than those working less on call hours and longer hours on duty in the hospital.

Past research (Agius, Blenkin, Deary, Zeally & Wood, 1996; Fielden & Peckar, 1999; Firth-Cozens, 1987; Simpson & Grant, 1991; Sutherland & Cooper, 1993; Tattersall et al., 1999; Wolfgang, 1988) has affirmed the prevalence of the following work stressors common to doctors:

- personal responsibility for treatment outcomes;
- conforming to public expectations;
- excessive workloads;
- long hours and on-call duties;
- perceived organisational demands;
- interrupted work;
- interference with family life;
- meeting patients' emotional needs;
- keeping up to date with current trends in medicine;
- poor working conditions;
- poor interpersonal relationships with team members;
- lack of support and recognition
- inadequate resources to meet patients' needs.

Simpson and Grant (1991) in their study of job stress among physicians reviewed a substantial body of literature suggesting that doctors jobs are more stressful than many other forms of work but the sources of job stress have not been systematically measured. And many studies of physician stress focus on physician impairment rather than on the job related sources of stress. In support of this Blenkin, Deary, Sadler and Agius (1995) found that work stressors accounted for a part of the variance in psychological distress of the consultants and underlying personality possibly could have accounted for the rest of the variance as suggested by Deary et al. 1996 (cited in Blenkin et al., 1995).

Work stress may have positive or negative effects on well-being, occupational stressors are not entirely responsible for patterns of morbidity and mortality (Fletcher, 1988). Fletcher asserts that specific occupational factors may be beneficial to health, for example some studies have reported that jobs with high energy expenditure is likely to have important psychological benefits that may be partly responsible for protecting the person from the effects of stress (Fletcher, 1988). According to Fletcher, Schar et al. (1973) found that high energy expenditure was correlated with higher job satisfaction and lower social stress, neuroticism and subjective work strain. As depicted in previous studies (Blenkin et al., 1995; Lazarus, 1999; Payne, 1988) individual personality differences may predispose the individuals to the effects of work stressors. These personality dispositions have been used as mediating or moderating variables in stress research to investigate the link between work stress and well-being.

Individual Differences and Work Stress

Personality dispositions such as Type A behaviour, locus of control, positive and negative affectivity, self-esteem and attributional style have frequently been used in stress research (Payne, 1988). Attributional style to date has not been measured in relation to work stress of doctors and their well-being. Locus of control has been most frequently used in stress research with doctors (Revicki & May, 1985).

Locus of control that is one's belief in one's ability to influence events in the environment (Seligman, 1975) was directly related to mental health (i.e. depression) and indirectly moderated work stress by influencing the role of family social support in coping with stressful events (Revicki & May, 1985). Personality dispositions will be discussed later on in the chapter.

Work Stress and Coping

Current theory and research on stress suggest that stress is mediated by coping processes. How a person copes with an event or a particular situation has a direct effect on their psychological well-being (Lazarus, 1999). It has been suggested that stress, coping and emotions are interdependent and it is vital that emotional reactions to a stressor are considered in any attempt to understand the stress-well-being relationship (Lazarus, 1999). I have suggested that the areas of coping and emotions be explored in future research with the present study sample of hospital doctors. Social support has been viewed as a moderating variable in the stress-well-being relationship (Revicki & May, 1985). Revicki and May report a negative relationship between family social support and depression, suggesting that physicians with supportive family environments are less likely to report depressive symptoms than physicians with less supportive family environments. Contrary to the expectations of Revicki and May, peer social support was not significantly related to depression and did not moderate the relationship between work stress and depression (see Revicki & May, 1985 for studies confirming a moderating effect of peer support on work stress and well-being of doctors).

The Effects of Work Stress on Psychological Well-being

In terms of assessing the well-being of doctors, depression has been measured as an indicator of psychological well-being in the majority of studies (Caplan, 1994; Hsu & Marshall, 1987; Revicki & May, 1985). Suicidality rates and suicidal ideations have been reported to be high (Agius et al., 1996; BMA, 2000) but highest amongst anaesthetists (Caplan, 1995). Anaesthetists are also more at risk to the abuse of substances than other specialist doctors (Berliner, 1999). There has been controversies surrounding the use of drugs and alcohol by junior doctors in the U.K. in response to work stress. Birch et al. (1998) report high rates of alcohol consumption amongst junior doctors possibly in response to work stress. These findings however have been challenged by a group of fourth year medical students (Frankel et al., 1998) who regard Birch et al's reported statistics as being inflated estimates of alcohol consumption raising the point that relative life style comparisons to other professionals of the same age were not made. Studies in the U.S have noted that alcohol or substance abuse is not unique to junior doctors and that other health professionals particularly nurses in critical care units are at risk (Berliner, 1999). In June 2000 the British Medical Association reported that studies have shown high rates of accidental poisoning involving prescription drugs among male consultants. Mortality from alcohol related diseases is

also greater than expected with male consultants suffering from cirrhosis which is three times greater than the general population statistics. In another study reviewed by the BMA, 24% of consultants and 23% of general practitioners reported that stress had led to an increase in alcohol consumption.

There is to date no fully established link between the stressful work environment and psychological well-being (Reynolds, 1997). Weinberg and Creed (2000) however provide evidence that some aspects of work (e.g. conflict of work role, lack of participation in decisions, interpersonal difficulty with supervisor, lack of support from manager, problems with physical conditions in the work environment, poor promotion prospects, job insecurity, skills under-utilised and a very heavy workload) as well as domestic stresses (e.g. ill-health of a close relative and marital problems) lead to or perpetuate depressive and anxiety disorders. This study has been quite rare in that it utilises both the questionnaire method and the interview methods of data gathering. The use of both the questionnaire and interview methods is a more reliable method of data collection and will produce more consistent results than when applied in isolation (Bennett & Ritchie, 1975). The interview method serves to corroborate results obtained in the questionnaire thereby eliminating false positives (when respondents not possessing the relevant condition are classified by the questionnaire as having it) or false negatives (when respondents who possess the relevant condition are classified by the questionnaire as not having it). The latter suggestions by Bennett and Ritchie (1975) have been verified in Weinberg and Creed's study as described below.

Weinberg and Creed (2000) administered the General Health Questionnaire to doctors, nurses, administrative and ancillary staff of a city-based hospital. The high scorers on the GHQ (i.e. those who scored greater than 4) and those with low GHQ scores but matched for age, sex and occupational group were interviewed with the life events and difficulties schedule (to measure outside work stress) and an objective measure of work stress. The interview was semi-structured and designed to diagnose minor psychiatric disorders in a general population. An interesting finding was that half of the high GHQ scorers turned out not to be cases (i.e. the probability of being diagnosed with a psychiatric disorder) at the interview, indicating false positives. This finding thus questions the validity of the estimated rate of psychiatric disorders reported in previous studies using the GHQ as the sole measure. Overall, it was indicated that both stress at work and outside of work contributed to the anxiety and depressive disorders experienced by healthcare staff. No differences in vocation were found to support the findings of Banks et al. (1980) who found the psychological well-being of doctors to be poorer than other related professionals.

Protracted levels of stress can result in lowered clinical care (Firth-Cozens & Greenhalgh, 1997; Maslach, 1976). Work stress results in fatigue, loss of sleep, and poor concentration, which may result in clinical errors such as incorrect diagnoses, treatment and possible deaths (Firth-Cozens & Greenhalgh, 1997). Such mistakes have resulted in symptoms of depression, feelings of guilt and extreme agony and anguish (BMA, 2000). The impact of mistakes is compounded by complaints and litigation, which have increased as patients have become more assertive in their criticism of professionals. The common responses to litigation include depression, anger, shame and loss of confidence (BMA, 2000). It is indicated that work stress impacts negatively on well-being resulting in poor performance and lowered clinical care; however, there has been no clear delineation of this association (Firth-Cozens & Greenhalgh, 1997).

Prevalence of Stress in Doctors

According to McManus et al. (1999) a report by the British Medical Association in 1992 began a concern that UK doctors were highly stressed in comparison to the general population. Subsequent studies by Caplan (1994) and McManus (1999) disagreed with this notion. McManus and colleagues found that although the doctors in their sample were stressed they did not exhibit stress levels higher than that of the population in general. They assert that previous studies suggesting higher levels of stress for doctors than the general population may in fact be an artefact of excessive mention of stress in the questionnaires themselves.

Caplan (1994) proposed a similar view to McManus et al. (1999) in saying that many studies have suggested that stress among doctors is high but one needs to use the findings with caution as many studies have not used highly reliable and valid measures in assessing stress. Caplan's study compared stress, anxiety and depression levels among hospital consultants, general practitioners and senior health services managers. All three groups indicated high levels of stress with only 46% free from anxiety. The general practitioners were more likely to be depressed and have suicidal thoughts than either the consultants or managers. Other studies (O'Hagan, 1996) with general practitioners in the UK revealed similar findings with 13% of the GP's experiencing moderate depression and 3% contemplating suicide. O'Hagan (1996) reviewed another British study, which found that 75% of hospital doctors admitted to experiencing some degree of depression. Caplan (1994) reported that in 1994 there was growing evidence that the medical profession was suffering from stress but most of the focus was on junior doctors and their excessive hours of work (Agius et al. 1996 concur). He emphasised that senior doctors were also highly stressed and the inclusion of hospital managers in his study indicated that high stress levels were not isolated to the medical profession. Despite criticisms from Caplan (1994) and McManus et al. (1999) the British Medical Association retained their original assertion that senior doctors in the UK are highly stressed (BMA, 2000). They also report anecdotal evidence that excessive workloads and organisational changes to be the most prevalent sources of work stress.

With regards to the prevalence of stress in New Zealand doctors there has been limited evidence that general practitioners are highly stressed (Dowell, 2000) and there has been speculation about the possible exodus of GPs to the UK and other parts of the world in search of better pay, improved morale and satisfactory working conditions (NZ Doctor, September 2000). Despite the recent industrial actions of junior doctors (NZMA, August 2000.) there has been circumstantial and subjective evidence of high stress in hospital doctors (Booth & Smith, 1990; Richards, 1999; Topham-Kindley, 2000). This study aims to explore and to possibly validate the reports of high stress in hospital doctors.

Work Stress and Allied Health Professionals

Extensive research has been carried out on nurses and other allied health professionals (Cooper, Mallinger & Kahn, 1978; Watson & Feld, 1996; Wolfgang, 1988) with a common outcome that these health professionals experience high stress levels. The common stressors reported were high workloads (Dewe, 1988), loss of a patient and the bereavement process (Tyler, Carol & Cunningham, 1991), the doctor-

nurse conflict (Goodfellow et al., 1997; Tyler et al., 1991), poor working conditions, monotonous work and little patient appreciation (Cooper et al., 1978). Wolfgang (1988) in his study of doctors, nurses and pharmacists reported higher stress levels for physicians in relation to excessive work loads, work and family conflicts, meeting patients' emotional needs and keeping abreast of recent developments in their field. Wolfgang's study was criticised in terms of the stress measure used. The Health Professions Stress Inventory may have been too generalised, containing work components that may not be highly stressful for doctors and hence creating an inaccurate stress level for doctors (Simpson & Grant, 1991). However a substantial body of research suggests that doctors' jobs are more stressful than many other forms of work (Simpson & Grant, 1991).

Social Support and Depression

In terms of the moderating effects of social support on work stress and depression, Revicki and May (1985) found that family social support moderated the influence of work stress on depression. Their findings were consistent with previous research as depicted in their 1985 study. Peer social support on the other hand was not significantly related to depression and did not moderate the relationship between work stress and depression. Revicki and May's findings on peer social support were contrary to previous research reviewed by them. They conceive the findings to be a result of the nature of physicians' work. Most family physicians in private practice tend to work independently even in group practices thereby limiting interaction with other physicians within the same practice. As a result, for these physicians family is regarded as the only source of social support and good family support reduces the impact of work stress on depression. Revicki and May's (1985) study is unique in that it incorporates two areas of stress research that has previously been studied independently namely social support and locus of control. They assert that locus of control tends to moderate the perception of stress and that doctors with high personal control mobilise their support systems (namely family social support) in the presence of stressful situations and are able to cope more effectively with work stress. Other researchers such as Kobasa (1979, 1982) according to Revicki and May lend support to their views on the role of personal attributes in coping with stressful situations. Kobasa and other researchers in Revicki and May's study assert that persons who remain healthy in stressful situations have a greater sense of control. Also, this sense of control moderates the relationship between negative life events and depression.

Work Stress: General Practitioners Versus Hospital Doctors

Studies investigating the work stress- well-being relationship have found significant relations between work stress and depression (Caplan, 1994; Revicki & May, 1985; Weinberg & Creed, 2000). Revicki and May (1985) found that physicians with high degrees of work stress reported more depressive symptomatology than physicians with low work stress. There has been mixed views in comparing work stress of general practitioners (GP's) and hospital doctors. Caplan (1994) in his study of stress, anxiety and depression of consultants, general practitioners and managers found no significant differences on depression between GP's and consultants but raised concerns that 27% of GP's scored as borderline or possibly depressed. Caplan found that GP's were more likely to show suicidal thinking than consultants. Another interesting finding was that more than half of the GP's and consultants scored positively on the GHQ 28 whereas in

the population only 26.8% were expected to score positively on the GHQ (Caplan, 1994). In New Zealand there has been no such comparative studies to date.

Demographics, Work Stress and Well-being

Literature on demographic variables of job position and gender will be reviewed first. Thereafter family life and its effect on the work stress-well-being relationship will be discussed.

Job Position

In the past research on the work stress and well-being of doctors has centred on junior doctors, general practitioners and to a lesser degree on senior doctors and hospital doctors. A recent UK study by Fielden and Peckar (1999) investigated work stress of junior and senior doctors within National Health Service hospitals. This study measured the sources of stress, stress moderators and stress outcomes using the Occupational Stress Indicator. Junior doctors differed significantly from senior doctors in four main respects: sources of stress, Type A behaviour, social support and mental health. A direct link was found between the number of hours worked by junior doctors and the degree of stress experienced. Despite the recent reduction of hours (NHS career restructuring in 1997), junior doctors still reported number of working hours as a major source of stress (Firth-Cozens', 1987 study concurs with this finding). A plausible explanation could be that a reduction in the number of hours worked has led to an increased workload and junior doctors having to do more work in less available time (Hsu & Marshall, 1987).

This study also showed that junior doctors were more career oriented, more driven to achieve and hence more stressed than senior doctors. Hsu and Marshall (1991) in their study of Canadian doctors found that job insecurity and underpromotion were fundamental sources of stress for junior doctors. The more distressed junior doctors are the more negatively they perceive aspects of their jobs, particularly when relating to consultants. They felt that they did not receive any recognition from their senior counterparts and found it difficult to relate to them (Booth & Smith, 1990; Firth-Cozens, 1987). In contrast senior doctors are more secure in their jobs, are much older, more experienced in dealing with stressful situations, job demands and constraints and have more control over their own workload (Fielden & Peckar, 1999; Tattersall, Bennett & Pugh, 1999). Senior doctors (consultants) are reported to work fewer hours than junior doctors and maintain lower contacts with patients and junior colleagues (Fielden & Peckar, 1999). These findings are indicative of the poor relationships between senior and junior doctors given the short amounts of time they spend together. Senior doctors have reported better interpersonal relations with nursing staff and other team members partly due to the length of their job being six months or longer for registrars and consultants as opposed to three months for junior doctors (Booth & Smith, 1990). These researchers speculate that longer time in the wards allows closer working relationships to develop.

With regards to job satisfaction senior doctors tended to be more satisfied with their jobs probably due to them being in their preferred vocation, being used to the long hours of work and have developed realistic job expectations (Booth & Smith, 1990). It is important to consider job expectations in trying to assess the relationship between job satisfaction and work stress. In Booth and Smith's study of registrars they found that those doctors who expressed dissatisfaction in their work had high expectations which

were not met. Those doctors who had low expectations were more satisfied with their jobs.

Following reports from the British Medical Association and the work of Caplan (1994) this group of researchers (Agius, Blenkin, Deary, Zeally & Wood, 1996) surveyed the perceived stress and job demands of consultant doctors. In keeping with Karasek's job demands- job decision latitude model, it is evident that senior doctors experience high psychological demands similar to junior doctors but the high decision latitude of senior doctors makes it much easier for them to cope with sources of stress than for junior doctors (Agius et al., 1996). In trying to survey the perceived work stressors of consultants, these researchers formulated a discussion group with 26 consultants selected from a range of specialities in south-east Scotland. These 26 consultants were divided into six groups. Following these discussions four questionnaires were devised specifically tailored to the work of consultants. These questionnaires were then posted to a randomly selected sample of consultants on the medical register.

The results identified three main areas of the consultants' work: clinical duties (direct patient care), academic (teaching and research) and administrative duties. Demands on time (e.g. too much work and too little time to complete tasks, interruptions of duties by phone calls, finding time for teaching and research, meeting deadlines for reports and interference with family life) and organisational constraints (lacking the resources to meet patients' needs, conflicts with managers and trying to meet public expectations) were deemed most stressful sources of work stress. Clinical responsibilities (e.g. being on call, dealing with emotional needs of patients, dealing with uncooperative families, pressure to make definite diagnoses and treatment plans and coping with death of patients) were regarded as least important sources of stress. Personal confidence (e.g. peer group pressure, conflicts with co-workers, receiving inadequate feed back from colleagues, maintaining professional standards and lacking support from colleagues) was viewed as another potential source of work stress but for consultants generally this was not a potential treat and it is this factor that exemplifies the importance of the role of individual personality differences in the manifestation of stress. According to Agius et al. (1996), Deary and his colleagues in 1996 personified the effects of personality on the work stress of consultants. Personality and work stress will be discussed later in the chapter.

Some of the most prevalent sources of work stress reported by senior doctors are: excessive workloads; organisational changes; dealing with patients suffering and errors in treatment (BMA, 2000; Agius et al., 1996). The very nature of medicine can itself be stressful. Dealing with terminally ill patients or experiencing the loss of a patient can lead to psychological morbidity, depersonalisation and emotional exhaustion (BMA, 2000). Studies of medical students have indicated that dealing with psychiatric patients, balancing medical careers and personal life and confronting death were identified as the most stressful components of medical work (Simpson & Grant, 1990). One can only assume in the absence of literature that these sources of stress would be the same for junior doctors.

With regards to coping strategies, junior doctors used social support as a coping strategy more than senior doctors. Further junior doctors spend more time at the hospital than at home and it is in this environment that they seek support which is contrary to

previous research indicating that doctors tend to rely on friends and family for social support rather than on professional colleagues (Fielden & Peckar, 1999). Peer social support (as referred to by Revicki & May, 1985) is utilised by junior doctors in hospitals given the amount of time they spend together in hospital and the restricted access they have to making friends outside of the profession. Senior doctors generally associate with people from the medical profession due to shared commonalities in professional, educational and social background and given the limited time they spend in hospital and more time spent on-call they may have less opportunity to utilise effective social support as a coping strategy than junior doctors (Fielden & Peckar, 1999). Subsequently senior doctors may be more at risk to experiencing stress than junior doctors.

Fielden and Peckar (1999) found that junior doctors experienced poorer mental health than seniors but given the fact that females score higher on the mental health subscale of the Occupational Stress Indicator (OSI), and since there were proportionally more female junior doctors than female senior doctors the total scores for juniors would be skewed in their study. Taking gender effects into account suggested that senior doctors are experiencing poorer mental well-being than junior counterparts hence in support of the work by BMA, (2000) and Caplan (1994) which indicated that senior doctors are more at risk to stress, anxiety and depression than junior doctors.

Gender

With regards to the effects of gender on stress and well-being, there has been much controversy surrounding the degree of stress experienced by males and females. Baruch, Biener and Barnett (1987, p. 119) suggested that non-employed women experienced greater stress than employed women in that the homemaker role places more psychological demands on the woman and gives less opportunity for control than does the employment role. Nelson and Quick (1985, p.119) took the opposite view that employed women experience greater stress than both unemployed women and men because of several unique stressors faced by employed women. These factors include the interface of marriage and work, social isolation, discrimination and stereotyping. To illustrate this point further some research suggests that women doctors face more job-related stress than male doctors in similar positions, due to increased domestic responsibilities and gender bias in a male-dominated profession (Simpson & Grant, 1991). Some studies have indicated that women doctors are more patient focused, are more confident in their patient interaction skills and less stressed than male doctors who may find it difficult to interact with their patients (Simpson & Grant, 1991).

Women by virtue of the roles they occupy, experience more life events and chronic social stresses and less social support. However, there has been no conclusive evidence that life events have more impact on women than on men (Cooper & Payne, 1991). Swanson et al. (1997) studied the effects of domestic role complexity on the occupational stress of male and female doctors. They found that increased role complexity was significantly related to stress for both male and female doctors thereby indicating a shift in domestic responsibilities with male doctors sharing more of the domestic responsibilities with their spouses or partners.

Researchers in Cooper and Payne (1991) report that women and men respond differently to the same number of stresses (Russo, 1985), women experience more stress than men in occupational settings (Freeman et al., 1989) and that women were more

exposed than men to low education, low income, low occupational status, fewer leisure activities and more current and recent physical illness (Radloff & Rae, 1979). Whilst some researchers such as Nelson and Hitt (1992) support the above findings reported in Cooper and Payne (1991), other studies refute them, for example male doctors were reported to be more stressed and had increased levels of anxiety than female doctors (Dua, 1997; Sutherland & Cooper, 1993). Several managerial studies reviewed by Nelson and Hitt (1992) indicated that women managers tended to report inflexible schedules, low control over workflow, boring work and work/home conflict as stronger stressors than men. Other studies with Canadian managers reviewed by Nelson and Hitt further indicated that women tend to experience greater stress due to work/home conflicts as a result of the multitude of roles they occupy. In contrast to this studies with doctors indicated no significant gender differences in occupational stress (Swanson et al., 1997).

With regards to gender and job satisfaction there have been inconsistent findings. Female general practitioners were less satisfied with their jobs than males (Sutherland & Cooper, 1993). These findings were contrary to the results of Swanson et al. (1997) that indicated higher job satisfaction for female GPs and consultants than males. Booth and Smith (1990) and Firth-Cozens (1987) found no differences in gender in their studies of hospital doctors. Female doctors reported more symptoms of depression than male doctors largely due to increasing conflicts between family and career decision making (Firth-Cozens, 1987).

