OCCUPATIONAL STRESS, STRAIN AND COPING IN A PROFESSIONAL ACCOUNTING ORGANISATION

by

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ii

DECLARATION

Student Number: 802-236-4

I, the undersigned, hereby declare that this dissertation, "Occupational stress, strain and coping in a professional accounting organisation", is my own work, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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TABLE OF CONTENTS

ix

LIST OF TABLES

x
LIST OF FIGURES

SUMMARY

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This research focuses on the concept of occupational stress. Theories and models are discussed in an attempt to highlight the nature of stress and its implications for the individual if it is not effectively managed. Individual differences in the way they experience strain and cope with stress are considered, as well as the organisational implications of stress. Current thinking in the management of stress programmes is highlighted.

The empirical study was conducted to determine whether there are differences between various organisational subgroups with regard to variables relating to occupational stress, strain and coping, as measured by the Occupational Stress Inventory – Revised (Osipow, 1998). The findings of the study show that there are significant differences between seniority, age, race and gender subgroups within the accounting organisation in which the research took place, with regard to stress, strain and coping

Key Terms

perceived stress; experienced strain; coping resources; occupational stress; stress management interventions

CHAPTER 1 : INTRODUCTION AND MOTIVATION

INTRODUCTION AND MOTIVATION

Since the early 1980s there has been a growing concern in the Western world about the increase in and causes of stress both at work and in life in general. The pace of change has accelerated dramatically since 1900. Science and technology have had a significant effect on this rate of change, starting with the advent of the aircraft and electricity in 1900, radar and television in the 1930s, nuclear power in the 1950s, space travel in the 1960s and 1970s, and information technology and the Internet in the 1980s, 1990s and 2000s (Jones & Bright, 2001). Citizens of the 20th century have witnessed more change in their daily existence and environment than ever before, and the pace of change is accelerating, becoming ever-more complex and turbulent. Various authors state that industrial psychology has much to contribute to this new world of work (Cascio, 1995; Gherman, 1981; Hamborg & Greif, 1996). According to Jones and Bright (2001, p. 7):

> There is a commonly held view, prevalent not just in newspapers and magazines but supported by some academics and by official reports that, despite the relative prosperity and good health experienced in the Western World, stress has increased throughout this century and currently continues to increase.

Life in organisations can be a source of stress for employees and managers. According to Cooper and Marshall (1978), managers are suffering extreme physiological symptoms from stress at work. Physical and psychological effects, including coronary heart disease, ulcers, substance abuse and anxiety, are potential sources of disturbance in the quality of life of individuals and of their families. The mental and physical effects of job stress are not only disruptive to the individual but are also associated with a "real" cost to the organisations for which they work. Until recently, organisations rarely considered this cost either in human or financial terms , even though it is one they incur daily on an operational basis.   In terms of

perceptions and commonly used labels, stress at work did not appear to have as high salience as other work-related problems and issues (Kasl, 1978). However, more recently, corporate leaders have started struggling with the question of how to manage the rising costs of health and mental health care, as well as the negative effects of occupational stress on the bottom line (Sperry, 1991). In order to positively influence stressors at work it is essential to be able to identify them, especially considering that different stressors have different effects and require varying actions and coping mechanisms to counter them (Cooper & Marshall, 1978; Cooper & Payne, 1978; Jones & Bright, 2001; Sperry, 1991).

Employees and managers are not only coping with everyday societal stress, but also with increasing pressure at work. Demands for higher performance and greater productivity add to the already high levels of stress. This stress manifests itself in less than optimum levels of performance in the workplace, especially in severe cases. For the individual, the greatest cost to health comes from self-inflicted lifestyle diseases such as heart attacks, hypertension and depression. For the organisation, employee "burnout" costs billions of dollars (rand) because of physical and psychological illness, turnover, absenteeism, lower performance and premature death, much of it caused by the inability to cope with the stress and strain being experienced (Gherman, 1981; Murphy, 1984; Sperry, 1991). Fletcher (1988) found that 60% of absence from work is caused by stress-related disorders, and that in the UK alone, 100 million work days are lost each year through this type of absenteeism. Sperry (1991) found that the combined cost of physical health problems related to psychological disorders was in the range of $50 billion to $100 billion annually. These costs are seldom fully analysed or translated into human resources costs. Individuals are pushing themselves harder and harder, with organisations providing little support for a "balanced" lifestyle. Profitability is the focus for organisations, and although many of them have mission statements espousing values relating to the importance of their human resources, few are proactively assisting employees to manage their stress (Fletcher, 1988; Gherman, 1981; Sperry, 1991).

1.1   BACKGROUND FOR THE RESEARCH

All individuals, employees and managers are exposed to stress. Some, however, are exposed more often and more intensively than others. Within organisation structures and staff categories, differing degrees of stress can be identified. A number of authors (Antonovsky, 1987; Cooper & Bright, 2001; Viviers, 1996) have investigated the personalities of individuals and how this influences optimal functioning under stressful conditions. The question still arises: Do organisations do enough for individuals to assist in managing stress? Is enough awareness created regarding stress management and coping with stress and psychological strain?

Psychology as a science seeks to understand the behaviour of individuals in circumstances of insecurity and change. More specifically, industrial psychology as a field of study is concerned with individuals who are involved in work and who are economically active. According to Cascio (1987, p. 4) it is an "applied discipline that focuses on individual differences in behaviour and job performance and on methods of measuring and predicting these differences".