Lack of job control is reported to be partly responsible for the perpetuation of the subjective experience of stress of females (Narayanan et al., 1999). Women tend to attribute the lack of job control as a personal or gender-related failing and it is this perception of the cause of failure that leads to increased stress. In addition to this it has been reported by Simpson and Grant (1991) that historically according to Karasek et al. (1988) women have less decision latitude at work which can perpetuate the high psychological stress associated with medical practice. Simpson and Grant (1991) suggest that if female doctors practice with other doctors then requesting assistance from consultants for example can alleviate some of the stress. Alternatively this can lead to feelings of incompetence and increase the stress of the female doctor. This area according to Simpson and Grant has never been explored in research.

Home/Work Interface

“Work and family create the two most important sources of daily stress in modern adult life. In today’s world, where both husbands and wives often work and also accept responsibility for homemaking and raising the children, this is especially true” (Lazarus, 1999, p. 132). Research on work stress in the past two decades has focused on conditions in the work environment contributing to stress and the role of personality variables in mediating or moderating this relationship (Lazarus, 1999). There has been a recent shift in the focus of work stress research with an emphasis on the contribution of family life to work stress and vice versa. This shift configures researchers to evaluate work stress of the individual wholistically taking into consideration environmental conditions, individual differences, and life events thereby, focussing on stress on the whole for that person.

Family stress and work stress have often been studied in isolation even though it has been acknowledged that the relationship between the demands of work and home is

an important source of work stress (Swanson, Power & Simpson, 1997). The relationship between the demands of work and home is bi-directional in that doctors often take work home and this interferes with family life thereby resulting in increased stress for the doctor. On the other hand stress at home such as conflicts with spouse results in the doctor being preoccupied with such thoughts and hence unable to perform work duties effectively. Swanson, Power and Simpson (1997) compared male and female general practitioners and specialist consultants in studying the relationship between work stress and home life.

The Occupational Stress Indicator (Cooper, Sloan & Williams, 1988) was used to measure work stress and the stressfulness of the home/work interface was assessed by one of the OSI scales, the Home/work interface scale. Male doctors in this study were more likely than female doctors to report conflict over work with their spouse or partner. Also male doctors expressed greater satisfaction with their spouse's contribution to domestic work than females. Females with children recorded significantly more home stress than those without children whereas this was not the case for males. But on the whole increased role complexity (i.e. the increase in the number of different roles assumed by the male or female doctor) was related to work/home stress (i.e. the effects of work stress on family life). These findings were indicative of the fact that both male and female doctors were experiencing a convergence in their role as professional and parent or spouse. Swanson et al. (1997) therefore recommend that organizations take note of this merger and ensure that both sexes are given equal opportunities in maintaining a balance between home and work roles.

An interesting finding in their study was that both male and female doctors stress levels was associated with increasing domestic role demands. It is expected for females to have high stress levels due to their domestic responsibilities but the results indicated that male doctors were becoming more involved in domestic responsibilities. A significant relationship was also found between increased role complexity and work/home stress for both sexes. Female doctors tend to reduce their working hours and hours on call but time spent on domestic work had increased. However, for male doctors with children as compared to males without children, working and on call hours either increased or remained the same but time spent on housework or childcare increased but to a lesser degree than female doctors (Shelly, 1999; Swanson et al., 1997). Swanson, Power and Simpson identified possible explanations for the decreased working hours for female doctors and the increased working hours for males. Females who reduce their working hours tend to do so because financially they are less likely to be the sole source of support for their spouse and family. Males on the other hand who increase their hours do so for financial reasons and this has received support from past research (Swanson et al., 1997).

Other studies reviewed by Swanson and colleagues (1997) indicate that females have more opportunities to job share or take career breaks than male doctors and occurs more often in general practice than in hospitals where career paths are more rigid. Job sharing in general practice however is not always the best option for female doctors wanting to combine practicing medicine with having a family as it may seem as the most viable option at the time but this perception may not translate into reality (St John, 2000). A reduction or increase in work hours does not imply increased stress levels since work hours are a quantitative rather than qualitative measure of workload

(Swanson, Power & Simpson, 1997). These researchers did not find any significant gender differences in the effects of increased role complexity and work stress.

Swanson et al. (1997) measured the relationship of work stress to family life of general practitioners and specialist consultants. It would be interesting given that junior doctors (male and female) are confronted with increased domestic roles (Swanson et al., 1997), to assess whether junior hospital doctors differ in gender to the effects of increased role complexity on work stress. The change in role complexity from the state of being single to married/cohabiting to parenthood may be seen as increasingly stressful in terms of the impact on the work/home interface. Together with these diverse roles and the stressors of work the junior doctor is bound to feel overwhelmed with his or her responsibilities and commitments both at work and at home. Research in this domain would seem more appropriate for junior doctors than senior doctors who have become accustomed to various roles thrown in their path over the years and were forced to learn to adapt to the demands of such roles.

Personality, Work Stress and Well-being

In the present study the mediating effects of attributional style (a cognitive personality variable) on the stress-well-being relationship will be explored. Attributional style and its association with depression and stressful life events will be discussed in this section of the chapter. Thereafter attributional style will be compared to other personality variables affecting the stress-well-being relationship.

Personal Characteristics and Job Choice

The way a stressor is appraised will vary between individuals depending on personal characteristics. These personal attributes have been associated with job choice and relative rates of morbidity and mortality (Fletcher, 1988). Payne (1988) asserts that the choices people make about their occupation is not random. This is further supported by the BMA (2000). The British Medical Association reviewed studies on personality and customs as determinants of stress. In their review they found that some doctors are attracted to specific areas of speciality e.g. surgery because they have high self-esteem, can tolerate stress better and tend to thrive in an environment that they perceive as stressful. It has been suggested that those individuals who remain in stressful jobs do so because they are able to cope at least at an adequate level of functioning.

Personality Dispositions and the Perpetuation of Work Stress

Further to this personality dispositions may indirectly affect the emergence of psychological stress and symptom development. In effect the well-being of the individual is affected. For example, the British Medical Association found that doctors have a number of personal attributes that are likely to exacerbate work stress. Among these are doctors' reluctance to take sick leave because of work ethics, or they perceive this as being unfair to their colleagues and also because there is a lack of cover. Doctors also find it difficult to admit to stress and to seek help for fear of stigmatisation and fear of jeopardising their careers (BMA, 2000). These personal attributes may render the individual prone to psychological distress and subsequent decreased well-being. Empirical studies reviewed by Narayanan, Menon and Spector (1999) have shown that women tend to base their self-esteem (a personality disposition) on social relationships and therefore tend to find interpersonal conflicts at work more stressful than men.

Such studies support the association between personality dispositions and individual perceptions of the stressfulness of the environment.

Attribution and Personality Differences

The relationship between individual personality differences and the perceptions of the stressfulness of the environment plays an important role in the understanding of the stress process. Payne (1988) reports that the correlation between environmental stress and psychological strain is greatly influenced by individual personality differences. Trait anxiety, locus of control and Type A behaviour have been used to predict this relationship (Payne, 1988). Attributional Style as a mediator of the stress-strain relationship will be discussed next. Attributional style has not been assessed in studies of doctors or related health professionals. It is for this reason that the present study aims to assess the mediating role of attributional style in the stress-well-being relationship. Given that peoples' response to environmental situations are individualistic, it is assumed that doctors' perceived work stress is influenced by their personality characteristics. It is these personality characteristics that are also responsible for stress outcomes. Coping in this sense as an outcome variable of stress, together with a particular personality trait of the person will determine whether the situation is perceived as stressful or not (Payne, 1988).

Attribution, Helplessness and Depression

Seligman (1975) in an attempt to derive a better explanation of depression developed the learned helplessness model of depression. The essence of this model was an apparent need for control of any situation and when the individual perceives an event as being uncontrollable then hopelessness and depression is expected to result (Sweeney, Anderson & Bailey, 1986). This model according to Sweeney et al. (1986) failed to explain three important human responses to their perceptions of uncontrollability of a given situation. Firstly, the model could not account for those studies that indicated small and large self-esteem losses as a result of perceived uncontrollability. Secondly, the model failed to explain differences among people in severity, length and effects of depression. Thirdly, researchers (Sweeney et al., 1986) found that depressed people tended to make internal attributions for their failures which was in contrast to predictions made in the model. These researchers suggested that if people perceived an outcome to be uncontrollable then logically they couldn't attribute self-blame for their failures.

To account for the above findings the learned helplessness model was reformulated using attribution theory. The reformulated model (Abramson et al., 1978) suggested that causal attribution mediated the relationship between expected uncontrollability and depressive symptomatology. Attribution of causality was made along three dimensions: locus of control, stability and generality. According to Sweeney, Anderson and Bailey (1986) the first dimension constructed by Weiner in 1979 suggested that attributions vary from internal to external causes and the more internal one's attribution for lack of control is, the lower the self-esteem. The second dimension also from Weiner's work suggested that stable attributions produce depressive symptoms across time whereas unstable attributions for lack of control produce time-limited symptoms. The third dimension suggested that global attributions

produce a variety of helplessness deficits whereas specific attributions do not generalise deficits across different situations.

Negative Attributional Style and Depression

The reformulated model then suggested that a characteristic depressive attributional style might exist. This model predicted that individuals who attributed their failure to internal, stable and global factors (i.e. adopting a pessimistic attributional style) after being confronted with a bad event, were more prone to depression than those individuals who adopted an optimistic explanatory style (Abramson, Seligman & Teasdale, 1978; Seligman, Abramson & von Baeyer, 1979).

Attributional style often referred to, as explanatory style is the habitual tendencies of the individual to explain good and bad events according to internal versus external, stable versus unstable and global versus specific causes. According to Peterson et al. (1982), since the conceptualization of depression as a cognitive disorder by Beck in 1967, researchers (Peterson et al., 1982) have associated causal attributions for good and bad events with depressive symptoms. They propose that depressed and non-depressed individuals differ in their causal inferences and that these differences are related to depressive symptomatology.

According to Schulman et al. (1989), studies done by Peterson and Seligman in 1984 with students, children and depressed patients confirmed the reformulation theory and associated depressive deficits with pessimistic attributional style. In a more recent study it was reported that a pessimistic explanatory style may have a moderating or mediating effect on the stress and well-being of the individual (Kaplan, 1996).

It is important to note that attributional styles and causal explanations of behaviour are not sufficient to produce depressive deficits but merely are risk factors for such deficits (Abramson et al., 1978). Peterson and Seligman (1984) used the expression 'causal explanations' to refer to attributional styles. They associated these explanations of behaviour with depression. In keeping with the reformulated learned helplessness theory they stated that an internal explanation for a bad event indicates an increased likelihood of loss in self-esteem. External explanations for a bad event decrease the likelihood of self-esteem loss. This interplay of locus of control and self-esteem has been shared by Abramson et al. (1989). Causal explanations for bad events that persist over time results in the chronicity of depressive reactions. However if causal explanations for bad events are transient then depressive reactions tend to operate temporarily.

Finally, if the causal explanations are the same for all bad events then helplessness deficits will occur for all situations. But, if the causal explanations are for specific bad events then the deficits will be circumscribed. Abramson et al. (1989) shared a similar view (as described above) of the effects of stability and globality of causes in predicting depression. The basic premise of the learned helplessness model is that causal explanations and explanatory styles are risk factors rather than sufficient conditions for helplessness and depression but the expectation that no action will control outcomes in the future leads to symptoms of helplessness and subsequent depression (Peterson & Seligman, 1984). Refer to Figure 2 for an outline of this model.

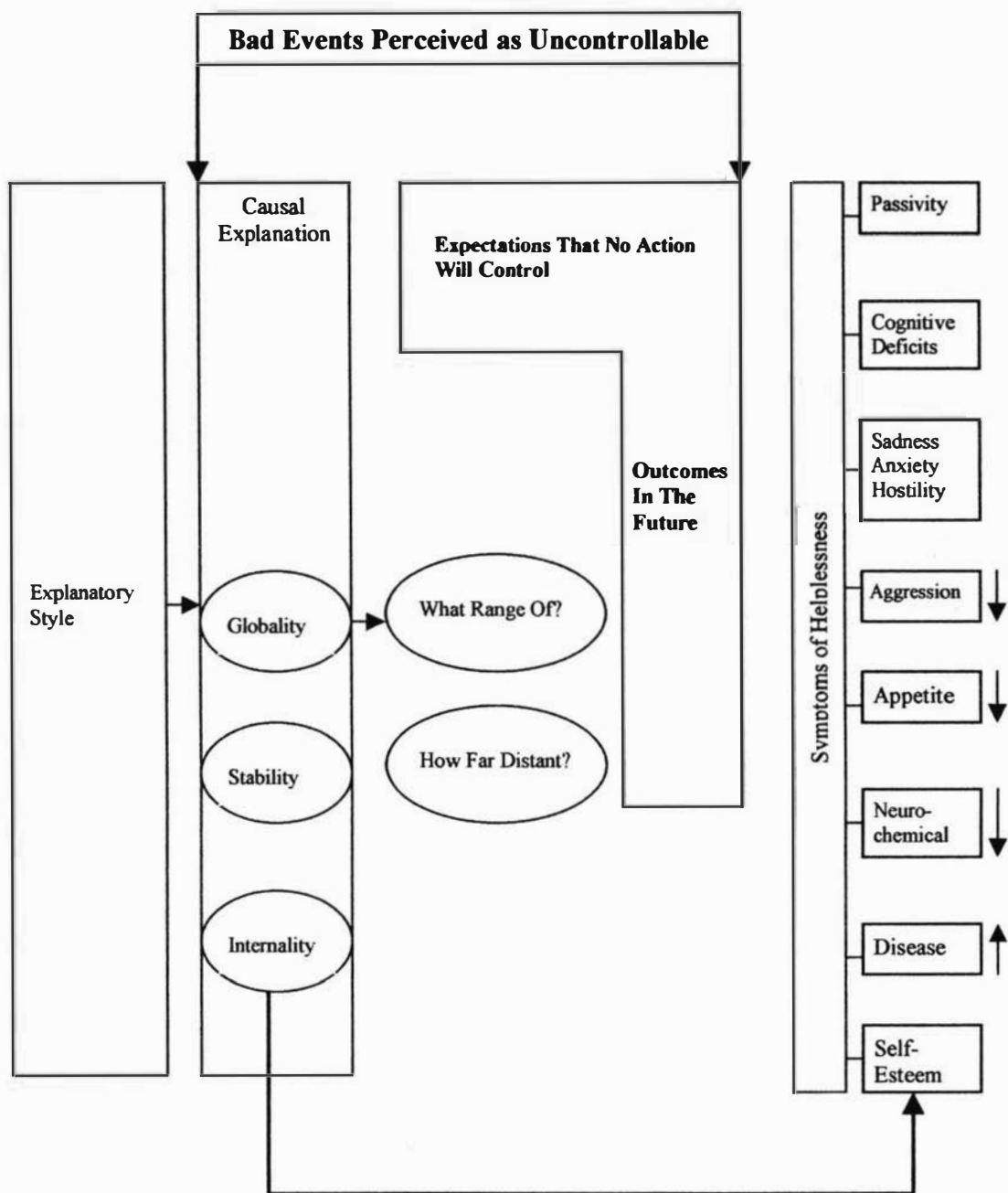


Figure 2. The process of learned helplessness.

From “Causal explanations as a risk factor for depression: Theory and evidence”
by C. Peterson and M.E.P. Seligman, (1984), *Psychological Review*, 91(3), p. 350

Measures of Attributional Style

Attributional style has conventionally been measured using the Attributional Style Questionnaire (ASQ) developed by Peterson and his colleagues in 1982. The ASQ is used to assess habitual tendencies in the attributions of causes along three dimensions: internal versus external, stable versus unstable and global versus specific. The subject is required to generate a cause for each of the twelve hypothetical situations and then rate the cause on a 1-7 scale for internality, stability and globality. Peterson et al. (1982) report adequate reliability and validity of the questionnaire. The subscales of the ASQ, which measure locus, stability and globality, were reported to have low reliability (Sweeney et al., 1986). Peterson and Villanova (1988) then developed the expanded ASQ (EASQ) which improved reliability of the subscales but unfortunately became too lengthy (Whitley, 1991). Peterson (1991) attempted to shorten the EASQ but to no avail since the shortened version was uniformly less reliable than the ASQ.

Another parallel method of measuring attributional style is the Content Analysis of Verbatim Explanations (CAVE) technique. This method is used when populations are not willing or unable to take the ASQ. The ASQ has been reported to have better validity in predicting depression, it allows the subject to rate their own causes along the dimensions which is a more accurate measure of their explanatory style and finally using hypothetical events encourages the subject to be more spontaneous in their responses which would not be the case if the situation was perceived as real (Schulman et al., 1989).

Explanatory Style for Bad Events

Explanatory style for bad events has been the focus of investigation in attribution research. The learned helplessness model is based on the explanatory style for bad events and does not consider the role of explanatory style for good events in the stress-depression relationship. Peterson (1995) questioned the theoretical significance of explanatory style for good events but with little response. They found possible explanations suggesting that explanatory style for good events were buffers against depression (Taylor & Brown, 1988) or a means to savor ones triumphs in life (Weiner, 1986). Generally people do not spend time pondering over good events as they do bad events. However, Peterson (1995) encourages further investigations in the relationship between explanatory style for good events and explanatory style for bad events. It has been reported that external, unstable and specific explanatory style for good events have been indirectly related to depression (Peterson, 1995).

Life Events, Attribution and Well-being

Individuals vary in their responses to stressful life events even when exposed to the same stressful life events (Hudgens, 1974). For some people a life event such as death of a spouse may be viewed as stressful whereas for the person that witnessed their spouse experience pain and suffering for a long time as a result of a terminal illness for example may see the death of their spouse as a sense of relief (Lazarus, 1999). The meaning they attribute to the stressful life event determines whether or not they become depressed and whether they will be vulnerable to future short and long standing episodes of depression (Alloy et al., 1999; Cohen et al., 1995; Lazarus, 1999). In investigating the stress-illness relationship various studies were conducted associating

stressful life events with illness (Dohrenwend & Dohrenwend, 1974). Stressful events have been studied primarily as risk factors for disease (Cohen, Kessler & Gordon, 1995). Holmes and Rahe (1967) were the major proponents of life events research. They proposed that both positive and negative life events were considered stressful as they both make adaptational demands. According to Lazarus (1999) subsequent research suggested that negative events have a greater impact on illness than positive events. Besides attributing meaning to the event, individual personality characteristics and the circumstances under which the event has occurred influences whether the person becomes stressed or not (Abramson et al., 1989; Alloy et al., 1988; Beck, 1967; Hinkle, 1974). Two of the most prominent theories of depression, the hopelessness theory (Abramson et al., 1989; Alloy et al., 1988) and Beck's theory (Beck, 1967, 1987) assert that particular negative cognitive styles increases the individuals' chances of experiencing depressive symptomatology for a subtype of depression (Abramson et al., 1989) when they encounter negative life events.

Life Events, Negative Attributional Style and Depression

In Beck's theory of depression (Beck, 1967, 1987), individuals with negative self-schemata (e.g. worthlessness, failure, loss and feelings of inadequacy) tend to become more vulnerable to depressive symptoms when they are confronted by negative life events (Alloy et al., 1999). As explained by Reilly-Harrington et al. (1999), these depressive self-schemata influence the perception, interpretation and memory of the individual's personal experiences resulting in a negatively biased view of the experience. When confronted with a negative life event the individual responds in a negative manner thereby rendering himself at risk to depressive symptomatology or exacerbating the present symptoms of depression.

The attributional theory of learned helplessness suggests that perceived lack of control induced by negative events results in stress and depression. This theory further suggests that a characteristic attributional style may dispose individuals toward reacting with depression to stressful life events (Stroebe & Stroebe, 1995). It is the perceived lack of control that the individual experiences in response to a negative life event that results in feelings of helplessness, despair and inability to cope with the situation. Also, this individual may present with depressive symptomatology if they possess a characteristic attributional style that attributes bad events to internal, stable and global causes (Abramson et al., 1978). The learned helplessness model however received mixed reviews. Peterson, Villanova and Raps (1985) reviewed 61 published tests for depressive attributional style in an attempt to determine factors that contributed to the inconsistency in results of studies correlating depression and attribution. They found that the reformulation model is more likely to be supported when events are hypothetical (in agreement with Coyne & Gotlib, 1983) and when a large number of events are used to assess attributional style (in agreement with Peterson & Seligman, 1984).

Life Events and The Hopelessness Theory of Depression

Meta-analytic reviews done by Sweeney et al. in 1986 predicted a strong relationship between attributional style and depression after reviewing 104 empirical studies of depression generated from the learned helplessness model. The latter model presented an attributional account of human helplessness and only briefly discussed its

implications for depression thereby lending itself to some controversy (Abramson et al., 1989; Alloy et al., 1988). Some reviewers argued that it has strong empirical support (Peterson & Seligman, 1984), others suggested that it has a weak empirical base (Coyne & Gotlib, 1983) and researchers such as Abramson, Alloy & Metalsky (1989) and Alloy et al. (1988) suggested that it was lacking adequate testing. In 1987, the hopelessness theory of depression was formulated by Abramson and his colleagues (Abramson et al., 1989; Alloy et al., 1988) which asserts that hopelessness is a sufficient cause of the symptoms of hopelessness depression.

The hopelessness theory of depression asserts that people who characteristically attribute negative life events to stable and global causes infer that negative consequences will follow from negative events thereby rendering feelings of worthlessness and vulnerability to developing depressive symptoms such as 'hopelessness' a subtype of depression (Abramson et al., 1989; Alloy et al., 1999).

Further this theory postulates that people make three types of inferences: inferences about why the negative life event occurred, inferences about the consequences resulting from the event, and inferences about the self. These causal attributions lead to hopelessness depression only if the person makes stable, global inferences about the events, attaches high importance to these events, infers negative consequences of these events and infers negative self-characteristics. It is important to bear in mind that individual personality characteristics determine whether the person becomes depressed or not. Cognitive styles or to be specific, a hypothesised depressogenic attributional style (i.e. the tendency of attributing negative events to stable, global factors and to bestow major importance to these events) is more likely to contribute to feelings of hopelessness and in turn develop the symptoms of hopelessness depression (Abramson et al., 1989).

Stressful life events in both domains of work and home can affect stress levels at work thereby impairing job performance and leading to the onset of stress-related illness (Riggio, 1996). Quick et al. (1992) in a similar vein reported increasing evidence of the "spillover" effect of work related stress (due to stressful life events) to the home environment. Other researchers such as Swanson et al. (1997) as reported earlier investigated the role of family life on work stress and vice versa.

Immigration

A major source of stress is having to emigrate from one society and culture and immigrate to another. People are either uprooted involuntarily or voluntarily in pursuit of a better life for themselves (Lazarus, 1999). Immigrant doctors experience a process of adaptation that incurs side-effects such as poor physical and psychological well-being (Selvarajah, 1997). It has been reported that the adaptability process of the immigrant medical professionals is affected by the lack of employment in the area of their specialization in New Zealand and is exacerbated by subjection to stringent medical registration examinations and where appropriate English examinations set by the New Zealand Medical Council (Hill, 1999; Selvarajah, 1997). Further to this overseas doctors have been allocated jobs in remote areas, away from the city in order for New Zealand trained graduates to be able to work in urban areas. These actions by North Health for example who were selective in their employment practices of overseas trained doctors received much criticism and were faced with legal disputes (Sinclair,

1997). These recent immigrants faced adaptation problems to the new culture, new environment, lack of job opportunities in their field of expertise, and the stress of sitting the medical examinations. The work stress that these doctors experience is further compounded by the problems of adaptation resulting from immigration.

Studies that support or refute the stressful life events-well-being relationship call into question the reliability of self-report measures used to assess the effects of stressful life events on well-being. It has been noted that reporter bias and item contamination in the measures may have created considerable doubt in the validity of such results (Stroebe & Stroebe, 1995). Kaplan (1996) questioned the reliability of checklist measures of life events, reporting that some studies (Kaplan, 1996) revealed that respondents tend to misclassify their experiences, depending on their memory recall, their mood at the time and certain personality characteristics (e.g. neuroticism may lead an individual to report the occurrence of more events than actually experienced). Cohen (1988) is in agreement with Kaplan's assertion that reporting of life events may be influenced by the subject's current mood. For instance if respondents are distressed then they view all aspects of their life as bleak and hence perceive their workload as heavier and their work situation as being more stressful than respondents who are not distressed (Weinberg & Creed, 2000). Therefore self-report methods of data collection may be subject to reporter biases.

Attributional Style and Other Personality Variables

According to Furnham (1992), large amounts of research have provided evidence that personality and stress are causally related to various diseases, including cancer and coronary heart disease. Type A behaviour has been researched extensively and there is some evidence linking it with coronary heart disease. Other personality variables used in work stress research have included self-esteem, locus of control and positive and negative affectivity. Revicki and May (1985) reviewed locus of control studies by Kobasa (1979) and Johnson and Sarason (1978). They reported findings by Kobasa (1979) indicating that persons who remain healthy in stressful situations have a greater sense of control. They also reported findings by Johnson and Sarason (1978) that locus of control mediates the effects of life stress by the degree of perceived personal control over life events. Revicki and May's study renders support for these theories as they proposed that locus of control indirectly moderates the relationship between work stress and depression.

It has been suggested that a Type A behaviour pattern is characterised by individuals who tend to be hostile, ambitious, competitive and often preoccupied with deadlines and work (Van Harrison et al., 1988). Studies with hospital doctors have suggested that senior doctors tend to best fit the Type A behaviour pattern namely, to be more ambitious, time conscious and often abrupt in their manner than junior doctors (Fielden & Peckar, 1999). Cooper, Mallinger and Kahn (1978) in their study of occupational stress among dentists stated that some research studies associated job demands and Type A behaviour with work stress proposing a possible link between the demands of a growing practice (a source of pressure) and Type A behaviour (aggressiveness, competitiveness and need to achieve). However Cooper et al. were unable to find any personality predispositions to stress. According to Van Harrison et al. (1988) Chesney and Rosenman (1980) reviewed much of the literature on Type A behaviours and they report that Type A's tend to perceive their job as comprising longer

hours, heavier workloads and having more responsibility. Other studies have associated Type As with increased physiological reactions to environmental stressors and subsequently are more at risk to coronary heart disease (Van Harrison et al., 1988).

Additional areas of interest

Stress and Coping

Stress is individualistic in nature, what is considered stressful for one may not necessarily be stressful for another. It is this interpretation of stress that is significant in determining the well-being of the individual at risk. Stress moderators such as coping strategies, genetic and early familial influences and external resources and vulnerabilities, determine how people interpret stress and how they cope with it (Kaplan, 1996).

Kaplan (1996) found that recent literature (Kendler et al., 1991; Kessler et al., 1992; Plomin et al., 1992) used twin study methodology in understanding the genetic and familial influences on the experiences of stress. These researchers concluded that there are "genetic underpinnings either in the ability to construe support as available or in the ability to select supportive networks, which in turn leads people to perceive that they have support available to them" (Kaplan, 1996, p. 73). Kaplan also draws on studies by Kendler et al. (1991) who reported that child - rearing practices and the familial environment influences the general behaviour of the child. Children mirror behaviours of their parents thereby adopting coping mechanisms used by their parents in response to stressful situations.

Psychodynamic Versus Cognitive Theories of Depression

The hopelessness theory of depression postulates that negative attributional styles are associated with depression. In trying to obtain a more comprehensive understanding of the relationship between negative attributional style and depression, researchers should embark on integrating psychodynamic principles into the hopelessness theory of depression (Kwon, 1999). In his study with psychology undergraduate students, he refers to negative attributional style as a conscious level of coping and proposes that defense mechanisms (unconscious levels of coping) buffer the individual from becoming depressed as a result of a negative attributional style. Hence this integration of psychodynamic and cognitive theories may contribute to a better understanding of depression etiology and assist in the treatment of depression.

The present study

Justification

Research on hospital doctors in New Zealand have focussed on job satisfaction and job stress of resident medical officers (Booth & Smith, 1990) and general practitioners (Dowell, 2000). The health and health care practices of doctors and their families (O'Hagan, 1996; Richards, 1999) focussing on well-being of doctors were also researched. Private practice issues (Holden & Pullon, 1997; Pemble, 1996) and immigration effects on general practitioners (Barnett, 1991; Hill, 1999; Sinclair, 1997) received some attention. Shift work, stress and burnout of nurses (Henderson & Burt, 1998; Watson & Feld, 1996) have received considerable attention. To date however, no

empirical study has been done in New Zealand on the effects of work stress on the well-being of hospital doctors despite media reports of perceived work stress in general practitioners and the recent nationwide industrial actions of junior doctors in New Zealand (NZ Doctor, 2000; NZMA, 2000). It is on this premise that the researcher decided to undertake this study. The lack of research on hospital doctors, the recent pay strikes of junior doctors, and the media reports on immigrant doctors struggles to obtain registration and the impending UK medical doctors recruitment drive are causes for concern. The possible exodus of New Zealand graduate doctors leaving the country in search of better pay and improved working conditions, clearly indicates a need to assess the degree of stress experienced, current working conditions and the current mental health of hospital doctors. The present study is concerned with assessing overall stress levels of these doctors and general well-being thereby laying the foundation for future research in this area.

Aims and Objectives

The present research was conducted in order to measure work stress and well-being of hospital doctors in New Zealand. The following hypotheses were tested:

1. New Zealand doctors will have higher levels of life and professional stress and lower levels of well-being than comparable samples of doctors in other countries.
2. Overseas trained doctors working in New Zealand will have higher levels of life and professional stress, and lower levels of well-being than New Zealand trained doctors.
3. Junior doctors will have higher levels of life and professional stress, and lower levels of well-being than senior doctors.
4. A large proportion of New Zealand hospital doctors will be at risk to experiencing psychological symptoms of depression or another psychiatric illness.
 - 5.1. Female doctors will have higher levels of stress and lower levels of well-being than male doctors.
 - 5.2. Doctors in a married or cohabiting relationship will have lower levels of stress and higher levels of well-being than single, divorced or widowed doctors.
 - 5.3. Doctors with children will have higher levels of stress and lower levels of well-being than doctors without children.
 - 5.4. The interaction effects of gender and marital status, gender and having children on stress and well-being will be non-significant.
6. Personal styles of attribution will mediate the effects of professional stress and stressful life events on well-being.

CHAPTER THREE: METHODOLOGY

Method

The present study utilised the questionnaire method of survey research design. The questionnaire method has been considered the least expensive method of data collection, less time consuming and can be administered to large samples with minimal effort (Judd et al., 1991). Due to the anonymity of the questionnaire, it is an appropriate method for collecting sensitive information, thereby encouraging open responses. Another advantage of this method is the elimination of potential interviewer biases that is experienced in face-to face or telephone interview methods of data collection (Goddard & Villanova, 1996).

Sample

The medical practitioners involved in this study were sampled from the following Auckland Healthcare Hospitals: Auckland Hospital, Green Lane Hospital and Starship Hospital. The medical practitioners from Auckland Healthcare were selected as the sample population because it was assumed that this group would provide a representative sample of the population of hospital doctors in Auckland.

The population consisted of 680 medical practitioners. All full-time and part-time doctors employed at these hospitals were invited as at the 15 June 2000, to participate in the study investigating the work stress and well-being of hospital doctors.

Of the 680 questionnaires that were sent out, 177 were returned. Four were returned unanswered (either because the doctor did not have the time to complete the questionnaire or no longer was employed at the hospital). The final sample comprised of 173 doctors. The response rate was 25.4%, below the typical response rate of 30% (Shaughnessy & Zechmeister, 1990).

General Demographic Characteristics of the Sample

Table 1 illustrates the demographic characteristics of the sample. The majority of respondents were male (57.8%), married / cohabiting (70.6%) with children (56.6%), New Zealand European (83.8%), New Zealand trained (74.6%), Full-time employment (76.3%) and Consultants (46.8%). The ages of the respondents ranged from 23 to 65 with an average of 37.4 years, $SD=9.94$. The mean age of men ($M=39.33$, $SD=10.21$) was significantly greater than the women's mean age ($M=34.73$, $SD=8.95$), $t(171)=3.08$, $p<.005$.

Table 1: Demographic Characteristics of the Study Sample (N = 173)

Demographics	Men (N=100)	Women (N=73)	Percentage of Total Sample
	n (%)	n (%)	
Gender			
Male	100 (57.8)		57.8
Female		73 (42.2)	42.2
Marital Status			
Single/divorced/widow	16 (16)	35 (47.9)	29.4
Married/cohabiting	84 (84)	38 (52.1)	70.6
Children			
Yes	72 (72)	26 (35.6)	56.6
No	28 (28)	47 (64.4)	43.4
Ethnicity			
NZ European	70 (70)	51 (69.9)	69.9
European	12 (12)	12 (16.4)	13.9
Maori	0	0	0
Pacific Islanders	3 (3)	1 (1.4)	2.3
Asian	6 (6)	4 (5.5)	5.8
Indian	6 (6)	4 (5.5)	5.8
Other	3 (3)	1 (1.4)	2.3
Training			
NZ trained	74 (74)	55 (75.3)	74.6
Overseas trained	26 (26)	18 (24.7)	25.4
Position			
H.O/H.S ¹	10 (10)	15 (20.5)	14.5
Registrar	34 (34)	31 (42.5)	37.6
Consultant	56 (56)	27 (37.0)	46.8
Fellow	1 (1)	1 (1.4)	1.2
Employment Status			
Full-time	73 (73)	59 (80.8)	76.3
Part-time	27 (27)	14 (19.2)	23.7

Note. ¹ House Officer (H.O) and House Surgeon (H.S)

Measures

The questionnaire relied on a self-report measure of the respondents and consisted of five sections (Appendix A1).

General Health Questionnaire (GHQ)

Goldberg's (1978) GHQ-12 assesses individual well-being. This version of the GHQ comprises of 12 items. Items consist of a question asking whether the respondent has recently experienced a particular symptom or item of behaviour rated on a four-point scale. The method of scoring used in this study was the Likert-Method where responses are given weights of 0, 1, 2, and 3. This method provided a total severity score from 0 to 36, with higher scores indicating greater distress. The alternative scoring method (GHQ-Method) was used only for the purpose of assessing the individual's probability of achieving a diagnostic criterion of psychiatric 'caseness', that is, the probability of the respondent being at risk for experiencing a psychological disorder. In this method the responses were given weights of 0, 0, 1 and 1. The Likert Method of scoring was chosen as it was reported to have produced a less skewed score distribution than GHQ scoring (Goldberg & Williams, 1988). In all other analyses the total severity score obtained using the Likert Method was used.

Goldberg and Williams (1988) reported a split-half reliability of .83 for the GHQ-12 and test-retest reliability of .73 for the GHQ-12, from the original validation study of the GHQ-60. With regards to internal consistency of the GHQ-12, subsequent studies (Banks et al., 1980) reported Cronbach alphas between .82 and .90 (acceptably high internal consistencies). Goldberg and Williams (1988) also reported criterion validities for specificity of 78.5% and sensitivity of 93.5% for the GHQ-12, from the original validation study of the GHQ-60. Subsequent studies reported by Goldberg and Williams (1988) indicate specificity ranging from 71% to 93% and sensitivity ranging from 71% to 91%.

Physician Stress Inventory (PSI)

Revicki and May's (1983) Physician Stress Inventory (PSI) assesses professional stress specific to doctors. This inventory was a 26-item, four point Likert scale with which respondents were requested to identify the extent to which they believed a statement applied or did not apply to them. A 3-item idealism scale was included in the inventory. Revicki and May (1978) entered 22 items into the factor analysis and derived four factors interpreted as:

- Factor I (Internal Professional Stress)
- Factor II (Perceived work Productivity)
- Factor III (Interference with Family Life)
- Factor IV (External Professional Stress)

In the present study the total PSI scores were used for demographic comparisons. Other analyses used factorially-derived scores as described below.

Revicki and May (1983) reported internal consistency reliability coefficients (Cronbach alphas) of .87 for Factor I, .85 for Factor II, .71 for Factor III, and .82 for Factor IV. The magnitude of the coefficients indicated that the items within the

subscales were homogenous for all factors. Factor III had a moderate but acceptable internal consistency reliability even though it had few items. Revicki and May (1983) noted significant correlations between the PSI scales and the Self-Rating Depression Scale and Measures of Social Support, thereby rendering validation of the PSI scales.

Social Readjustment Rating Scale (SRRS)

Holmes and Rahe's (1967) Social Readjustment Rating Scale was used to assess the frequency of stressful life events experienced by the respondents within the past year. This scale consists of 43 non-work related stressful life events. Associated with each item is a weight (Holmes & Rahe, 1967) indicating the amount of social readjustment the event would require relative to other events on the list. Respondents indicated which of the listed events had occurred in the past year, and a total 'life stress' score was obtained by summing the weights for the items checked.

Attributional Style Questionnaire (ASQ)

Peterson et al.'s (1982) Attributional Style Questionnaire (ASQ) measures individual personality differences in the internal, stable and global attribution of causes for good and bad events. The ASQ comprises of 12 hypothetical events, six good events and six bad events. Following each event are parallel questions. The respondent is asked to "write down *one major cause*" of the event. Then the respondent is asked to rate the *cause* along three attributional dimensions (internality, stability and globality). Also the respondent is required to rate the importance of the situation described. In this study, the means and standard deviations for the good and bad situations on the three attributional dimensions were computed and used in the analysis of the data.

Peterson et al. (1982) reported an internal consistency reliability of .75 and .72 for the composite attributional styles for good events and bad events respectively. Internal consistency reliabilities for the 12-item scale only, were reported for the purposes of this study. Test-retest reliabilities for Attributional Styles ranged from .58 to .70 for good events and from .57 to .69 for bad events. Peterson et al. (1982) noted considerable construct, criterion, and content validity of the ASQ after comparing the ASQ scores to variables in related studies of depression and the learned helplessness reformulation theory.

Demographics

The last section was comprised of demographic questions that were selected on the basis of their significance in past research in the stress and well-being domain. Gender, age, marital status, job position, ethnicity and employment status were some of the characteristics requested.

Procedure

The Massey University Human Ethics Committee (Albany) was forwarded a research proposal, which detailed the rationale and objectives of the research. The committee approved the intended methods to be utilised in the research study. Approval for access to participants was obtained from the General Managers of Auckland, Green Lane and Starship Hospitals, via the Auckland Healthcare Research and Development

Office. The questionnaire packs were handed to the Auckland Healthcare Corporate Human Resource Department who then distributed the 680 questionnaires to the population of doctors at Auckland Healthcare, via their internal mailing system. In this way anonymity and confidentiality of the participants were assured.

The questionnaire pack sent to each participant contained the following:

- An information sheet (Appendix A2) inviting doctors to participate in the research, outlining the extent of their participation and detailing the nature and purpose of the study. Potential participants were assured complete anonymity and confidentiality of their responses and demographic details. Further to this the information sheet reminded potential participants that participation was voluntary and that they had the right to decline participation, withdraw at any stage, or refuse to answer any particular question. Participants were also informed that they would not be able to gain access to their individual profiles but would be given access to a summary of the results at the conclusion of the study.
- A questionnaire on physician stress, well-being, stressful life events, attributional styles and demographics (Appendix A1).
- A self-addressed envelope to maximise the response rate. Reminder letters, which could have improved the response rate, were not forwarded due to time constraints.

The questionnaires were then coded and processed as they arrived. The data were entered into a Microsoft Excel data file and then converted to an SPSS (Statistical Package for Social Sciences Software Package) data file. SPSS Version 10 was used to analyse the data. The data were then screened for inaccuracies in data input. No inaccuracies were found. Missing values were then dealt with. Only one respondent's score was prorated out of the total number of questions for the GHQ scale to obtain a total score. For the SLE list with only two responses (Yes/No), missing values were taken as a 'No'. Missing values were replaced in this way, allowing the respondents scores to be included in the analyses. However, for other scales with more than two missing values, the respondent's scores were excluded from the analyses.

Data Analysis

Descriptive statistics were used to analyse the demographic characteristics of the study sample. Cronbach alphas were obtained to estimate the internal reliability for the scales. Measures of central tendency were compared for the various demographic groups. Measures of central tendency were also used to make comparisons with the present sample and samples in related studies. Independent samples *t*-tests were conducted to evaluate whether there were any significant differences in the stress and well-being of New Zealand trained and overseas trained, junior and senior, and male and female doctors in the study sample. Levene's test for homogeneity of variances was computed for each test. Where homogeneity could not be assumed, the more conservative value of *t* was used as the statistic for testing the significance of differences in means. Pearson product-moment correlations were conducted to assess the relationships between variables.

A one-way analysis of variance was conducted to test for differences in mean values of GHQ Likert scale scores for professional status of the medical practitioners (Tattersall et al., 1999).

Two-way ANOVA's with two levels of gender (women versus men) and two levels of marital status (single versus married/cohabiting) on the variable scores were conducted to assess whether gender and marital status had significant effects on each of the dependent variable scores (PSI, GHQ and SLE).

Two-way ANOVA's with two levels of gender (women versus men) and two levels of children (with versus without) on the variable scores were also conducted to assess whether gender and parenthood had significant effects on each of the dependent variable scores (PSI, GHQ and SLE).

After comparing the different demographic groups on the mean SLE, GHQ, PSI and ASQ scores, factor analysis was undertaken on the PSI scale to see if similar factors could be extracted as Revicki and May (1983) had done. The resulting factor scores were then used in the multiple regression equations. Initially, an iterated principal axes method of factor analysis (Cattell, 1978) was performed on the Physician Stress Inventory data as it was deemed one of the most effective methods in extracting factors. Failing to extract clear factors through the use of this method, the iterated principal components method of factor analysis with varimax rotation was used with success.

Multiple regression analyses were used to test for potential mediating and moderating effects of attributional styles on the relationship between work stress and well-being. Another hierarchical linear regression analysis was conducted to test the potential mediating or moderating role of attributional styles on the relationship between stressful life events and well-being.

CHAPTER FOUR: RESULTS

Descriptive Statistics

Table 2: Comparisons of Means and SD's for Scaled Scores with Related Studies.

Scales	Present Sample			Comparison Sample			<i>t</i>	df
	N	Mean	SD	N	Mean	SD		
Stressful Life Events¹	173	274.81	123.27	44	230.39	119.59	2.15*	215
General Health Q.12²	173	13.46	5.22	170	12.82	5.69	1.09	341
Physician Stress Invent.³								
Internal Prof. Stress	173	16.11	4.72	283	16.01	5.83	0.19	454
Perceived Work Prod.	173	19.53	3.87	283	15.96	5.42	7.56***	454
Interference With Family	173	9.36	2.30	285	9.04	2.89	1.24	456
External Prof. Stress	173	10.96	3.21	283	10.45	3.92	1.44	454
Idealism	173	9.62	1.76	279	9.19	1.94	2.37*	450
Attributional Style⁴								
Good events : Internality	139	4.63	0.08	130	5.26	0.79	-9.35***	267
Stability	136	5.26	0.69	130	5.36	0.68	-1.19	264
Globality	137	4.79	0.74	130	5.11	0.80	-3.40***	265
Bad events : Internality	123	3.89	0.76	130	4.29	0.84	-3.96***	251
Stability	123	4.78	0.87	130	4.14	0.71	6.43***	251
Globality	122	4.07	1.01	130	3.87	1.07	1.52	250

* $p < .05$ *** $p < .001$, all tests are two-tailed

Note. Comparison samples:

¹ The Social Readjustment Rating Scale in Weiss et al. (1982).

² The General Health Questionnaire 12 in Tattersall et al. (1999).

³ The Physician Stress Inventory in Revicki and May (1983).

⁴ The Attributional Style questionnaire in Peterson et al. (1982).

Table 2 shows the comparisons of the means and standard deviations of the present sample with those of samples in related studies. On the Stressful Life Events (SLE) measure the mean score for my sample ($M = 274.81$, $SD = 123.27$) was significantly greater than the mean for Weiss et al's (1982) sample of managers ($M = 230.39$, $SD = 119.59$), $t(215) = 2.15$, $p < .05$. For the Physician Stress Inventory (PSI) the mean score for my sample on the Perceived Work Productivity subscale ($M = 19.53$, $SD = 3.87$) was significantly greater than the mean for Revicki and May's (1983) sample of physicians ($M = 15.96$, $SD = 5.42$), $t(454) = 7.56$, $p < .001$. The mean score for my sample on the Idealism subscale ($M = 9.62$, $SD = 1.76$) was also significantly greater than the mean for Revicki and May's (1983) sample of physicians ($M = 9.19$, $SD = 1.94$), $t(450) = 2.37$, $p < .05$. On the Attributional Style Questionnaire (ASQ), the mean score for my sample on the Internality for Good Events subscale ($M = 4.63$, $SD = .08$) was significantly lower than the mean score for Peterson et al's (1982) sample of

undergraduates ($M = 5.26$, $SD = .79$), $t(267) = -9.35$, $p < .001$. The mean score for my sample on the Globality for Good Events subscale ($M = 4.79$, $SD = .74$) was also significantly lower than the mean score for Peterson et al's (1982) sample of undergraduates ($M = 5.11$, $SD = .80$), $t(265) = -3.40$, $p < .001$. With regards to attributional style for bad events, the mean score for my sample on the Internality for Bad Events subscale ($M = 3.89$, $SD = .76$) was significantly lower than the mean score for Peterson et al's (1982) sample ($M = 4.29$, $SD = .84$), $t(251) = -3.96$, $p < .001$. The mean score for my sample on the Stability for Bad Events subscale ($M = 4.78$, $SD = .87$) was significantly greater than the mean score for Peterson et al's (1982) sample ($M = 4.14$, $SD = .71$), $t(251) = 6.43$, $p < .001$.

Inferential Statistics

Reliability

Coefficients of internal consistency (Cronbach's alpha) were computed for all scales except the ASQ because of few items per scale, (Nunnally, 1978). There were adequate levels of reliability, PSI ($\alpha = .87$) and GHQ ($\alpha = .88$), above the value of .60 recommended by Nunnally.

Independent-samples *t*-tests

Independent samples *t*-tests were conducted to evaluate whether there were any significant differences in the stress and well-being of New Zealand trained and overseas trained doctors in the present study sample. The results of these evaluations are reported in Table 3.

Table 3: Comparisons of Means and SD's for Scaled Scores of NZ trained versus Overseas trained Doctors.

Scales	NZ trained (N = 129)			Overseas trained (N = 44)			<i>t</i>	df
	n	Mean	SD	n	Mean	SD		
Stressful Life Events	129	280.44	123.19	44	258.29	123.40	1.03	171
General Health Q. 12	129	13.58	5.31	44	13.11	5.02	0.51	171
Physician Stress Inventory	129	56.09	11.93	44	55.59	10.75	0.25	171
Attributional Style								
Good Events : Internality	103	27.46	4.94	36	28.69	4.41	-1.33	137
Stability	100	31.28	4.35	36	32.25	3.45	-1.21	134
Globality	101	28.63	4.32	36	29.00	4.79	-0.42	135
Bad Events : Internality	92	23.29	4.78	31	23.58	3.97	-0.30	121
Stability	92	28.83	5.37	31	28.19	4.91	0.58	121
Globality	91	24.50	6.26	31	24.09	5.45	0.32	120

The results of Table 3 indicate no significant mean differences in scaled scores for New Zealand trained and overseas trained doctors. The hypothesis that overseas trained doctors experience more stressful life events, and hence are more stressed and have poorer health has not been supported. New Zealand trained doctors had a higher

mean SLE score ($M=280.44$, $SD=123.19$) than Overseas trained doctors ($M=258.29$, $SD=123.40$) but the difference was not statistically significant, $t(171)=1.03$, $p>.05$. Similarly, there were no significant differences in GHQ, PSI and attributional style means for New Zealand trained and overseas trained doctors.

Table 4: Comparisons of Means and SD's for Scaled Scores of Junior and Senior Doctors.

Scales	Junior Doctors (N = 25)			Senior doctors (N = 148)			t	df
	n	M	SD	n	M	SD		
Stressful Life Events	25	341.60	117.14	148	263.53	121.04	3.00**	171
General Health Q. 12	25	12.88	4.16	148	13.56	5.39	-0.60	171
Physician Stress Inventory¹								
Perceived Productivity	25	0.09	1.06	148	-0.02	0.99	0.51	171
Professional Stress	25	0.21	1.10	148	-0.04	0.98	1.16	171
Interfere With Family Life	25	-0.07	0.70	148	0.01	1.04	-0.36	171
Idealism	25	-0.02	0.98	148	0.03	1.01	-0.09	171
Attributional Style								
Good events: Internality	18	28.05	4.94	121	27.73	4.83	0.26	137
Stability	17	31.65	4.51	119	31.52	4.11	0.12	134
Globality	18	30.00	5.28	119	28.54	4.29	1.31	135
Bad events : Internality	19	22.79	4.44	104	23.47	4.61	-0.60	121
Stability	19	27.58	4.05	104	28.86	5.43	-0.98	121
Globality	19	24.00	6.85	103	24.48	5.92	-0.31	120

** $p < .005$

Table 4 shows the mean differences in scaled scores for junior and senior doctors. There were no significant differences in mean scores for PSI, GHQ and attributional styles of junior (house officers or house surgeons) and senior (registrars, consultants and fellows) doctors. However, junior doctors' mean SLE scores were higher ($M=341.6$, $SD=117.14$) than senior doctors mean SLE scores ($M=263.53$, $SD=121.04$) and the difference was statistically significant, $t(171)=3.00$, $p<.005$.

Analysis of Variance (ANOVA)

A one-way analysis of variance (ANOVA) was conducted to test for differences in mean values of General Health Questionnaire (GHQ) Likert scale scores for professional status (1) House officer/surgeon, (2) Registrars and (3) Consultants or Fellows. Means and standard deviations for these three groups appear in Table 5. The one-way ANOVA did not yield any statistically significant differences in GHQ means for the various employment positions, $F(2,170)=1.42$, $p>.05$ (Table not shown).

Using the GHQ method of scoring, 35.3% of the sample achieved the criterion for probable psychiatric 'caseness' which is the risk of being diagnosed with or experiencing a psychiatric illness such as depression (Table 5). Registrars had a higher

probability (16.8%) than Consultants/Fellow (14.4%) and House Officers/Surgeons (4.1%), but the differences were not significant, $\chi^2 (2, N=61) = 2.56, p > .05$.

Table 5: Mean (SD) GHQ Likert Scale Scores and Frequency of GHQ Defined 'caseness' by Professional Status.

	N	Mean (SD)	No(%) with scores > 3	Expected
Position:				
House Officer/surgeon	25	12.88 (4.16)	7 (4.1)	9 (14)
Registrar	65	14.32 (5.23)	29 (16.8)	23 (38)
Consultant/fellow	83	12.96 (5.46)	25 (14.4)	29 (48)
Total	173	61	61	

Two-way ANOVA's with two levels of gender (women versus men) and two levels of marital status (single/divorced versus married/cohabiting) on the variable scores were conducted to assess whether gender and marital status had significant effects on each of the dependent variable scores. Table 6 examines the between subjects effects on the dependent variables, Stressful Life Events (SLE), General Health Questionnaire (GHQ) and Physician Stress Inventory (PSI) scores.

Table 7 indicates a higher mean SLE score for female respondents ($M=307.38$, $SD=121.82$) than for male respondents ($M=251.03$, $SD=119.38$). However, the difference did not reach statistically significant levels, $F (171)= 2.77, p = .098$. With regards to marital status, there was a higher mean SLE score for single/divorced or widowed respondents ($M= 313.53$, $SD= 109.92$) than for married/cohabiting couples ($M= 258.62$, $SD= 125.34$). Again the difference did not reach statistically significant levels, $F (171)= 3.71, p = .056$. The interaction effects (gender x marital) were also not significant, $F (171)= 0.89, p = .346$.

The two-way ANOVA for the dependent variable, GHQ scores indicates a slightly higher mean GHQ score for male respondents ($M=13.56$, $SD= 5.56$) than for female respondents ($M= 13.33$, $SD= 4.76$). But, the difference did not reach statistically significant levels, $F (171)= 0.09, p = .771$. There was a slightly higher mean GHQ score for single/divorced/widowed respondents ($M= 13.57$, $SD= 4.94$) than for married/cohabiting couples ($M= 13.42$, $SD= 5.36$). Again the difference did not reach statistically significant levels, $F (171)= 0.07, p = .789$. The interaction effects (gender x marital) were also not significant, $F (171)= 0.01, p = .914$.

The two-way ANOVA for PSI scores indicates a higher mean PSI score for female respondents ($M=58.03$, $SD= 11.91$) than for male respondents ($M= 54.46$, $SD= 11.22$). But, the difference did not reach statistically significant levels, $F (171)= 1.97, p= .162$. There was a higher mean PSI score for single/divorced/widowed respondents ($M= 57.47$, $SD= 11.26$) than for married/cohabiting couples ($M= 55.34$, $SD= 11.75$). Again the difference did not reach statistically significant levels, $F (171)= 0.25, p= .619$. The interaction effects (gender x marital) were also not significant, $F (171)= 0.18, p = .676$.

Post hoc tests were not performed for Gender and Marital Status because there were fewer than three groups and the differences in means were not statistically significant.

Table 6: Results of Two-way ANOVA's, with Two Levels of Gender (women versus men) and Two Levels of Marital Status (single/divorced versus married/cohabiting), on the Stress and Well-being Variables' Scores.

Source of Variation	Sum of Squares	df	Mean Sum of Squares	F	Eta Squared
Stress Life Events					
Intercept	10,402,337.03	1	10,402,337.03	726.43***	.811
Between Groups					
Gender	39,600.35	1	39,600.35	2.77	.016
Marital Status	53,157.92	1	53,157.92	3.71	.021
Interaction (Gender x Marital)	12,803.43	1	12,803.43	0.89	.005
Error	2,420,044.76	169	14,319.79		
Total	15,678,470.00	173			
General Health Q.12					
Intercept	22,466.31	1	22,466.31	809.88***	.827
Between Groups					
Gender	2.35	1	2.35	0.08	.001
Marital Status	1.99	1	1.99	0.07	.000
Interaction (Gender x Marital)	0.32	1	0.32	0.01	.000
Error	4,688.13	169	27.74		
Total	36,047.00	173			
Physician Stress Inventory					
Intercept	396,019.52	1	396,019.52	2958.85***	.946
Between Groups					
Gender	264.18	1	264.18	1.97	.012
Marital Status	33.29	1	33.29	0.25	.001
Interaction (Gender x Marital)	23.44	1	23.44	0.17	.001
Error	22,619.36	169	133.84		
Total	565,062.00	173			

*** $p < .001$

Table 7: Means and SD's of the Variable Scores for Gender and Marital Status.

Variables	n	M	SD
Stressful Life Events			
Gender			
Male	100	251.03	119.38
Female	73	307.38	121.82
Marital Status			
Single	51	313.53	109.92
Married/Cohabiting	122	258.62	125.34
Gender x Marital			
Male – Single	16	302.94	89.29
Male – Married	84	241.14	122.23
Female – Single	35	318.37	119.06
Female – Married	38	297.26	125.04
General Health Questionnaire			
Gender			
Male	100	13.56	5.56
Female	73	13.33	4.76
Marital Status			
Single	51	13.57	4.94
Married/Cohabiting	122	13.42	5.36
Gender x Marital			
Male – Single	16	13.69	5.17
Male – Married	84	13.54	5.66
Female – Single	35	13.51	4.90
Female – Married	38	13.16	4.69
Physician Stress Inventory			
Gender			
Male	100	54.46	11.22
Female	73	58.03	11.91
Marital Status			
Single	51	57.47	11.26
Married/Cohabiting	122	55.34	11.75
Gender x Marital			
Male – Single	16	56.06	10.02
Male – Married	84	54.15	11.46
Female – Single	35	58.11	11.87
Female – Married	38	57.95	12.09

Two-way ANOVA's were also conducted to assess the relationship between gender and having children on each of the dependent variables, SLE, GHQ and PSI scores (Appendices A4 & A5). The means and standard deviations of the variable scores for gender and children were computed (Appendices A6 & A7).

The results (Appendix A4) indicated a higher mean SLE score for those respondents without children ($M=319.57$, $SD=116.13$) than for those with children ($M= 240.55$, $SD=117.98$). This difference was statistically significant, $t(171)=12.05$, $p< .001$. All other differences in mean variable scores for gender and children did not reach statistically significant levels, $p> .05$.

Factor Analysis of the Physician Stress Inventory (PSI)

Table 8: PCA and Varimax Rotation of Selected Items from the PSI.

Item	Factors				Communality
	I	II	III	IV	
P6	.81	.03	.07	.11	.67
P5	.79	.03	-.01	-.04	.62
P7	.73	.08	.04	.28	.62
P10	.69	.15	-.03	.06	.52
P2	.69	.09	.15	-.01	.50
P3	.64	.09	.19	.24	.52
P18	.54	.12	-.17	.42	.51
P17	.53	.16	-.02	.34	.42
P22	.06	.74	.16	.15	.59
P21	-.04	.70	.04	.09	.51
P24	.19	.68	-.02	.25	.57
P19	.38	.56	.12	.28	.54
P11	.11	.52	-.14	-.16	.32
P1	.09	-.09	.79	-.01	.64
P4	.09	.05	.71	.03	.52
P14	.06	.10	.68	.13	.49
P12	.10	-.11	.01	.81	.68
P9	.15	.10	.12	.68	.51
P20	.31	.25	.01	.51	.41
P23	.04	.31	.06	.50	.35
% total variance	20.51	11.90	11.45	8.87	52.73

Factor analytic procedures were applied to the Physician Stress Inventory Scale. Firstly, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine the appropriateness of factor analysis for this scale. The KMO for the PSI scale was .85, which is more than satisfactory for factor analysis to be used.

Twenty-six items of the PSI were entered into the Factor Analysis. Principal Components Analysis (PCA) procedures were used to obtain the initial factor solution (Appendix A8). Seven factors were extracted with eigenvalues greater than one and accounted for 59.5% of the total variance in PSI scores. The resultant solution was then rotated using VARIMAX with Kaiser Normalization rotation method in SPSS (Appendix A9). The factors remained unclear, with no change in the amount of variance accounted for.

All 26 items of the PSI were re-entered and 4 factors were forced in the extraction procedure (Appendix A10). Four factors were extracted accounting for 46.6% of the total variance in PSI scores. Following PCA, all 26 items were then rotated (Appendix A11) with no change in the amount of variance accounted for. Items 8,13,15,16,25,26 were eliminated because they did not load clearly onto any one factor.

Following PCA, the remaining 20-PSI items were rotated using varimax rotation. The rotated solution (Table 8) yielded four clearly interpretable factors, which accounted for 52.7% of the variance in PSI scores, with no change in the amount of variance accounted for after rotation. However, there was an overall increase (from 46.6% to 52.7%) in the amount of variance accounted for in PSI scores following the elimination of six PSI items from the factor analysis. The resultant four-factor solution

appeared to be most reasonable in terms of the eigenvalue rule, the scree plot test (Appendix A12) and factor parsimony (Cattell, 1978).

The four derived factors were interpreted as Factor I (Perceived Work Productivity), Factor II (Interference With Family Life), Factor III (Idealism) and Factor IV (Professional Stress-Internal and External).

Factor I (Perceived Work Productivity) represents the physician's perceived evaluation of work and professional expectations, accounted for 20.5% of variance in scores. The representative items with large factor loadings include Item 5 (My productivity has decreased), Item 10 (My professional growth and skills are stagnating), Item 2 (I am no longer the contributor I used to be) and Item 3 (My initial expectations of my job are not being realized).

Factor II (Professional Stress) represents the physician's perceptions of dissatisfaction and discouragement with their professional life and associated feelings of frustration and disenchantment with the situation, accounted for 11.9% of variance in scores. It is concerned with more personal and internalized reactions to professional stress (Internal Professional Stress). Factor II also represents the physician's perceptions of the support, recognition and contribution of colleagues and others in the environment (External Professional Stress). The items with the largest factor loadings are: Item 21 (I often arrive late for work), Item 22 (I occasionally hide in my office in order to shut out others), Item 24 (I daydream more at work than I used to), and Item 19 (I often feel that others are out to screw me).

Factor III (Interference with Family Life). This factor reflects the interference of professional responsibilities in family life, accounted for 11.5% of variance in scores. The items with the largest loadings are: Item 9 (Work interferes with family life), Item 12 (My preoccupation with work makes it hard to disengage from the job at home) and Item 23 (Arguments at home with spouse, children or others close to me have increased recently).

Factor IV (Idealism). This factor represents the physician's perceptions of being a high achiever and a perfectionist, accounted for 8.9% of variance in scores. Three items loaded highly on this factor: Item 1 (I have always valued high achievement), Item 4 (I have always been a perfectionist) and Item 14 (I feel that I am a strongly idealistic person).

Factor scores were computed and used in further analyses, instead of the PSI scaled scores.

Correlational Analysis

Pearson product-moment correlation coefficients were computed for the scale variables and certain demographic variables to evaluate the relationships between the selected variables (Table 9). All correlations discussed below were significant beyond $p = .001$.

The strongest relationship computed in Table 9 was between Perceived Work Productivity and GHQ, ($r = .48$). Gender of the respondents was positively linked to Stressful Life Events (SLE), ($r = .23$) as well as negatively related to age ($r = -.23$) and attributional style for good events on the internality dimension ($r = -.17$). Age of the respondents was negatively related to SLE scores ($r = -.45$) and did not correlate significantly with other variables.

GHQ scores positively correlated with SLE scores ($r = .25$), Perceived Work Productivity ($r = .48$), Professional Stress ($r = .19$), Interference with Family Life ($r = .36$) and negatively related to attributional style for good events on the stability dimension ($r = -.34$), as well as positively related to attributional style for bad events on the internality ($r = .21$) and globality ($r = .26$) dimensions. SLE scores positively correlated with Professional Stress ($r = .25$), Interference with Family Life ($r = .24$) and globality for bad events ($r = .26$).

Perceived Work Productivity was negatively related to stability for good events ($r = -.26$) and positively related to internality ($r = .22$) and globality ($r = .18$) for bad events. Professional Stress was positively related to globality for bad events ($r = .20$). Interference with Family Life was positively related to stability for bad events ($r = .18$) and globality for bad events ($r = .25$). Idealism did not have any significant relationships ($p > .05$).

Internality for good events was positively related to stability ($r = .34$) and globality ($r = .25$) for good events, as well as negatively related to stability ($r = -.22$) and globality ($r = -.19$) for bad events. Stability for good events was positively related to globality for good events ($r = .39$) and negatively related to internality for bad events ($r = -.24$). Globality for good events was positively related to globality for bad events ($r = .22$). Internality for bad events was positively related to stability ($r = .21$) and globality ($r = .46$) for bad events. Finally, stability for bad events was positively related to globality for bad events ($r = .34$).

Cohen's (1992) effect size criteria (i.e., $.1 \leq r < .3$ representing a small effect; $.3 \leq r < .5$ representing a medium effect; and $r \geq .5$ representing a large effect) were used to identify the effect sizes for the statistically significant correlations. The majority of the relationships represented small effects, three represented large effects and the rest were moderate effects. The large effect sizes were seen in the correlations between age and SLE ($r = -.45$); GHQ and Perceived Work Productivity ($r = .48$) and between internality and globality for bad events ($r = .46$). Of these the highest was between Perceived Work Productivity and GHQ.

Table 9: Pearson product-moment Correlations for Scales and Demographic Variables (gender and age) N= 173

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Gender														
2. Age	-.23**													
3. GHQ	-.02	-.06												
4. Stressful Life Events	.23**	-.45***	.25**											
5. PSI Factor I Perceived Work Prod.	.15	.03	.48***	.11										
6. PSI Factor II Professional Stress	.05	-.09	.19*	.25**	.00									
7. PSI Factor III Interfere with Family	-.01	-.12	.36***	.24**	.00	.00								
8. PSI Factor IV Idealism	.04	-.01	-.02	.09	.00	.00	.00							
9. Attribution Good Events Internality	-.17	.02	-.03	-.15	-.13	-.09	.05	.08						
10. Attribution Good Events Stability	-.11	.11	-.34***	-.13	-.26**	-.03	-.12	.10	.34***					
11. Attribution Good Events Globality	-.09	-.10	-.03	.06	-.12	.07	.09	.07	.25**	.39**				
12. Attribution Bad Events Internality	.11	.09	.21*	.09	.22*	.12	.14	.00	-.18	-.24*	.02			
13. Attribution Bad Events Stability	-.03	.13	.08	.05	-.06	.03	.18*	.02	-.22*	.12	-.03	.21*		
14. Attribution Bad Events Globality	.12	.01	.26**	.26**	.18*	.20*	.25**	-.01	-.19*	-.06	.22*	.46***	.34***	

* $p < .05$ ** $p < .005$ *** $p < .001$

Note: N's vary due to missing values

Multiple Regression

Hierarchical linear regression analyses were conducted to test the hypothesis that attributional style mediates the relationship between physician stress and well-being, while controlling for gender and age (Baron & Kenny, 1986).

Table 10 shows the hierarchical regression analysis for the four factors derived from the Physician Stress Inventory (PSI) and attributional style for good and bad events on well-being (GHQ). In the first model of the regression analysis, each of the four factors, were used to predict the level of well-being (GHQ). In the second model, attributional style for good and bad events was entered to determine if the factors retained any predictive power.

According to Baron and Kenny (1986), attributional style is considered to be a mediator variable if it is responsible for the transmission of an effect on the stress-well-being link but does not alter the nature of that effect. Partial mediation is indicated, if attributional style reduces the significance of the stress-well-being link, and complete mediation is indicated if the stress-well-being link is non-significant, once the effect of attributional style has been entered into the equation.

Moderating effects were excluded because attributional style correlated with both the predictor (PSI and SLE) and criterion (GHQ) variables (Table 9). According to Baron and Kenny (1986), the moderating variable should not be correlated with both the predictor and criterion variables in order to ensure that a clearly interpretable interaction term is obtained.

Table 10 shows the results of regression analysis for Perceived Work Productivity, Professional Stress, Interference with Family Life, Idealism and attributional style on the GHQ scores. In the first model, Perceived Work Productivity predicted well-being ($\beta = .48, p < .001$), accounting for 26% of the variance in GHQ scores, Professional Stress predicted well-being ($\beta = .18, p < .05$), accounting for 4.8% of the variance in GHQ scores. Interference with Family Life also predicted well-being ($\beta = .30, p < .001$), accounting for 12.4% of the variance in GHQ scores, adjusted $R^2 = .344, F(6, 104) = 10.61, p < .001$.

In the second model, adding in Attributional Style for good and bad events, the adjusted R^2 increased significantly in value to .354, $F(6, 98) = 6.01, p < .001$. Perceived Work Productivity, still significantly predicted GHQ scores ($\beta = .44, t = 5.22, p < .001$), but the amount of variance explained decreased from 26% to 21.7%. Professional Stress did not predict well-being in the second model ($t = 1.79, p > .05$). Interference with Family Life still significantly predicted GHQ scores ($\beta = .25, t = 3.14, p < .005$), but the amount of variance explained decreased from 12.4% to 9.1%.

Only stability for good events ($\beta = -.23$) significantly predicted negative GHQ scores ($t = -2.36, p < .001$), accounting for 5.4 % of the variance in GHQ scores. Therefore, attributional style for good events had a significant partial mediating effect on the prediction of GHQ scores by Perceived Work Productivity and Interference with Family Life, and a significant complete mediating effect on the prediction of GHQ scores by Professional Stress.

Table 10: Hierarchical Linear Regression Analysis for PSI Factors and Attributional Style for Good and Bad Events on General Health Questionnaire Scores.

Model	Un-standardised Coefficients		Standardized Coefficients	<i>t</i>	Partial <i>r</i> ²
	B	Std.Error	Beta		
1. (Constant)	15.87	1.74		9.11***	
Gender	-1.45	0.84	-.14	-1.73	.028
Age	-0.06	0.04	-.12	-1.42	.019
Physician Stress Inventory					
Perceived Work Productivity	2.51	0.41	.48	6.05***	.260
Professional Stress	0.93	0.40	.18	2.29*	.048
Interference with Family Life	1.49	0.39	.30	3.83***	.124
Idealism	-0.30	0.38	-.06	-0.79	.006
2. (Constant)	14.13	4.97		2.84**	
Gender	-1.54	0.85	-.15	-1.81	.032
Age	-0.04	0.04	-.08	-0.97	.009
Physician Stress Inventory					
Perceived Work Productivity	2.28	0.44	.44	5.22***	.217
Professional Stress	0.75	0.42	.15	1.79	.032
Interference with Family Life	1.27	0.40	.25	3.14**	.091
Idealism	-0.31	0.38	-.06	-0.81	.007
Attributional Style					
Internality for good events	0.12	0.09	.11	1.28	.016
Stability for good events	-0.27	0.12	-.23	-2.36*	.054
Globality for good events	0.10	0.10	.09	0.98	.009
Internality for bad events	0.03	0.10	.03	0.28	.001
Stability for bad events	0.06	0.09	.07	0.75	.006
Globality for bad events	0.04	0.08	.05	0.54	.003

* $p < .05$ ** $p < .005$ *** $p < .001$

Another hierarchical linear regression analysis was conducted to test the hypothesis that attributional style mediates the relationship between stressful life events and well-being (Baron & Kenny, 1986).

Table 11 shows the regression analysis for stressful life events and attributional style for good and bad events on the GHQ scores. In the first model, SLE predicted well-being ($\beta = .29$, $p < .05$), accounting for 6.7% of the variance in GHQ scores, adjusted $R^2 = .047$, $F(3, 107) = 2.81$, $p < .05$.

In the second model, adding in attributional style for good and bad events, the adjusted R^2 increased significantly in value to .149, $F(6, 101) = 3.14$, $p < .005$. Stressful Life Events still significantly predicted GHQ scores ($\beta = .23$), $t = 2.19$, $p < .05$, but the amount of variance explained decreased from 6.7% to 4.5%. Only stability for good events ($\beta = -.36$) significantly predicted negative GHQ scores ($t = -3.35$), $p < .001$, accounting for 9.9% of the variance in GHQ scores. Therefore attributional style for good events had a significant partial mediating effect on the prediction of GHQ scores by Stressful Life Events.

Table 11: Hierarchical Linear Regression Analysis for Stressful Life Events and Attributional Style for Good and Bad Events on General Health Questionnaire Scores.

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Partial <i>r</i> ²
	B	Std. Error	Beta		
1. (Constant)	9.51	2.74		3.47***	
Age	-1.19	1.02	-.12	-1.17	.012
Gender	0.01	0.05	.02	0.24	.000
Stressful Life Events	0.01	0.00	.29	2.76*	.067
2. (Constant)	10.69	5.87		1.82	
Age	-1.41	0.98	-.14	-1.43	.019
Gender	0.02	0.05	.04	0.35	.001
Stressful Life Events	0.09	0.00	.23	2.19*	.045
Attributional Style					
Internality for good events	0.16	0.11	.16	1.54	.023
Stability for good events	-0.43	0.13	-.36	-3.35***	.099
Globality for good events	0.08	0.12	.07	0.65	.004
Internality for bad events	0.08	0.11	.08	0.73	.005
Stability for bad events	0.06	0.09	.06	0.63	.004
Globality for bad events	0.11	0.09	.14	1.22	.015

* $p < .05$ *** $p < .001$

CHAPTER FIVE: DISCUSSION

This section will begin with a summary of the results, thereafter the implications of the findings in the study will be discussed and finally the limitations of this study will be reported.

Summary of Results

The present study was designed to assess the work stress and well-being of hospital doctors and to examine the role of underlying personality differences and stressful life events in this relationship.

Stressful Life Events

New Zealand doctors experienced more stressful life events than the sample of managers in Weiss et al's (1982) study. Stressful life events also predicted well-being in keeping with previous studies (Cohen, Kessler & Gordon, 1995; Dohrenwend & Dohrenwend, 1974). No significant differences between overseas and New Zealand trained doctors on work stress and well-being were found. Further to this no significant gender differences were found in support of previous studies claiming that females experienced more stressful life events than males (Cooper & Payne, 1991). However, in relation to job position the results in keeping with the researcher's expectations indicated that junior doctors experienced more stressful life events than senior doctors. Also of note is that there was a significant difference between the SLE scores of doctors with children and doctors without children. As expected, doctors without children experienced more stressful life events than doctors with children. In the section on implications for these findings the researcher has attempted to give reasons for these results.

Effects of Gender

Previous studies have provided inconsistent findings in the gender differences of work stress of doctors (Cooper & Payne, 1991; Simpson & Grant, 1991). Influenced by these studies it was hypothesized that female doctors would score higher on the work stress scale than male doctors. Contrary to the latter studies and to the researcher's expectations, the results showed no significant differences in work stress levels and well-being according to gender.

Work Stress and Well-being

Before discussing the results obtained using the PSI derived factors, it is important to compare the differences between the derived PSI factors in this study and that of the original PSI scale (Revicki & May, 1983).

The original PSI scale derived four factors as mentioned previously, Internal Professional Stress, Perceived Work Productivity, Interference with Family Life and External Professional Stress. In addition the inventory included a three-item idealism scale. For the present study four factors were clearly derived namely, Perceived Work Productivity, Professional Stress (internal and external), Interference with Family Life and Idealism. The factor analysis for the present study clearly extracted items associated

with the evaluation of work and professional expectations into Factor I (Perceived Work Productivity) which was similar to Revicki and May's Factor II. Items associated with internal dissatisfaction (irritability, frustration, isolation) and external devaluation (lack of support and recognition) were clustered into Factor II (Professional Stress). This differed from Revicki and May's study, which separated internal and external stress into two factors. Items associated with the consequences of work stress in relation to family life were grouped into Factor III (Interference with Family Life) similar to Revicki and May's Factor III. Finally, Factor IV (Idealism) of this study was comprised of items associated with personal achievement, optimism and perfectionism. In Revicki and May's study the items depicting work performance and idealism were grouped into one factor, Perceived Work Productivity on the premise that idealistic dispositions tend to influence one's perceived work productivity. Idealism similar to the other factors is interrelated but is not interdependent on perceiving work productivity. However, it is interdependent on perceiving work stress and well-being. The items in the Idealism subscale which are cognitive in nature such as "I have always valued high achievement" and "I have always been a perfectionist" and some of the items in the Perceived Work Productivity subscale such as "my productivity has decreased" may be associated with work stress. For example a doctor who is a perfectionist may perceive his work productivity to be low as a result of this cognitive disposition and hence becomes stressed. Whereas a doctor who is not a perfectionist but who evaluates his work performance negatively may not become stressed. Idealism is a very powerful personality trait and should be considered on its own to examine its full potential.

Given that the items in the subscales are homogenous for all factors (Revicki & May, 1983) it is reasonable to assert that items such as "I am more edgy than I used to be" and "I day dream more at work than I used to" could be due to either internal (I am more edgy than I used to be because I lack confidence in my abilities) or external (I am more edgy because I am not appreciated for the work I do) causes. This overlap justifies the convergence of internal and external stress into one factor, Professional Stress. As expected the four derived PSI factors did not correlate with each other indicating that they are separate entities and as explained above they appear to be reasonably factorially pure.

In comparing the work stress of New Zealand hospital doctors to a USA sample of family physicians (Revicki & May, 1983) the results showed that New Zealand hospital doctors scored significantly higher on the Perceived Work Productivity and Idealism subscales of the Physician Stress Inventory than the comparative sample. As expected, work stress as measured by the PSI subscales (Perceived Work Productivity, Professional Stress and Interference with Family Life) predicted well-being.

Also, it was hypothesized that overseas doctors' work stress levels as measured by the PSI subscales would be higher than New Zealand trained doctors, however contrary to these expectations the results showed no significant differences in perceived work stress of overseas and New Zealand trained doctors. Given the amount of literature portraying junior doctors as being more stressed than senior doctors and the recent job strikes by junior doctors in New Zealand, it was expected that junior doctors will differ in their levels of work stress in comparison to senior doctors. Contrary to the researcher's expectations no significant differences were found in work stress levels of junior and senior doctors.

No significant differences in psychological morbidity as measured by the GHQ were found according to position or gender. However, the results indicated that a moderate proportion of doctors on the whole were at risk to probably experiencing psychological symptoms.

Correlations Among Demographic and Other Variables

The demographic variables gender and age did not correlate significantly with the majority of the variables with the exception of stressful life events (SLE) and attributional style for good events on the internality dimension. The strongest relationship between variables was between Perceived Work Productivity and GHQ. GHQ was significantly related to most variables (ranging in effect size from weak through to strong) with the exception of the Idealism subscale of the PSI, Internality and Globality for good events and Stability for bad events. SLE correlated significantly with only three variables (ranging in effect size from weak to moderate), Professional Stress, Interference with Family Life and Globality for bad events. The PSI subscales did not correlate with each other as expected. Intercorrelations of the Attributional Style subscales were statistically significant, ranging in effect size from weak through to strong. The exceptions were four intercorrelations, which were not significant (internality for good events and internality for bad events; stability for good and stability for bad events; globality for good and internality for bad; internality for bad and stability for bad events).

Attributional Style and Well-being

Contrary to the researcher's predictions the levels of well-being of hospital doctors was not comparative to that of a similar group of doctors in the UK (Tattersall et al., 1999). When compared to a related study (Peterson et al., 1982) the mean attributional style scores for good events on both the internality and globality dimensions were significantly lower than the mean scores for Peterson et al's sample of psychology undergraduates. The mean attributional style score for bad events on the internality dimension for the present sample of doctors was significantly lower than the mean score for Peterson et al's sample of psychology undergraduates. However, the mean attributional style score for bad events on the stability dimension was significantly greater than the mean score for Peterson et al's sample of psychology undergraduates.

Overall there appears to be support for the hypothesis that perceived work stress impacts on psychological well-being and that attributional style mediates the work stress - well-being relationship.

Implications of these findings

Stressful Life Events

As expected, New Zealand hospital doctors experienced more stressful life events than Weiss et al's (1982) sample of managers. These managers may experience stressful life events such as change in financial status, change in career, unemployment, relocation and taking out a mortgage for example. Doctors in the present study may have experienced similar life changes but possibly more, due to the fact that some (surgeons or doctors in the cancer units) may be faced with the loss of a patient more

often than others. In the absence of literature exploring the relationship between stressful life events and stress and well-being the researcher had to resort to comparing the study sample with the sample of managers in Weiss et al. (1982). Also the researcher found that most studies on stressful life events have not reported the means and standard deviations of the SLE scores for their samples therefore comparisons could not be made.

Another objective of this study was to measure the differences in stress and well-being of NZ trained and Overseas trained doctors in order to establish associations of stressful life events and training with stress and well-being. The results showed no significant differences between stressful life events and training of the doctors on the whole. It was anticipated that overseas trained doctors would experience more stressful life events in the past year considering the numerous changes they may have undergone as a result of immigration. Not taking into account that the overseas doctor may not have immigrated in the last twelve months and therefore did not experience as many stressful life events, was an oversight by the researcher. This may be a possible reason why no differences were found between NZ trained and overseas trained doctors. Low predictive power may be another possibility given that the sample was small and that there were more NZ trained doctors that responded to the questionnaire than overseas trained doctors. One can only speculate that overseas trained doctors were far too stressed with the transitions due to immigration and the pressures to write the medical registration examinations that they could not spare the time to complete the questionnaire. Maybe if the questionnaire was much shorter then the response rate could have been better. However, junior doctors experienced more stressful life events than senior doctors which was expected. Some of the stressful life changes junior doctors experienced were 'changes in responsibilities at work'; change in departments or hospitals; change in work hours or conditions and 'change in eating and sleeping habits'.

The researcher was unable to obtain any literature pertaining to the relationship between the number and type of stressful life events experienced by junior doctors to support these findings. However, most literature on junior doctors have emphasized changes in working hours, subsequent changes in sleeping patterns and the role changes from student to resident or resident to house officer as common sources of stress (Fielden & Peckar, 1999 and Firth-Cozens, 1987). The junior doctors in New Zealand are also faced with the stress of having to change jobs as resident house officers every three months in order to gain experience in a variety of settings within the hospital and in the community (Booth & Smith, 1990).

Doctors without children in the present study, who comprised 43% of the sample, in comparison to the 57% of doctors with children, experienced more stressful life events. It was expected that doctors without children would be single, junior and experience more stressful life events such as a new job, financial changes and work related stresses as compared to doctors with children who are more settled in their careers and financially more stable in order to be able to support a family. However one can only speculate in the absence of tests for interaction effects on SLE, children and position.

In assessing well-being of the doctors, the results showed a positive association of stressful life events and well-being which was expected given that the more stressful

life events one experiences the higher the probability of that person experiencing symptoms of stress and hence poorer well-being. The findings of the effects of attributional style on the relationship between stressful life events and well-being will be discussed later on in this chapter.

Effects of Gender

Gender was not significantly related to work stress and did not interact significantly with other variables except with SLE, age and internality for good events. These findings although contrary to the hypothesis that female doctors will have higher stress levels than male doctors due to increasing domestic responsibilities were also in keeping with the findings of Simpson and Grant (1991). These findings could be due to low predictive power given the small sample size. Another possibility could be that both male and female hospital doctors experience similar stress levels given the possible shift in domestic responsibilities with male doctors sharing more of the domestic responsibilities with their spouses or partners (Swanson et al., 1997).

Gender differences in doctor stress and well-being research have proven to be of significant importance in understanding the varying roles that both male and female doctors play at work and at home (Lewis & Cooper, 1987; Swanson et al., 1998). The latter studies indicated a convergence in the occupational and domestic roles of male and female doctors and a subsequent association between the interplay of these roles and stress for both male and female doctors. In light of this it would be expected that there are no gender differences in relation to work stress and well-being of doctors thereby lending support to the findings in this study.

Further to this in trying to elucidate gender differences the present study attempted to investigate the effects of work stress on family life (work/home interface) using Interference with Family Life scores from the PSI scale. The results however, did not reveal any significant associations between gender and Interference with Family Life. In trying to explore the home/work interface, various two-way ANOVAS were conducted to assess the effects of children and marital status on gender and stress with no significant results. These results should not deter future research in this area and with this population since the measures used to assess stress in this study were not designed to explore in detail the home/work interface roles and its effect on stress and well-being but rather to obtain an overall measure of stress and well-being.

Work Stress and Well-being

In trying to assess the degree of work stress experienced by NZ hospital doctors, the results showed a significant difference in the Perceived Work Productivity and Idealism factor scores of NZ hospital doctors in comparison with a U.S sample of family physicians (Revicki & May, 1983). Thereby indicating (as expected) an association of decreased productivity at work with increased levels of stress and a further association of idealistic dispositions with increased levels of stress. These findings imply that New Zealand hospital doctors because of certain personality characteristics they possess such as the need to achieve and to be a perfectionist, tend to critique their professional expectations and work performance stringently. Therefore they foresee an idealistic disposition and work productivity as being major sources of stress in comparison to family life and professional stress (internal and external).

However, these findings do not give any indication that Perceived Work Productivity and Idealism factors are sources of distress. This association is dependent on individual personality differences (Blenkin et al., 1995; Lazarus, 1999; Payne, 1988).

One must also bear in mind that the above PSI factors are indications of the high psychological demands doctors are faced with, but their high decision latitude may shield them from the effects of stress (Agius et al., 1996). Therefore in keeping with Karasek's Job-Strain Model, it is evident that doctors' jobs are psychologically demanding but do not necessarily result in strain because of the high decision latitude of their jobs. Doctors generally have more control over their jobs than other professionals thereby allowing them to cope better with the demands imposed on them by their jobs.

One can also apply the Person-Environment-Fit Model to the work stress and well-being of doctors. Besides the work stressors impacting on the well-being of the doctors, other environmental stressors such as family life may contribute to work stress especially if the work interferes with family life. This model purports that individuals become stressed when their personal characteristics do not correspond with the environmental demands. For example, doctors who lack effective communication skills may experience role conflicts with their colleagues and hence perceive their jobs as being stressful. On the other hand doctors who have clear communication and clearly defined roles tend to have better relationships with their colleagues and hence may experience less stress due to job demands. Therefore in studying stress and doctors it is important to consider the role of underlying personality differences in the manifestation of stress. The effects of attributional style on stress and well-being as found in this study will be discussed later on in this chapter.

A plausible explanation for the difference in scores between this study sample and Revicki and May's sample could be due to the fact that hospital doctors perceive productivity at work and idealism to be greater sources of stress (Blenkin et al., 1995; Simpson & Grant, 1991) than family physicians who may view family life and professional stress as greater sources of stress (Revicki & May, 1985). It is important for stress measures to be designed specifically for the sample under study. The researcher acknowledges that the Physician Stress Inventory may not accurately measure work stress of hospital doctors per se given that it was designed for general practitioners more so than for hospital doctors. In saying that one needs to use these findings with caution.

The results could have been skewed given that a large percentage of the sample comprised of senior doctors (86%) and of these (48%) were consultants who are expected to be high achievers, stringent in their professional expectations of themselves and tend to be highly focussed on aspects of their work productivity in order to be good role models for junior colleagues. On the other hand junior doctors have also been found to be more career and achievement focussed (Fielden & Peckar, 1999).

It was found that New Zealand hospital doctors have similar levels of work stress when compared to a UK sample of hospital doctors (Tattersall et al., 1999). This may have implications for those doctors who are considering moving to the UK because of higher salaries and benefits. Although no differences were found between the work stress and well-being of doctors in both studies, it does not mean that these doctors will be less stressed when they move overseas. Their financial state and perks will be better but they will be faced with similar problems in terms of working conditions as reported

in several studies (BMA, 2000; Fielden & Peckar, 1999; Firth-Cozens, 1997; Martin, 1999; Tattersall et al., 1999).

In the present study work stressors such as Perceived Work Productivity and Professional Stress were considered to be intrinsic factors of work that affected the stress levels and the well-being of doctors. Interference with Family Life was considered an extrinsic factor that affected the work stress – well-being relationship. There was no direct causal relationship between work stress and well-being but attributional style tended to mediate this relationship. A particular attributional style stability for good events partially mediated the effects of Perceived Work Productivity, Professional Stress and Interference with Family Life on well-being. In other words doctors who perceived stress due to these factors had a lower sense of well-being. The above causal explanations were indicative of Fletcher's stressor-strain model of occupational stress as depicted in Chapter Two, with the exceptions that distress and physical well-being were not measured in the present study.

With regards to job position, no significant differences were found between the work stress of junior and senior doctors, which was unexpected given the recent industrial actions of junior doctors and contrary to past research. Studies have presented mixed findings indicating that junior doctors were more stressed than senior doctors (Fielden & Peckar, 1999; Firth-Cozens, 1987; Tattersall et al., 1999) whereas others indicated that senior doctors were more stressed than junior doctors (BMA, 2000; Caplan, 1994). Junior doctors comprised only 14% of the total sample of doctors and this small figure could have indicated low predictive power of the sample to affect the work stress-well-being relationship. It is important to note that studies reporting higher levels of work stress for junior doctors tended to focus on sources of work stress, for example, career and achievement, underpromotion, job constraints and job demands. The present study however, was not designed to assess the sources of distress and therefore unable to compare junior doctors to their senior counterparts on the basis of potential stressors. The researcher acknowledges the importance of investigating the sources of stress and recommends it for future research with the present population of doctors.

The lack of association between stress and well-being suggests that factors contributing to stress and well-being may lie in the domains of specific job stressors, organizational structure, coping and social support. A questionnaire designed specifically to assess the stress in hospital doctors should encompass many or all of these stressors. Follow up interviews would then serve to verify the results and elucidate additional stressors if any.

Correlations among Demographic and Other Variables

Gender and age did not correlate significantly with the majority of variables. Although gender correlated with SLE, age and attributional style for good events on the internality dimension, the effect size for all these relationships were small thereby baring little significance to the work stress and well-being relationship. The strongest relationship found was between Perceived Work Productivity and GHQ but it was not strong enough to suggest a confounded relationship. All other relationships did not impact significantly on the work stress-well-being relationship.

Attributional Style and Well-being

In assessing the well-being of hospital doctors in NZ, the results showed no significant differences in well-being of hospital doctors according to gender or professional status. However, in using the GHQ method of scoring the results indicated that 35% of hospital doctors in this study sample were considered to be at risk for probable psychiatric 'caseness'. When the mean scores on the GHQ were compared to a relative study by Tattersall et al. (1999) no significant differences in means were found. Both samples comprised of hospital doctors and had similar numbers of subjects and the reasons why both samples did not have significant difference in means may be due to high levels of psychiatric problems in both samples.

The reformulated learned helplessness model suggests that a depressive attributional style is depicted by an internal, stable and global perception of the cause of bad outcomes and depression prone individuals will attribute good outcomes to external, unstable and specific factors, hence increasing vulnerability to depression (Peterson, 1995). In this study the sample of doctors were not subjected to a depression scale therefore, one cannot make these associations. Even though the GHQ results indicated that 35% of the doctors in this study were at risk to developing psychological distress, the findings were inconclusive and one must therefore assume that the sample comprised of non-depressed individuals. In this light one can make the following predictions and cannot compare the results with the learned helplessness theories.

In comparing the attributional style of the present sample of hospital doctors to that of a related sample of psychology undergraduates (Peterson et al., 1982) the results indicated that the present sample of doctors had significantly lower mean attributional style scores for internality and globality for good events, than the comparative sample of psychology undergraduates. The findings imply that the doctors in the present study adopted an external, specific attributional style for good events, which was unexpected, but in support of the study by Peterson (1995) who reported that external, unstable and specific explanatory style for good events are associated with depression. These doctors and psychology undergraduates saw the good events such as obtaining an increase in salary as short lived or not lasting. This increase was due to some external circumstances such as across the board pay increase and that the pay increase was one off and probably not occur again in the future.

With regards to bad events the sample of doctors in the present study had a significantly lower mean attributional style score for bad events on the internality dimension and a significantly higher mean score for attributional style on the stability dimension in comparison to the study of psychology undergraduates (Peterson et al., 1982). In other words the doctors adopted an external, stable attributional style for bad events therefore perceiving the cause of bad events as resulting from external circumstances and expecting the cause to be present in the future. For example, doctors who experienced a negative response to their presentation or talk may attribute the cause to misinterpretations of the content by other people. This attributional style is negatively associated with depression. The person attributes blame for the cause of bad events to peoples' misinterpretations. Therefore not attributing self-blame such as "my content may have been too abstract" prevents them from experiencing negative feelings of self worth and self-esteem, in keeping with findings by Peterson and Seligman (1984). The mean score of the doctors on the stability for bad events dimension may

have been higher than the mean score for Peterson et al's psychology undergraduates because they were more pessimistic, expecting bad events to occur again and again.

The final objective was to examine the mediating effect of attributional style on the relationships of professional stress and stressful life events to well-being. Only stability for good events mediated both sets of relationships. The effects of professional stress factors, perceived work productivity and interference with family life, were partially mediated by stability: the more that doctors perceived stress due to their lack of work productivity or to the interference of the job in family life, the lower the sense of well-being, but more so for doctors who saw the causes of good events as only temporary. Conversely, doctors who did not perceive loss of work productivity and work interfering with family life were more likely to have a higher sense of well-being, boosted if they saw the causes of good events as likely to occur again.

Similarly, the impact of stressful life events such as immigration on well-being was partially mediated by the stability for good events. Doctors experiencing stressful life events had lower sense of well-being than doctors with few events, but were more likely to have poorer well-being if they saw the causes of good events being temporary. These findings are consistent with attributional theory (Peterson et al., 1993; Peterson, 1995) which indicates that people who perceive the causes of good events as external, unstable, and specific are more likely to be depressed, compared with people who see the causes of good events as having something to do with themselves, likely to occur again, and influencing other events in their lives. An internal, stable and global attributional style for bad events was the central prediction of the reformulation of learned helplessness theory which indicated that people displaying such a characteristic attributional style tended to be more at risk to developing depressive symptoms and had low self-esteem when bad events occurred (Peterson & Seligman, 1984). Also, helplessness deficits tended to occur when causal explanations for bad events are stable over time, that is when individuals experience an event that they cannot control, they develop an expectation of lack of control in similar situations. Also, people perceive the causes to be related to themselves and that not being able to control the bad events results in a lack of response from the individual. This learned behaviour results in feelings of helplessness resulting in a pessimistic style of behaviour.

However, in the present study the doctors adopted an external, unstable and specific attributional style for good events, which was in keeping with attribution theory. The doctors did not display an internal, stable and global attributional style for bad events, thus no comparisons could be made with the reformulated learned helplessness model as depicted in Figure 2. However using the same analogy as depicted in Figure 2 the doctors in the present study tended to perceive good events as being temporary or uncontrollable thereby resulting in their expectation that future good events will also not last. These perceptions then result in symptoms of helplessness, example, sadness, aggression or physical symptoms such as loss of appetite and disease. These symptoms thus serve as risk factors to depression (Abramson et al., 1978; Peterson & Seligman, 1984; Seligman, 1975).

The above findings in this study should be used with caution due to the low number of subjects who completed this part of the questionnaire. Despite using hypothetical examples in the study some doctors expressed difficulties in completing some of the questions. For example, the following responses were obtained, "I cannot

imagine going on a blind date since I am married” or “I cannot imagine not helping someone since I am a doctor”. These responses have led to the number of missing values found in the attribution section of the questionnaire.

Limitations of the Present Study:

Due to survey questionnaires being used to collect the data used in the present analysis, the data are based solely on self-reports and are therefore susceptible to common method variance.

Measures of Work Stress

It became evident in the course of the literature review that some instruments used to measure stress have certain weaknesses with regard to their validity. The Social Readjustment Rating Scale used to measure the amount of readjustment required when individuals experience stressful life events, has recall bias which could affect data analysis. One way to alleviate recall bias as suggested by Bartlett and Coles (1998) is to follow up the questionnaire with structured interviews as done in research studies of George Brown. However, in public health context where the sample populations are too large, structured interviews in addition to the survey methods are too expensive and time consuming.

Most studies of occupational stress as noted by Schwartz and colleagues in 1988 used aggregate measures of stress for occupations which then are linked to individual level data on outcomes (Simpson & Grant, 1991). This procedure is questionable since different positions within an occupational category can have varying degrees of stress. Doctors' stress can vary depending on the type of work being carried out; for example, general practitioners in solo practice or group practice experience different degrees of stress (Pemble, 1996). Doctors in hospitals experience different levels of stress to general practitioners as reviewed in Chapter Two of the literature study. Furthermore stress levels of doctors can vary according to age and gender as exemplified in the literature study. An aggregate measure does not take into consideration such variations (Simpson & Grant, 1991) and therefore may not be reliable in measuring stress for different levels of an occupation.

In this study the Physician Stress Inventory (PSI), a scale devised to measure stress of physicians rather than hospital doctors per se was used. This measure of work stress was selected for a number of reasons. Firstly for its high reliability and validity factors. Secondly, because of its effectiveness in measuring stress of hospital doctors and physicians in the study by Schweitzer (1994). Thirdly, because it was shorter than other work stress measures, for example, the Doctor Stress Inventory by Tattersall et al. (1999) and the Occupational Stress Indicator by Cooper, Sloan and Williams (1988). Finally, it was perceived to be more appropriate than the Health Professional Stress Inventory by Revicki and May (1984) which was a generalised measure containing work components that may not be highly stressful for doctors (Simpson & Grant, 1991).

The General Health Questionnaire-12 used to assess well-being was a shorter version of the original 60 item questionnaire but has been reported to have adequate reliability and validity to effectively measure well-being (Goldberg, 1988). However the GHQ measures negative psychological well-being and to date no measure has been

designed to measure both positive and negative psychological well-being (Bartlett & Coles, 1998). Positive mental health has been studied previously but have utilized “surrogate” measures due to the generality of the concept (Banks et al., 1980). Weinberg and Creed (2000) found that using the GHQ scores on its own as a measure of psychological well-being may lead to incorrect estimates of psychiatric disorder. In his study of health professionals in the UK he found that nearly half of those doctors who were regarded as potential ‘cases’, that is those at risk of developing psychiatric symptoms turned out not to be cases at their interviews. Weinberg therefore raised concerns regarding previous studies that relied solely on the GHQ scores for estimates of psychiatric disorder saying that these estimates could have been inaccurate. As a result Weinberg recommends that future research consider using the GHQ in conjunction with structured interviews if estimates of psychiatric disorder is required. In the present study, the large (35%) proportion of doctors at risk may have been an artefact of the inaccurate GHQ criteria.

The low response rate to the Attributional Style Questionnaire may have been due to negatively preconceived interpretations of the relevance of the questions. Respondents could have interpreted the questions as having a monotonous tone, confusing and lengthy in nature and due to limited time chose not to answer that section of the questionnaire. The low response rate to this section contributed to inconclusive results with regards to attributional style and its effects on stress and well-being.

Response Rate and Sample Size

On the whole the low response rate of 25.4% indicates that the sample of doctors in this study was not representative of the population of doctors in New Zealand hospitals. Anecdotal evidence indicates that some doctors were too stressed and had insufficient time to complete the questionnaire. One can only speculate that since 86% of this study sample comprised of senior doctors, junior doctors were too inundated with their workloads to complete the questionnaires. The questionnaire was too long and this could have deterred doctors from completing the questionnaire given the limited time available to them. One could also speculate that the poor response rate could have been due to feelings of ‘hopelessness’ by the doctors given that they have endured the work pressures and poor working conditions for so long, have completed numerous questionnaires and foresee research as a longstanding solution to their problems. Although there is no evidence to support my notion, work stress research should be conducted by doctors to portray a sense of empathy to other doctors thereby invoking a better response rate. This however seems highly unlikely to occur in New Zealand given that a very small proportion of doctors choose academic medicine (St. John, 2000) and doctors in hospitals with high workloads do not have the time to undertake research in this area. The lack of support for some of the hypotheses could be due to the low predictive power of the study sample. Given that the sample is not representative of the population of hospital doctors in Auckland, New Zealand, the generalization of these results should be done with extreme caution.

Method of Data Collection and Other Constraints

Due to survey questionnaires being used to collect the data used in the present analysis, the data are based solely on self reports and are therefore susceptible to

common method variance. Incorporating an interview based research technique may have helped overcome this problem and also provided a more representative sample.

The cross-sectional nature of this study may have led to inaccurate work stress levels attained given that work stress levels change over time. Longitudinal studies are therefore used to overcome such problems. In stress research with doctors however this is not feasible due to the transient nature of hospital doctors.

CHAPTER SIX: CONCLUSION

Conclusion

This chapter will begin with a summary of the conclusions drawn from this study and thereafter recommendations for organizations and suggestions for future research will be stipulated.

The present study was fruitful in that it accomplished its purpose that is, to explore work stress and well-being of hospital doctors and the role of personality dispositions and stressful life events in this relationship. From the present study one cannot draw definite conclusions given that due to the poor response rate, the sample was not representative of the population of hospital doctors in Auckland. One can gather from the results that hospital doctors reported work productivity and idealistic traits as the highest sources of work stress. An attributional style of stability for good events mediated the relationships of physician's stress and stressful life events to well-being. The effects of professional stress factors, perceived work productivity and interference with family life, were partially mediated by stability for good events indicating that the more doctors perceived stress due to lack of work productivity or to interference of work with family life, the lower their well-being. In a similar vein, stressful life events were partially mediated by stability for good events. Doctors experiencing stressful life events had lower sense of well-being than doctors with few events, but were more likely to have poorer well-being if they perceived the causes of good events as being temporary.

No significant gender differences were found in relation to the work stress of hospital doctors, nor in work stress levels between junior and senior doctors. However, junior doctors experienced more stressful life events than senior doctors. Stressful life events of overseas trained doctors were similar to those of New Zealand trained doctors. The results indicated that 35% of the hospital doctors were at risk to probable psychiatric 'caseness' but the differences in professional status were not statistically significant and the criteria for caseness is questionable. The findings in this study are in no way conclusive and future research in this domain will help unfold a more clear and precise association between work stress and well-being of hospital doctors.

The following recommendations could prove beneficial to future stress and well-being studies of hospital doctors.

Recommendations for organizations

"Organizations must begin to manage people at work differently, treating them with respect and valuing their contribution, if we are to enhance the psychological well-being and health of workers in the future"(Cartwright & Cooper, 1994).

Wellness Programmes

Jahn (1997) reviewed programmes for defusing stress of doctors in the United States of America. A physician wellness programme was created in 1993 to assist doctors in pre-crisis (those expressing anger and hostility towards colleagues and patients). Well-being committees were created to assist those doctors requiring

professional stress intervention. Trained volunteers who help defuse stress before it erupts into a crisis operate these programmes. This is done by conducting lunch-time seminars for their colleagues on coping and stress management. Some states have peer-based drug and alcohol programmes for doctors which are run informally and high confidentiality is maintained.

Cognitive-behavioural approaches may be adopted to promote health and well-being of doctors who are stressed. Doctors could learn to change their attributions for good events to internal, stable and global and their attributions for bad events to external, unstable and specific. Cognitive behaviour therapy for depression (Beck et al., 1979) is a widely used form of therapy adopting approaches such as stress inoculation training programmes that focus on altering a person's conceptualization and processing of information about a stressful situation. It also focuses on cognitive and behavioural coping skills to modify maladaptive ways of reacting.

Annual Resource Questionnaire

Another strategy to keep abreast of the changes in doctors attitudes and work practices is to administer a physician resource questionnaire annually (Martin, 2000). Such a questionnaire was devised by the Canadian Medical Association in 1982 and has been conducting them annually since 1997. This questionnaire focus is on job demands (on-call duty, high workloads, long hours worked), general sources of work and home stress, the magnitude of these stressors and assessments of job satisfaction of doctors in general.

Health Advisory Services

In New Zealand the Doctor Health Advisory Service (DHAS) is responsible for assisting doctors who are stressed or have any concerns regarding their health. This service also renders assistance to those persons seeking assistance for their colleagues. The problem is that some doctors may not be aware of such a service (Richards, 1999 found that 73% of respondents in his study claimed awareness of the DHAS, 23% of males and 34.5% of females did not know of its existence and only 2.9% utilised the service). In each hospital the occupational health and safety clinic renders a similar service, with professional counsellors available to health professionals and other hospital employees. Hospital managers or supervisors should regularly ensure that their staff is reminded of the availability of such services. Also doctors should be encouraged to visit a GP regularly or have regular access to a mentor (Richards, 1999).

Stress Education

Education about stress, its effects on mental health, stress management techniques and the resources available to doctors should be introduced in more detail in medical school. Students should also be educated about interpersonal relations and the role of teamwork in hospitals. Studies of doctors and nurses have indicated that communication problems and interpersonal relations between colleagues have been the major source of stress and receiving support from colleagues have protected doctors from the deleterious effects of stress. Junior doctors tend to be most likely at risk during the first year of employment. They are subjected to various types of jobs within the hospital and community, endure long working hours and poor pay. Regular appraisal,

support and feedback by consultants and supervisors could help mitigate stress (Moss, 1999). Following this there should be ongoing education for doctors at all hospitals. These courses should be mandatory in order to ensure attendance. In conjunction with this, organizations should endeavor to elucidate doctor stressors through ongoing research and to formulate objective plans to curtail such stressors.

Training Programmes

The British Medical Association reviewed the research on work related stress among consultants and general practitioners in June 2000. They reported that senior doctors experience high stress levels as a result of their work, which then leads to poor health and decreased work performance to the detriment of the patients in their care. It has been recommended that organizations attempt to reduce excessive workloads and enable doctors more time away from work. The work environment also needs to be reviewed and attempts made to promote supportive management and to equip the doctor with adequate resources to be able to meet patient needs and demands. More training in terms of communication skills, stress management and managerial skills could help reduce stress levels and enable doctors to cope better with work demands. Ultimately the most important person in identifying stress in doctors is the doctor in question and his peers.

Foreign Doctor Monitoring

Given that New Zealand has a multicultural society and that a large proportion of its population comprises immigrants, organizations such as the Overseas Doctors Association should continue to monitor and assist foreign doctors in the readjustment process. Given that such organizations are run by volunteer doctors with immensely tight schedules it would be presumptuous to request that they undertake research or conduct periodic surveys on the adaptation process of immigrant doctors. If this is at all possible then immigrant doctors will surely reap the benefits in the long run. Sometimes just sharing experiences and knowing that other immigrant doctors are faced with similar fears and problems of adjustment may console the immigrant doctor. But the ultimate reality to this suggestion is that resources are limited and time is precious to these individual doctors.

Employee Assistance Programmes

It has been suggested that employee assistance programmes within the organisation ensure early detection and treatment of depressive disorders (Weinberg & Creed, 2000). With regards to working environments the employee assistance programmes can do very little to assist (Reynolds, 1997) it is therefore essential for managers to provide a supportive working environment. Also work roles need to be clearly demarcated so as to avoid conflict.

Recommendations for future research

Cross-sectional Studies with Other Health Professionals

Future research needs to be conducted in the area of job specific stressors for this current study population in order to be able to make any comparisons with other

disciplines. Stress research on nurses in hospitals has been conducted in New Zealand, indicating some evidence of burnout and stress (Watson et al., 1996). The results of the latter study identified conflict with doctors as a major source of stress. Doctors and nurses tend to share common workloads more so than any other disciplines together. Consequently they are bound to experience problems with communication and role overlap. Other studies have indicated that Junior doctors experience greater emotional strain than individuals in other occupational settings (Firth-Cozens, 1987). Some of the explanations for the prevalence of high stress levels in Junior doctors has been attributed to long working hours, loss of job control, high job demands and inexperience in coping with stressful situations at work (King et al., 1992, Fielden & Peckar, 1999 & Tattersall et al., 1999). Comparisons between the work stress and well-being of doctors and the work stress and well-being of other professionals in occupational settings can contribute to a better understanding of work stress and its effects on the well-being of employees. Research in this field may unfold common stressors in doctors and other professionals thereby invoking methods of stress reduction used in industrial settings to be applied to the hospital setting.

Coping and Social Support

Coping and social support are two areas in doctor stress research that has received considerable attention. Studies reported that peer social support and family support serve as moderators of the relationship between work stress and depression. In trying to elucidate the already established work stressors, an investigation on traditional coping methods, coping resources (e.g. social support), depression and suicidal thinking would be useful. Instead of measuring general well-being the researcher could be more specific and measure depression and suicidal ideations. The GHQ 28 a more appropriate version of the GHQ in measuring depression and suicidal thinking would be best suited (Caplan, 1994).

Sources of Work Stress

It is imperative that in future research on stress and well-being of hospital doctors, the sources of job stress (i.e. working conditions, shift work, long hours, lack of autonomy, work overload, role ambiguity and conflict, relationships with superiors and relationships with colleagues), effects of mediators or moderators (personality differences and social support) and traditional coping methods of doctors are obtained by both interview and self-report questionnaire methods (Weinberg & Creed, 2000). Unresolved questions, methodological shortcomings and inconsistencies in prior studies point to a need for further research using a more refined instrument measuring sources and magnitude of work stress of doctors.

Questionnaire Design

I recommend that future studies in this area utilize questionnaires specifically designed for hospital doctors. One way of accomplishing this is to undertake similar steps as Agius et al. (1996) in developing a Consultants Work Demands Scale and a Specialist Doctors Stress Inventory. They invited consultants from a range of specialties to attend focussed group discussions and out of these groups the latter questionnaires were devised. The researcher must also consider the use of interviews alongside questionnaires to help eliminate some of the methodological variances obtained in the

use of surveys. Also, longitudinal studies will help improve the consistency and accuracy of the findings.

REFERENCES

- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, 87, 49-74.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, 96, 358-372.
- Agius, R. M., Blenkin, H., Deary, I. J., Zeally, H. E., & Wood, R. A. (1996). Survey of perceived stress and work demands of consultant doctors. *Occupational and Environmental Medicine*, 53, 217-224.
- Alloy, L. B., Abramson, L. Y., Metalsky, G. I., & Hartlage, S. (1988). The hopelessness theory of depression: Attributional aspects. *British Journal of Clinical Psychology*, 27, 5-21.
- Alloy, L. B., Abramson, L. Y., Whitehouse, W. G., Hogan, M. E., Tashman, N. A., Steinberg, D. L., Rose, D. T., & Donovan, P. (1999). Depressogenic cognitive styles: predictive validity, information processing and personality characteristics, and developmental origins. *Behaviour Research and Therapy*, 37, 503-531.
- Arnetz, B. B., Akerstedt, T., & Anderzen, I. (1990). Sleepiness in physicians on night call duty. *Work Stress*, 4, 71-73.
- Arnold, J., Cooper, C. L., & Robertson, I. T. (1995). *Work psychology: Understanding human behaviour in the workplace* (2nd ed.). London: Pitman Publishing.
- Barnett, J. R. (1991). Where have all the doctors gone? Changes in the geographic distribution of general practitioners in New Zealand since 1975 (3): New Zealand and foreign medical graduates compared. *New Zealand Medical Journal*, 104, 358-360.
- Beck, A. T. (1967). *Depression: Clinical, experimental and theoretical aspects*. New York: Harper & Row.
- Beck, A. T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy: An International Quarterly*, 1, 5-37.
- Bennett, A. E., & Ritchie, K. (1975). *Questionnaires in medicine: A guide to their design and use*. London: Nuffield Provincial Hospitals Trust.
- Berliner, H. (1999). Recovery Services. *Health Service Journal*, April, 28-29.
- Birch, D., Ashton, H., & Kamali, F. (1998, November 28). Alcohol, drinking, illicit drug use and stress in junior house officers in north-east England. *The Lancet*, 352, 785-786.

- Blenkin, H., Deary, I., Sadler, A., & Agius, R. (1995). Stress in NHS consultants. *British Medical Journal*, 310, p. 534.
- Bonn, D., & Bonn, J. (2000, January 8). Work-related stress. Can it be a thing of the past? [News: Feature]. *The Lancet*, 355, p.124.
- Booth, M., & Smith, D. (1990). Job satisfaction amongst resident medical officers. *New Zealand Medical Journal*, 103, 425-427.
- British Medical Association. (2000). Work related stress among senior doctors. London: Retrieved November 7, 2000 from the World Wide Web: <http://www.bma.org.uk> [Full-Text].
- Buchanan, G. M., & Seligman, M. E. P. (Eds.). (1995). *Explanatory style*. Hillsdale, New Jersey: Lawrence Erlbaum & Associates.
- Caplan, R. P. (1994). Stress, anxiety, and depression in hospital consultants, general practitioners, and senior health service managers. *British Medical Journal*, 309, 1261-1263.
- Cattell, R. B. (1978). *The scientific use of factor analysis in behavioral and life sciences*. New York: Plenum Press.
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112, 155-159.
- Cohen, L. H. (Eds.). (1988). *Life events and psychological functioning: Theoretical and methodological issues*. California: Sage Publications.
- Cohen, S., Kessler, R. C. & Gordon, L. U. (Eds.). (1995). *Measuring stress: A guide for health and social scientists*. New York: Oxford University Press.
- Cooper, C. L., Sloan, S. J., & Williams, S. (1988). *Occupational stress indicator management guide*. United Kingdom, Windsor: NFER-NELSON Publishing Company.
- Cooper, C. L., Mallinger, M., & Kahn, R. (1978). Identifying sources of occupational stress among dentists. *Journal of Occupational Psychology*, 51, 227-234.
- Cooper, C. L., & Payne, R. (Eds.). (1991). *Personality and stress: Individual differences in the stress process*. New York: Wiley.
- Cooper, C. L., & Payne, R. (Eds.). (1988). *Causes, coping and consequences of stress at work*. New York: John Wiley & Sons.
- Coyne, J. C., & Gotlib, I. H. (1983). The role of cognition in depression: A critical appraisal. *Psychological Bulletin*, 94, 472-505.
- Dewe, P. J. (1988). Investigating the frequency of nursing stressors: A comparison across wards. *Social Science and Medicine*, 26(3), 375-380.

- Dohrenwend, B. S., & Dohrenwend, B. P. (Eds.). (1974). *Stressful life events: Their nature and effects*. New York: John Wiley & Sons.
- Fielden, S. L., & Peckar, C. J. (1999). Work stress and hospital doctors: A comparative study. *Stress Medicine*, 15, 137-141.
- Firth-Cozens, J. & Moss, F. (1998). Hours, sleep, teamwork and stress. *British Medical Journal*, 317, 1335-1336.
- Firth-Cozens, J. & Greenhalgh, J. (1997). Doctor's perceptions of the links between stress and lowered clinical care. *Social Science and Medicine*, 44(7), 1017-1022. Abstract
- Firth-Cozens, J. (1998). Individual and organisational predictors of depression in general practitioners. *British Journal of General Practice*, 48, 1647-1651. Abstract retrieved November 7, 2000 from the World Wide Web: <http://www.ovid.com> [Full-Text].
- Firth-Cozens, J. (1987). Emotional distress in junior house officers. *British Medical Journal*, 295, 533-535.
- Firth-Cozens, J. (1986). Levels and sources of stress in medical students. *British Medical Journal*, 292, 1177-1180.
- Frankel, B. S. M.; Lim, E. & Child, N. (1998, November 28). *The Lancet*, 352, p. 1780.
- Furnham, A. (1992). *Personality at work: The role of individual differences in the workplace*. London: Routledge.
- Goddard, R. D., & Villanova, P. (1996). Designing surveys and questionnaires for research. In F. T. L. Leong & J. T. Austin (Eds.), *The psychology research handbook*. (pp. 85-98). Thousand Oaks, CA: Sage Publications.
- Goodfellow, A., Varnam, R., Rees, D. & Shelley, M. P. (1997). Staff stress on the intensive care unit: A comparison of doctors and nurses. *Anaesthesia*, 52(11), 1037-1041. Retrieved November 9, 2000 from the World Wide Web: <http://www.ovid.com> [Abstract].
- Goldberg, D., & Williams, P. (1988). *A User's guide to the General Health Questionnaire*. Berkshire, Great Britain: NFER-NELSON Publishing Company Ltd.
- Goldberg, D. P. (1978). *Manual of the General Health Questionnaire*. Windsor: NFER-NELSON.
- GPs keen to jump ship. (2000, September 13). *New Zealand Doctor*, p.1.
- Heider, F. (1958). *The Psychology of interpersonal relations*. New York: Wiley.

- Hewstone, M. (1989). *Causal attribution: From cognitive processes to collective beliefs*. Oxford UK: Blackwell Publishers.
- Hill, S. (1999, May 12). Land of milk and honey turns sour for Indian GP. *New Zealand Doctor*, p.14.
- Hinkle, L. E. (1974). The effect of exposure to culture change, social change, and changes in interpersonal relationships on health. In Dohrenwend, B. S., & Dohrenwend, B. P. (Eds.), *Stressful life events: Their nature and effects*. (pp. 9-44). New York: John Wiley & Sons.
- Holmes, T.H. & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, 11, 213-218.
- Holmes, T. H. & Masuda, M. (1974). Life change and illness susceptibility. In Dohrenwend, B. S., & Dohrenwend, B. P. (Eds.), *Stressful life events: Their nature and effects*. (pp. 45-72). New York: John Wiley & Sons.
- Hsu, K. & Marshall, V. (1987). Prevalence of depression and distress in a large sample of Canadian residents, interns and fellows. *American Journal of Psychiatry*, 144(12), 1561-1566.
- Hudgens, R. W. (1974). Life events and psychological illness. In Dohrenwend, B. S., & Dohrenwend, B. P. (Eds.), *Stressful life events: Their nature and effects*. (pp. 119-138). New York: John Wiley & Sons.
- Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbet, R. E., Valins, S. & Weiner, B. (1972). *Attribution: Perceiving the causes of behaviour*. Morristown N J: General Learning Press.
- Jones, E.E. & Nisbett, R.E. (1972). The actor and the observer: Divergent perceptions of the causes of behaviour. In Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbet, R. E., Valins, S. & Weiner, B. *Attribution: Perceiving the causes of behaviour*. (pp.79-94). Morristown N J: General Learning Press.
- Judd, C. M., Smith, E. R. & Kidder, L. H. (1991). *Research methods in social relations* (6th ed.). Florida: Harcourt Brace Jovanovich College Publishers.
- Kaplan, H. B. (Eds.). (1996). *Psychosocial stress: Perspectives on structure, theory, life-course and methods*. California: Academic Press Inc.
- King, M. B., Cockcroft, A. & Gooch, C. (1992). Emotional distress in doctors: Sources, effects and help sought. *J. Roy. Soc. Medicine*, 85(1), 605-608.
- Koslowsky, M. (1998). *Modeling the stress-strain relationship in work settings*. London: Routledge progress in psychology.
- Kwon, P. (1999). Attributional style and psychodynamic defense mechanisms: Toward an integrative model of depression. *Journal of Personality*, 67(4), 645-658.

- Landy, F. J. (1989). *Psychology of work behaviour (4th Ed.)*. California: Brooks/Cole Publishing Company.
- Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer Publishing Company.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York: Springer Publishing Company.
- Lewis, S. N. & Cooper, C. L. (1987). Stress in two-earner couples and stage in the lifecycle. *Journal of Occupational Psychology*, 60, 289-303.
- Martin, S. (1999). "Is everyone as tired as I am?" The CMA's physician survey results, 1999. *Canadian Medical Association Journal*, 161(8), 1020-1021. Retrieved October 7, 2000 from the World Wide Web: <http://www.ovid.com> [Full Text].
- Martinko, M. J. (Ed) (1995). *Attribution theory: An organizational perspective*. Florida: St. Lucie Press.
- McManus, I. C., Winder, B. C. & Gordon, D. (1999, October 16). Are UK doctors particularly stressed?. *The Lancet*, 354, 358-1360.
- Monat, A. & Lazarus, R. S. (1991). *Stress and coping: An anthology*. New York: Columbia University Press.
- Moss, F. (1999). Junior doctors: waving or drowning? [Editorial]. *British Medical Journal*, 318, 1639-1640.
- Narayanan, L., Menon, S. & Spector, P. E. (1999). Stress in the workplace: A comparison of gender and occupations. *Journal of Organizational Behaviour*, 20, 63-73.
- Nelson, D. L. & Hitt, M. A. (1992). Employed women and stress: Implications for enhancing women's mental health in the workplace. In Quick, J. C., Murphy, L. R. & Hurrell, J. J. (Eds), *Stress and well-being at work: Assessments and interventions for occupational mental health*. (pp. 164-177). Washington, DC: American Psychological Association.
- Nunnally, J. C. (1978). *Psychometric theory (2nd ed.)*. New York: McGraw-Hill.
- Ormel, J. & Sanderman, R. (1989). Life events, personal control and depression. In Steptoe, A. & Appels, A. (Eds.), *Stress, personal control and health*. (pp. 193-213). Brussels: John Wiley & Sons Ltd.
- O'Hagan, J. (1996). The best of health to you doctor. *New Zealand Medical Journal*, 109, 280-282.
- Payne, R. (1988). Individual differences in the study of occupational stress. In Cooper, C. L. & Payne, R. (Eds), *Causes, coping and consequences of stress at work*. (pp. 209-229). New York: John Wiley & Sons.

- Pemble, L. (1996, June 12). To be or not to be a solo GP in the 90s. *New Zealand Doctor*, p.45.
- Peterson, C., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I. & Seligman, M. E. P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research*, 6(3), 287-300.
- Peterson, C. (1995). Explanatory style and health. In Buchanan, G.M.; Seligman, M.E.P. (Eds.), *Explanatory Style*. (pp.233-246). Hillsdale, NJ, USA: Lawrence Erlbaum Associates.
- Peterson, C. (1991). On shortening the Expanded Attributional Style Questionnaire. *Journal of Personality Assessment*, 56 (1), 179-183.
- Peterson, C. & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review*, 91, 347-374.
- Peterson, C., Maier, S. F. & Seligman, M. E. P. (1993) *Learned helplessness: A theory for the age of personal control*. Oxford UK: Oxford University Press.
- Peterson, C., Villanova, P. & Raps, C. S. (1985). Depression and attributions: Factors responsible for inconsistent results in the published literature. *Journal of abnormal psychology*, 94(2), 165-168.
- Quick, J. C., Murphy, L. R. & Hurrell, J. J. (Eds). (1992). *Stress and well-being at work: Assessments and interventions for occupational mental health*. Washington, DC: American Psychological Association.
- Reilly-Harrington, N.A., Alloy, L. B. & Fresco, D. M. (1999). Cognitive styles and life events interact to predict bipolar and unipolar symptomatology. *Journal of Abnormal Psychology*, 108 (4), 567-578.
- Reynolds, S. (1997). Psychological well-being at work: Is prevention better than cure? *Journal of Psychosomatic Research*, 43, 93-102.
- Revicki, D. A. & May, H. J. (1983). Development and validation of the Physician Stress Inventory. *Family Practice Research Journal*, 2 (4), 211-225.
- Richards, J. G. (1999). The health and health practices of doctors and their families. *New Zealand Medical Journal*, 112, 96-99.
- Riggio, R. E. (1996). *Introduction to industrial or organizational Psychology (2nd Ed.)*. Harper Collins College Publishers.
- Schulman, P., Castellon, C. & Seligman, M. E. P. (1989). Assessing explanatory style: The content analysis of verbatim explanations and the Attributional Style Questionnaire, *Behaviour Research and Therapy*. 27(5), 505-512.
- Seligman, M. E. P., Abramson, L.Y. & von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, 88, 242-247.

- Selverajah, C. T. (1997, November). *Acculturation experience of immigrant medical doctors in New Zealand: An exploratory study*. Paper presented at the National Ethnic Society's Conference, Palmerston North, New Zealand: Massey University.
- Simpson, L. A. & Grant, L. (1991). Sources and magnitude of job stress among physicians. *Journal of Behavioural Medicine*, 14(1), 27-42.
- Sinclair, R. (1997, May 28). Overseas trained GP's rights argued in court. *New Zealand Doctor*, p.18.
- Singer, J. E. & Davidson, L. M. (1991). Specificity and stress research. In Monat, A. & Lazarus, R. S. (1991). *Stress and coping: An anthology*. (pp. 36-47). New York: Columbia University Press.
- Shaugnessy, J. J., & Zechmeister, E. B. (1990). *Research methods in psychology (2nd ed.)*. New York: McGraw-Hill Publishing Company.
- St John, P. (2000, March 29). General Practice not easy option portrayed. *New Zealand Doctor*, p.16.
- Stroebe, W. & Stroebe, M. S. (1995). *Social psychology and health*. California: Brooks/Cole Publishing Company.
- Sutherland, V. J. & Cooper, C. L. (1993). Identifying sources of distress among general practitioners: Predictors of psychological ill-health and job dissatisfaction. *Social Science and Medicine*, 37(5), 575-581. Retrieved November 17, 2000 from the World Wide Web: <http://www.ovid.com> [Abstract].
- Swanson, V., Power, K. G. & Simpson, R. J. (1998). Occupational stress and family life: A comparison of male and female doctors. *Journal of Occupational and Organizational Psychology*, 71, 237-260.
- Sweeney, P. D., Anderson, K. & Bailey, S. (1986). Attributional style in depression: A meta-analytic review. *Journal of Personality and Social Psychology*, 50(5), 974-991.
- Tattersall, A. J., Bennett, P. & Pugh, S. (1999). Stress and coping in hospital doctors. *Stress Medicine*, 15, 109-113.
- Topham-Kindly, L. (2000, March 29). Stress problems on the rise for doctors. *New Zealand Doctor*, p. 6.
- Tyler, P. A., Carol, D. & Cunningham, S. E. (1991). Stress and well-being in nurses: A comparison of the public and private sectors. *International Journal of Nursing Studies*. 28(2), 125-130.
- UK to grab NZ doctors. (2000, August 30). *New Zealand Doctor*, p.1

- Van Harrison, R., Moss, G. E., Dielman, T. E., Horvath, W. J. & Harlan, W. R. (1988). Person-environment fit, Type A behaviour and work strain: The complexity of the process. In Cooper, C. L. & Payne, R. (Eds.), *Causes, coping and consequences of stress at work*. (pp.73-91). New York: John Wiley & Sons.
- Watson, P. & Feld, A. (1996). Factors in stress and burnout among paediatric nurses in a general hospital. *Nursing Praxis in New Zealand*, 11(3), 38-46.
- Weinberg, A. & Creed, F. (2000, February 12). Stress and psychiatric disorder in healthcare professionals and hospital staff. *The Lancet*, 355, 533-537.
- Weiss, H. M., Ilgen, D. R. & Sharbaugh, M. E. (1982). Effects of life and job stress on information research. *Journal of Applied Psychology*, 67(1), 60-66.
- Whitley, B. E. (1991). A short form of the Expanded Attributional Style Questionnaire. *Journal of Personality Assessment*, 56(2), 365-369.

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Work Stress and Well-being Questionnaire

Please complete all sections of the questionnaire.

Section A

We should like to know if you had any medical complaints, and how your health has been in general, *over the past few weeks*. Please answer all questions simply

by *circling* the answer, which you think most nearly applies to you.

Remember that we want to know about present and recent complaints, not those you had in the past.

Please try to answer all the questions.

1.	Been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2.	Lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3.	Felt that you are playing a useful part in things?	More so than usual	About the same as usual	Less so than usual	Much less than usual
4.	Felt capable of making decisions about things	More so than usual	About the same as usual	Less so than usual	Much less than usual
5.	Felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
6.	Felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
7.	Been able to enjoy your normal day to day activities?	More so than usual	About the same as usual	Less so than usual	Much less than usual
8.	Been able to face up to your problems?	More so than usual	About the same as usual	Less so than usual	Much less than usual
9.	Been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
10.	Been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
11.	Been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
12.	Been feeling reasonably	More so	About the	Less so	Much less

Section B

Please read each item carefully. Circle the appropriate number on the 1-4 scale as it applies to you. Please try to answer all items.

	Does not apply to me				Does apply to me			
	1	2	3	4	1	2	3	4
1. I have always valued high achievement.								
2. I am no longer the "contributor" I used to be.								
3. My initial expectations of my job are not being realized.								
4. I have always been a perfectionist.								
5. My productivity has decreased.								
6. I am less content with myself.								
7. I often find myself feeling resentful, disenchanting, bored or discouraged.								
8. Colleagues at work do not contribute their fair share.								
9. Work interferes with family life.								
10. My professional growth and skills are stagnating.								
11. I often perform non-work activity (banking, phone calls, etc.) on the job.								
12. My preoccupation with work makes it hard to disengage from the job at home.								
13. I am more edgy than I used to be.								
14. I feel that I am a strongly idealistic person.								
15. It seems like I just cannot get the recognition I feel that I deserve.								
16. I feel guilty when I cannot completely understand my patients or clients.								
17. It seems like I have very little power to control things that happen to me.								
18. I am working harder but getting less done.								
19. I often feel that others are out to "screw" me.								
20. Things of minor relevance now make me angry and frustrated.								
21. I often arrive late for work.								
22. I occasionally hide in my office in order to shut out others.								
23. Arguments at home with spouse, children or others close to me have increased recently.								
24. I daydream more at work than I used to.								
25. My responsibilities are much different than I had anticipated.								
26. Support for my contribution at work has been consistently lacking.								

Section C

Please indicate whether you have experienced any of the following events within the past year. To respond to each item please circle 'yes' or 'no'.

- | | | | |
|-----|---|------------------|-----------------|
| 1. | Death of spouse or partner | YES ₁ | NO ₀ |
| 2. | Divorce | YES ₁ | NO ₀ |
| 3. | Marital separation | YES ₁ | NO ₀ |
| 4. | Detention in an institution against your will | YES ₁ | NO ₀ |
| 5. | Death of a close family member or friend | YES ₁ | NO ₀ |
| 6. | Personal injury or illness | YES ₁ | NO ₀ |
| 7. | Marriage | YES ₁ | NO ₀ |
| 8. | Fired at work | YES ₁ | NO ₀ |
| 9. | Marital reconciliation | YES ₁ | NO ₀ |
| 10. | Unemployment | YES ₁ | NO ₀ |
| 11. | Change in health of family member | YES ₁ | NO ₀ |
| 12. | Pregnancy or birth of your child | YES ₁ | NO ₀ |
| 13. | Sexual problems | YES ₁ | NO ₀ |
| 14. | Gain of new family member | YES ₁ | NO ₀ |
| 15. | Opening or closure of private practice | YES ₁ | NO ₀ |
| 16. | Change in financial state | YES ₁ | NO ₀ |
| 17. | Death of patient | YES ₁ | NO ₀ |
| 18. | Change to different line of work | YES ₁ | NO ₀ |
| 19. | Increase in problems with partner | YES ₁ | NO ₀ |
| 20. | Mortgage or loan over \$20,000 | YES ₁ | NO ₀ |

21.	Foreclosure of mortgage or loan	YES ₁	NO ₀
22.	Change in responsibilities at work	YES ₁	NO ₀
23.	Son or daughter leaving home	YES ₁	NO ₀
24.	Problems with team members	YES ₁	NO ₀
25.	Outstanding personal achievement	YES ₁	NO ₀
26.	Loss of partners job or partner beginning work	YES ₁	NO ₀
27.	Graduating from university or returning to studies	YES ₁	NO ₀
28.	Change in living conditions	YES ₁	NO ₀
29.	Revision of personal habits	YES ₁	NO ₀
30.	Problems with management	YES ₁	NO ₀
31.	Change in work hours or conditions	YES ₁	NO ₀
32.	Change in residence (new house or country)	YES ₁	NO ₀
33.	Change in departments or hospitals	YES ₁	NO ₀
34.	Change in recreation (e.g. playing more or less sports than before)	YES ₁	NO ₀
35.	Change in religious activities	YES ₁	NO ₀
36.	Change in social activities (more or less than before)	YES ₁	NO ₀
37.	Mortgage or loan less than \$20,000	YES ₁	NO ₀
38.	Change in sleeping habits (e.g. increased night duty)	YES ₁	NO ₀
39.	Change in number of family get-togethers	YES ₁	NO ₀
40.	Change in eating or drinking habits	YES ₁	NO ₀

Section D

Please answer the following questions by:

- 1. Reading each *situation* and vividly imagining it happening to you.
- 2. Decide what you feel would be the *major cause* of the situation if it happened to you.
- 3. Write one cause in the blank provided.
- 4. Answer three questions about the *cause*.
- 5. Answer one question about the *situation*.
- 6. Go on to the next situation.

You become very rich.

- 1. Write down the *one major cause* _____
- 2. Is the *cause* of you becoming rich due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1	2	3	4	5	6	7	Totally due to me
---	----------	----------	----------	----------	----------	----------	----------	--------------------------
- 3. In the future should you become very rich, will this *cause* again be present? (circle one number)

Will never again be present	1	2	3	4	5	6	7	Will always be present
------------------------------------	----------	----------	----------	----------	----------	----------	----------	-------------------------------
- 4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1	2	3	4	5	6	7	Influences all situations in my life
--	----------	----------	----------	----------	----------	----------	----------	---
- 5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1	2	3	4	5	6	7	Extremely important
-----------------------------	----------	----------	----------	----------	----------	----------	----------	----------------------------

You apply for a position that you really want and you get it.

- 1. Write down the *one major cause* _____
- 2. Is the *cause* of you getting the job due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1	2	3	4	5	6	7	Totally due to me
---	----------	----------	----------	----------	----------	----------	----------	--------------------------
- 3. In the future when applying for another position and you get it, will this *cause* again be present? (circle one number)

Will never again be present	1	2	3	4	5	6	7	Will always be present
------------------------------------	----------	----------	----------	----------	----------	----------	----------	-------------------------------
- 4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1	2	3	4	5	6	7	Influences all situations in my life
--	----------	----------	----------	----------	----------	----------	----------	---
- 5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1	2	3	4	5	6	7	Extremely important
-----------------------------	----------	----------	----------	----------	----------	----------	----------	----------------------------

You get a raise.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you getting a raise due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1 2 3 4 5 6 7	Totally due to me
---	---------------------------	--------------------------
3. In the future should you get a raise, will this *cause* again be present? (circle one number)

Will never again be present	1 2 3 4 5 6 7	Will always be present
------------------------------------	---------------------------	-------------------------------
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1 2 3 4 5 6 7	Influences all situations in my life
--	---------------------------	---
5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1 2 3 4 5 6 7	Extremely important
-----------------------------	---------------------------	----------------------------

You meet a colleague who compliments you on your appearance.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you getting a compliment on your appearance due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1 2 3 4 5 6 7	Totally due to me
---	---------------------------	--------------------------
3. In the future should you receive compliments on your appearance from colleagues, will this *cause* again be present? (circle one number)

Will never again be present	1 2 3 4 5 6 7	Will always be present
------------------------------------	---------------------------	-------------------------------
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1 2 3 4 5 6 7	Influences all situations in my life
--	---------------------------	---
5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1 2 3 4 5 6 7	Extremely important
-----------------------------	---------------------------	----------------------------

You are highly praised for your professional skills on a particular case.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you getting praise due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1 2 3 4 5 6 7	Totally due to me
---	---------------------------	--------------------------
3. In the future should you be praised for your professional skills will this *cause* again be present? (circle one number)

Will never again be present	1 2 3 4 5 6 7	Will always be present
------------------------------------	---------------------------	-------------------------------
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1 2 3 4 5 6 7	Influences all situations in my life
--	---------------------------	---
5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1 2 3 4 5 6 7	Extremely important
-----------------------------	---------------------------	----------------------------

Your spouse or partner has been treating you more lovingly.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you being treated more lovingly due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1 2 3 4 5 6 7	Totally due to me
---	---------------------------	--------------------------
3. In the future should this situation reoccur would this *cause* again be present? (circle one number)

Will never again be present	1 2 3 4 5 6 7	Will always be present
------------------------------------	---------------------------	-------------------------------
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1 2 3 4 5 6 7	Influences all situations in my life
--	---------------------------	---
5. How important would this situation be if it happened to you? (circle one number)

Not at all important	1 2 3 4 5 6 7	Extremely important
-----------------------------	---------------------------	----------------------------

You have been unable to secure a permanent position in the hospital for some time.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you being unable to secure a permanent position due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances

1 2 3 4 5 6 7

Totally due to me

3. In the future should this situation reoccur would this *cause* again be present? (circle one number)

Will never again be present

1 2 3 4 5 6 7

Will always be present

4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation

1 2 3 4 5 6 7

Influences all situations in my life

5. How important would this situation be if it happened to you? (circle one number)

Not at all important

1 2 3 4 5 6 7

Extremely important

You give an important case presentation in front of a group and they react negatively.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you getting a negative reaction due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances

1 2 3 4 5 6 7

Totally due to me

3. In the future should this situation reoccur would this *cause* again be present? (circle one number)

Will never again be present

1 2 3 4 5 6 7

Will always be present

4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation

1 2 3 4 5 6 7

Influences all situations in my life

5. How important would this situation be if it happened to you? (circle one number)

Not at all important

1 2 3 4 5 6 7

Extremely important

You can't get all the work done that others expect of you.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you not getting the work done due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1	2	3	4	5	6	7	Totally due to me
---	----------	----------	----------	----------	----------	----------	----------	--------------------------

3. In the future should this situation reoccur would this *cause* again be present? (circle one number)
- Will never again be present** **1** **2** **3** **4** **5** **6** **7** **Will always be present**
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1	2	3	4	5	6	7	Influences all situations in my life
--	----------	----------	----------	----------	----------	----------	----------	---

5. How important would this situation be if it happened to you? (circle one number)
- Not at all important** **1** **2** **3** **4** **5** **6** **7** **Extremely important**

A colleague comes to you with a problem and you don't try to help.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you not trying to help due to something about you or to something about other people or circumstances? (circle one number)

Totally due to other people or circumstances	1	2	3	4	5	6	7	Totally due to me
---	----------	----------	----------	----------	----------	----------	----------	--------------------------

3. In the future should this situation reoccur and you do not help, would this *cause* again be present? (circle one number)
- Will never again be present** **1** **2** **3** **4** **5** **6** **7** **Will always be present**
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)

Influences just this particular situation	1	2	3	4	5	6	7	Influences all situations in my life
--	----------	----------	----------	----------	----------	----------	----------	---

5. How important would this situation be if it happened to you? (circle one number)
- Not at all important** **1** **2** **3** **4** **5** **6** **7** **Extremely important**

You meet a staff member who acts hostile towards you.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you getting a hostile reaction due to something about you or to something about other people or circumstances? (circle one number)
- | Totally due to other people or circumstances | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Totally due to me |
|--|---|---|---|---|---|---|---|-------------------|
|--|---|---|---|---|---|---|---|-------------------|
3. In the future should this situation reoccur would the *cause* again be present? (circle one number)
- | Will never again be present | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Will always be present |
|-----------------------------|---|---|---|---|---|---|---|------------------------|
|-----------------------------|---|---|---|---|---|---|---|------------------------|
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)
- | Influences just this particular situation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Influences all situations in my life |
|---|---|---|---|---|---|---|---|--------------------------------------|
|---|---|---|---|---|---|---|---|--------------------------------------|
5. How important would this situation be if it happened to you? (circle one number)
- | Not at all important | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely important |
|----------------------|---|---|---|---|---|---|---|---------------------|
|----------------------|---|---|---|---|---|---|---|---------------------|

You go out on a date and it goes badly.

1. Write down the *one* major *cause* _____
2. Is the *cause* of you having a bad date due to something about you or to something about other people or circumstances? (circle one number)
- | Totally due to other people or circumstances | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Totally due to me |
|--|---|---|---|---|---|---|---|-------------------|
|--|---|---|---|---|---|---|---|-------------------|
3. In the future should this situation reoccur would the *cause* again be present? (circle one number)
- | Will never again be present | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Will always be present |
|-----------------------------|---|---|---|---|---|---|---|------------------------|
|-----------------------------|---|---|---|---|---|---|---|------------------------|
4. Is the *cause* something that influences just this situation or does it also influence other areas of your life? (circle one number)
- | Influences just this particular situation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Influences all situations in my life |
|---|---|---|---|---|---|---|---|--------------------------------------|
|---|---|---|---|---|---|---|---|--------------------------------------|
5. How important would this situation be if it happened to you? (circle one number)
- | Not at all important | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely important |
|----------------------|---|---|---|---|---|---|---|---------------------|
|----------------------|---|---|---|---|---|---|---|---------------------|

Section E

Demographics

Please answer the following questions by ticking ✓ the appropriate box and/or writing in the information for each question.

1. What is your gender? Male₁ ☐ Female₂ ☐

2. What is your age? _____ years

3. What is your marital status?

Single₁ ☐ Married₂ ☐ Partner₃ ☐ Divorced₄ ☐ Other₅ ☐

4. Do you have children?

Yes₁ ☐ No₂ ☐

5. Ethnic Group

NZ European₁ ☐
European₂ ☐ (please specify) _____
Maori₃ ☐
Pacific Islander₄ ☐
Asian₅ ☐ (please specify) _____
Indian₆ ☐ (please specify) _____
Other₇ ☐ (please specify) _____

6. Did you complete your medical training in New Zealand?

Yes₁ ☐ No₂ ☐

7. What is your current position?

House officer₁ ☐ House surgeon₂ ☐
Registrar₃ ☐ Consultant₄ ☐
Other₅ ☐ (please specify) _____

8. What is your employment status?

Full-time₁ ☐ Part-time₂ ☐

Thank you for completing this questionnaire.

Please place the questionnaire in the freepost envelope and post to Racquel Singh, c/o Dr. Dave Clarke, School of Psychology, Massey University Albany, Private Bag 102 904, North Shore MSC.



**WORK STRESS AND THE WELL-BEING OF
MEDICAL PRACTITIONERS IN NEW ZEALAND HOSPITALS
(AUCKLAND)**

INFORMATION SHEET

Dear Auckland Healthcare Staff Member

You are invited to participate in a research project that explores the impact of work stress on the well-being of medical practitioners in a hospital setting. Studies performed in overseas hospitals have indicated a significant relationship between work stress and well-being of hospital doctors. To ensure an effective healthcare system, the well-being of healthcare employees is of vital importance. The nursing profession and the medical profession are two of the most demanding occupations in the healthcare sector. The stress and well-being of the nurses have been researched and there is a small proportion of research done on general practitioners but to date there have been no studies of this nature undertaken in New Zealand hospitals.

It is the intention of the researcher to examine the occupational stressors and their related effects on the well-being of doctors in hospitals. The researcher aims to find a significant relationship between work stress and well-being but to also elucidate some of the occupational stressors. Key findings from this study may be used in an attempt to improve the well-being of doctors by implementing work stress reduction strategies or interventions. These findings may also be used in future research in this area or related areas e.g. immigration, work stress and well-being.

This research study is being undertaken by a psychology masterate thesis student, Racquel Singh who is based at Massey University (Albany campus). Dr. Dave Clarke from the School of Psychology, Massey University (Albany campus) will supervise this research project.

Participants' involvement in the research will entail completion of the questionnaire that will take approximately 30 minutes to complete and the return of the questionnaire to the Massey School of Psychology in the free post envelopes by the **15th July 2000**. Complete **anonymity** and **confidentiality** of the questionnaire is assured. The mailing of the questionnaires were undertaken by the Auckland Healthcare Research and Development Office thereby ensuring anonymity. Confidentiality of participants is ensured as the results will only contain aggregate data and no names will be recorded on the questionnaire. All data will be destroyed upon completion of the research project. When the research is completed a summary will be published in the Auckland Healthcare Newsletter. The research may be published in an appropriate academic journal. (*Please turn over . . .*)

Completion of the questionnaire is voluntary, with participants having the right to:

- ◆ refuse to answer any particular question at any given time;
- ◆ withdraw from the study at any point until the questionnaire is returned to the researcher;
- ◆ contact the researcher for clarification of questions or the nature of the study;
- ◆ request a summary of the research findings.

The research study has obtained the approval of the Massey University Human Ethics Committee (Albany), Auckland Healthcare Management and the New Zealand Overseas Doctors Association.

Should you require further clarification or information please do not hesitate to contact Dr. Dave Clarke on (09) 443 9799 extension 9867. Alternatively, the researcher can be contacted via e-mail: singha@actrix.co.nz. If the nature of this research raises any personal issues an alternative contact is The Auckland Hospital Occupational Health and Safety Department who will be able to assist you in securing an appointment with one of their counselors. They can be contacted on 379 7440 or extension 7768.

Sincerely,

Racquel Singh

WORK STRESS AND THE WELL-BEING OF MEDICAL PRACTITIONERS IN NEW ZEALAND HOSPITALS (AUCKLAND)

Thank you for participating in this study. Please remember that you have the right to decline to answer any particular question.

The questionnaire is in 5 sections. The estimated time for completion is 30 minutes. It is assumed that filling in the questionnaire implies consent. There are no right or wrong answers. Answer honestly and state your opinions as accurately as possible.

Upon completion please return the questionnaire to the researchers in the freepost envelope provided to **School of Psychology, Massey University Albany** by the **15 July 2000**.

Please do not print your name on the questionnaire. This is an anonymous questionnaire and responses cannot be traced. **All information will be strictly confidential.**

Thank you again for your time and participation.

Appendix A4: Results of Two-way ANOVA's, With Two Levels of Gender (women versus men) and Two Levels of Children (with versus without), on the Stressful Life Events and Well-being Variables' Scores.

Source of Variation	Sum of Squares	df	Mean Sum of Squares	F	Eta Squared
Stress Life Events					
Intercept	11689114.10	1	11689114.10	855.05***	.83
Between Groups					
Gender	36478.25	1	36478.25	2.67	.02
Children	164681.27	1	164681.27	12.05***	.07
Interaction (Gender x Children)	838.95	1	838.95	0.06	.00
Error	2310331.64	169	13670.60		
Total	15678470.00	173			
General Health Q.12					
Intercept	25580.42	1	25580.42	941.30***	.85
Between Groups					
Gender	7.92	1	7.92	0.29	.00
Children	32.41	1	32.41	1.19	.01
Interaction (Gender x Children)	73.90	1	73.90	2.72	.02
Error	4592.67	169	27.18		
Total	36047.00	173			

*** $p < .001$

Appendix A5: Results of Two-way ANOVA's, With Two Levels of Gender (women versus men) and Two Levels of Children (with versus without), on the PSI Factor Scores.

Source of Variation	Sum of Squares	df	Mean Sum of Squares	F	Eta Squared
PSI:					
Perceived Work Productivity					
Intercept	0.02	1	0.02	0.00	.00
Between Groups					
Gender	2.45	1	2.45	2.49	.01
Children	0.64	1	0.64	0.65	.00
Interaction (Gender x Children)	1.14	1	1.14	1.15	.01
Error	166.73	169	0.99		
Total	172.00	173			
PSI:					
Professional Stress					
Intercept	0.03	1	0.03	0.03	.00
Between Groups					
Gender	0.32	1	0.32	0.32	.00
Children	0.06	1	0.06	0.06	.00
Interaction (Gender x Children)	0.61	1	0.61	0.61	.00
Error	170.94	169	1.01		
Total	172.00	173			
PSI:					
Interference with Family Life					
Intercept	0.05	1	0.05	0.05	.00
Between Groups					
Gender	0.17	1	0.17	0.17	.00
Children	0.65	1	0.65	0.64	.00
Interaction (Gender x Children)	0.24	1	0.24	0.24	.00
Error	171.02	169	1.01		
Total	172.00	173			
PSI:					
Idealism					
Intercept	0.09	1	0.09	0.09	.00
Between Groups					
Gender	0.19	1	0.19	0.19	.00
Children	0.02	1	0.02	0.02	.00
Interaction (Gender x Children)	0.43	1	0.43	0.42	.00
Error	171.34	169	1.01		
Total	172.00	173			

Appendix A6: Means and SD's of SLE and GHQ Scores for Gender and Children.

	n	M	SD
Stressful Life Events			
Gender			
Male	100	251.03	119.38
Female	73	307.38	121.82
Children			
With	98	240.55	117.98
Without	75	319.57	116.13
Gender x Children			
Male – With children	72	230.90	118.15
Male – Without children	28	302.79	108.13
Female – With children	26	267.27	115.55
Female – Without children	47	329.57	120.66
General Health Questionnaire			
Gender			
Male	100	13.56	5.56
Female	73	13.33	4.76
Children			
With	98	13.19	5.44
Without	75	13.81	4.94
Gender x Children			
Male – With children	72	13.69	5.90
Male – Without children	28	13.21	4.62
Female – With children	26	11.81	3.61
Female – Without children	47	14.17	5.14

Appendix A7: Means and SD's of PSI Factor Scores for Gender and Children.

	n	M	SD
PSI – Perceived Work Productivity			
Gender			
Male	100	-0.12	0.98
Female	73	0.17	1.00
Children			
With	98	-0.09	1.01
Without	75	0.12	0.98
Gender x Children			
Male – With children	72	-0.11	0.99
Male – Without children	28	-0.16	0.96
Female – With children	26	-0.03	1.05
Female – Without children	47	0.28	0.97
PSI – Professional Stress			
Gender			
Male	100	-0.04	0.92
Female	73	0.06	1.11
Children			
With	98	-0.03	1.03
Without	75	0.03	0.96
Gender x Children			
Male – With children	72	-0.02	0.93
Male – Without children	28	-0.11	0.91
Female – With children	26	-0.05	1.30
Female – Without children	47	0.12	0.99
PSI – Interference with family life			
Gender			
Male	100	0.06	1.01
Female	73	-0.07	0.98
Children			
With	98	-0.05	1.00
Without	75	0.06	0.99
Gender x Children			
Male – With children	72	-0.05	1.03
Male – Without children	28	0.16	0.99
Female – With children	26	-0.04	0.95
Female – Without children	47	0.01	1.01
PSI - Idealism			
Gender			
Male	100	-0.03	0.99
Female	73	0.04	1.00
Children			
With	98	-0.06	1.06
Without	75	0.08	0.92
Gender x Children			
Male – With children	72	-0.05	1.03
Male – Without children	28	0.03	0.92
Female – With children	26	0.13	1.15
Female – Without children	47	-0.05	0.93

Appendix A8: Principal Components Analysis for All 26 Items of the PSI

Item	Factors							Communality
	I	II	III	IV	V	VI	VII	
P7	.73	-.29	.07	-.07	-.04	.08	.02	.63
P3	.69	-.20	.15	-.08	-.28	.04	.08	.62
P26	.69	.05	.10	-.05	-.34	-.11	.19	.65
P19	.68	.29	-.02	-.18	-.12	-.05	.09	.61
P6	.67	-.45	.03	-.05	.24	.10	-.04	.72
P13	.66	.02	-.13	.24	.09	.19	-.07	.57
P18	.63	-.14	-.21	.15	.12	.05	.03	.50
P17	.62	-.10	-.09	.03	-.07	-.15	-.07	.44
P10	.59	-.28	-.04	-.24	.07	.15	.13	.54
P5	.57	-.47	-.05	-.19	.30	-.01	-.16	.57
P2	.56	-.32	.11	-.27	.05	.01	-.23	.71
P20	.56	.13	-.05	.22	.15	-.05	.03	.41
P24	.52	.33	-.15	-.17	.15	-.08	-.10	.57
P22	.43	.59	-.02	-.17	.27	-.17	-.29	.70
P23	.39	.56	-.02	.31	.31	.06	.13	.47
P1	.05	.01	.78	.04	.15	-.06	-.10	.55
P4	.17	.08	.69	-.11	.07	-.19	.09	.65
P14	.23	.17	.64	.05	-.09	.23	-.19	.58
P12	.42	.05	-.02	.66	-.27	-.02	-.17	.49
P9	.49	.17	.07	.44	-.22	.22	-.17	.59
P25	.50	.45	-.09	-.13	-.44	-.04	-.04	.83
P16	.34	-.07	-.17	.29	.39	-.39	.04	.53
P11	.19	.27	-.21	-.36	-.03	.52	-.16	.72
P15	.51	.07	-.02	-.18	-.21	-.46	.35	.68
P8	.25	.15	.14	.07	.18	.40	.73	.59
P21	.29	.14	-.08	-.25	.09	-.02	-.03	.51
% total variance	26.38	7.81	6.75	5.68	4.56	4.22	4.08	59.47

Appendix A9: Principal Components Analysis (varimax rotation) for All 26 Items of the PSI

Item	Factors							Communality
	I	II	III	IV	V	VI	VII	
P5	.83	.07	-.03	-.38	.09	-.07	.13	.71
P6	.82	.01	.06	.12	.08	.10	.10	.72
P7	.67	.03	.30	.26	.04	.09	.01	.63
P2	.67	.08	.19	.02	.16	-.18	-.09	.55
P10	.66	.07	.24	-.01	-.02	.20	-.08	.54
P3	.53	-.02	.48	.26	.16	.01	-.12	.62
P18	.52	.16	.14	.32	-.15	.16	.16	.50
P22	.09	.81	.06	.08	.14	-.11	.07	.70
P24	.18	.69	.20	.11	-.02	.03	.02	.57
P21	-.07	.67	.17	-.08	.02	.09	-.10	.51
P15	.17	.18	.73	-.07	-.02	.08	.27	.68
P26	.31	.14	.67	.25	.12	.12	-.07	.65
P25	.17	.19	.55	.25	-.07	-.09	-.21	.49
P19	.28	.47	.50	.17	.07	.15	-.06	.61
P13	.05	-.03	.16	.81	.08	-.07	.17	.72
P9	.12	.12	.13	.72	.11	.06	-.10	.59
P16	.46	.26	.07	.49	-.07	.18	.04	.57
P1	.03	-.03	-.07	.08	.80	-.01	.07	.65
P4	.04	.06	.19	-.11	.71	.08	.11	.57
P14	.07	.11	-.03	.25	.67	.05	-.22	.58
P8	.07	.03	.10	.03	-.17	.89	-.05	.83
P17	.25	.19	-.02	.15	.09	.04	.63	.53
P11	.16	.39	-.06	.01	.02	.01	-.60	.59
P20	.29	.31	.14	.36	-.09	.17	.23	.41
P23	.07	.39	-.05	.34	.05	.37	.24	.47
P12	.45	.17	.34	.26	-.04	-.07	.14	.44
% total variance	15.91	9.66	8.83	8.73	6.86	4.75	4.72	59.47

Appendix A10 : Principal Components Analysis for All 26 Items of the PSI Forced into Four Factors

Item	Factors				Communality
	I	II	III	IV	
P7	.73	-.29	.07	-.07	.62
P3	.69	-.20	.15	-.08	.54
P26	.69	.04	.10	-.05	.48
P19	.68	.29	-.02	-.18	.59
P6	.67	-.45	.03	-.05	.65
P13	.66	.02	-.13	.24	.52
P18	.63	-.14	-.21	.15	.48
P17	.62	-.10	-.09	.03	.41
P10	.59	-.28	-.04	-.24	.49
P5	.57	-.47	-.05	-.19	.59
P20	.56	.13	-.05	.22	.39
P2	.56	-.32	.11	-.27	.50
P24	.52	.45	-.15	-.17	.53
P15	.51	.07	-.02	-.18	.30
P25	.50	.14	-.09	-.13	.29
P21	.29	.59	-.08	-.25	.49
P22	.43	.56	-.02	-.17	.52
P1	.05	.01	.78	.04	.61
P4	.17	.08	.69	-.11	.52
P14	.23	.17	.64	.05	.49
P12	.42	.05	-.02	.66	.62
P9	.49	.17	.07	.44	.46
P11	.19	.27	-.21	-.36	.29
P23	.39	.33	-.02	.31	.35
P16	.34	-.07	-.17	.29	.23
P8	.25	.15	.14	.07	.11
% total variance	26.38	7.81	6.75	5.68	46.61

Appendix A11: Principal Components Analysis With Varimax Rotation for All 26 Items of the PSI Forced into Four Factors

Item	Factors				Communality
	I	II	III	IV	
P6	.78	.20	-.04	.05	.61
P5	.77	.04	-.02	-.05	.50
P7	.72	.30	.09	.06	.54
P2	.69	-.02	.09	.13	.52
P10	.68	.04	.16	.02	.59
P3	.65	.22	.15	.15	.65
P17	.52	.32	.19	-.02	.62
P18	.51	.43	.13	-.14	.11
P26	.49	.29	.33	.20	.46
P12	.08	.78	-.08	.05	.39
P9	.13	.63	.13	.16	.41
P13	.05	.55	.21	-.04	.35
P23	-.03	.52	.28	.08	.29
P20	.27	.49	.25	.04	.49
P16	.41	.42	-.01	-.13	.49
P21	-.06	.06	.69	.05	.52
P22	.04	.18	.69	.12	.53
P24	.17	.22	.67	-.06	.23
P19	.38	.25	.59	.13	.62
P11	.09	-.13	.49	-.14	.59
P25	.33	.18	.39	-.04	.52
P15	.20	.11	.36	.06	.30
P1	.01	-.01	-.12	.78	.48
P4	.11	-.06	.06	.71	.48
P14	.39	.13	.09	.68	.29
P8	.07	.20	.17	.19	.49
% total variance	17.87	10.90	10.71	7.13	46.61

Appendix A12: Scree Plot for Resultant Four Factor Solution of PSI Scores