Industrial and applied psychologists have well-developed methods of dealing with human behaviour at the following levels (Schneider, 1991):

- people as individuals

- people as interpersonal entities (in leadership and team roles)

- people as the key to understanding the way organisations look and behave

The role of the industrial psychologist, specifically within the arena of human resource or personnel management and development, organisational development, mental health and counselling, is to ensure that the workforce can function optimally in the light of present and future demands, thus maintaining a productive organisation. The goal of the industrial psychologist is to strengthen the individual's contributions to organisational effectiveness, by increasing productivity, lowering turnover, raising quality of outputs and improving levels of cooperation among individuals (Schneider, 1991).

Consequently, the industrial psychologist has a vital role to play in measuring stress, monitoring and facilitating the process of stress management and awareness in organisations. Employee assistance programme (EAP) staff provide counselling and referral for employees with drug, alcohol and relationship problems. Training and development personnel may provide seminars on managing stress and training in assertiveness and communication techniques, while consultants may assist with job redesign and enrichment efforts (Sperry, 1991).

The task for industrial psychologists is to identify the risk areas for stress and to proactively strive for more understanding and awareness of stress and coping resources amongst employees and management. There is an increasing need for employees at different levels and in different subgroups in the organisation to possess the necessary skills and motivation to perform the core tasks associated with their jobs and also to acquire additional abilities in handling demands that accompany ever-increasing stress. The apparent human and organisational costs resulting from job stress warrant the implementation of personal and organisational strategies. Their purpose is to enable employees to enjoy good physical and mental health by reducing unnecessary stress from the work environment (Gherman, 1981). The organisation and industrial psychologists involved in human resource management and development have a responsibility to employees to assist in managing this ever-increasing stress by monitoring the effects of organisational variables and the perception of stress by individuals (Gherman, 1981).

1.2   PROBLEM STATEMENT

Within psychology, and industrial psychology specifically, there has been a shift away from the management of negative, abnormal behaviour. Strümpfer (1990) called this a paradigm of pathogenic thinking. Within the industrial psychology field of study there is a renewed focus on helping people to attain their optimal level of performance (Antonovsky, 1987; Pheiffer, 1994; Strümpfer, 1990; Viviers, 1996). The importance of the individual as an employee has been recognised within organisational and industrial psychology, especially with regard to the interest the organisation has in the employee. Time and money are invested to improve productivity through the training of employees, especially in technical areas. The

aim is to positively influence organisational effectiveness and productivity, and thus profitability. In the process, recognition of the individual as an entity has lagged behind. The employee is expected to deliver good work performance and to adapt to changing situations within the work arena and society in general. However, the employee is left to adapt psychologically on his or her own to rapid changes and to keep abreast of developments (Gherman, 1981; Sperry, 1991).

Many leading corporations have recognised the fact that human resources constitute the most expensive element of capital and are thus increasingly concerned with the costs of health breakdown. An ever-increasing number of organisations are realising the need to protect their employees and management teams from not only the physical results of stress but also any psychological ramifications (Cooper, 1994). Executive management are aware of both the monetary costs and the disruption of effective operation related to stressful conditions. Management members are sent annually for medical examinations and increasing use is being made of stress programmes to assist managers in handling the stress associated with their work roles (Gherman, 1981; Murphy, 1984). However, in many organisations the focus is on the more senior employees for these interventions. Questions to be asked include the following: What are the effects of stressful situations and jobs on employees at different levels in an organisation? Do senior employees suffer from more stress than more junior employees? How do coping resources affect employees at different levels?

The problem statement, formulated as a question, reads as follows:

> Are occupational stress, strain and coping resources statistically significantly different between different subgroups in a professional accounting organisation?

Most organisations today have published and communicated mission and value statements declaring the importance of their human resources. However, organisations need to ensure that no gap exists between theory and practice. It is beneficial for organisations to show real empathy and support for employees, especially in helping them to manage stress. This in turn would result in individuals who perform more optimally at work as well as functioning better in all aspects of life.

The following questions underlie the problem:

- What is stress and how can it be measured?

- What is the difference between stress and strain?

- What are coping resources and what are their benefits to the individual and the organisation?

- How do employees at different levels, different age groups, and of different races and genders in an organisation perceive and experience stress?

- What is the relationship between perceived stress, psychological strain and coping resources at different levels in an organisation?

- How can the individual benefit from a growing awareness and understanding of stress and its management?

- How can organisations benefit from the above?

1.3   AIM OF THE RESEARCH

With reference to the above formulation of the problem, the general aim of this research is to investigate whether perceived stress, psychological strain and coping resources are affected by seniority, age, race and gender, that is, do employees from different subgroups in an organisation report differing levels of stress, strain and coping?

In order to achieve this research goal, the following specific aims are formulated:

1.3.1 Aims of the literature review

The aims of the literature review are as follows:

- To identify and examine relevant literature in the field of stress research

- To identify and define the important constructs in relation to stress as a field of study, for example, perceived stress, psychological strain and coping

- To identify the similarities and differences between various constructs, for example, the difference between stress and strain

- To identify how the individual and subgroups of the organisation may benefit from a growing awareness of stress and its management

- To identify how organisations can benefit from a greater awareness of stress, its implications and cost, and its management

1.3.2 Aims of the empirical study

The aims of the empirical study are as follows:

- To investigate perceived stress, psychological strain and coping resources through the use of appropriate measuring instruments

- To integrate the information gathered in the literature review with the results of the empirical study

- To identify the coping resources, which may have a significant impact on individuals and thus the organisation

- To analyse the data and ascertain whether there is a significant difference between stress, strain and coping for different subgroups based on seniority, age, gender and race within the sample

1.4   RESEARCH MODEL

The framework for this research is the integrated research model of Mouton and Marais (1990). The model builds on earlier work on scientific models proposed by Radnitzky (1970) and Kuhn (1970). It integrates the five dimensions of social and behavioural sciences research, namely sociological, ontological, teleological, epistemological and methodological, and systematically includes them in a framework for the research process (Mouton & Marais, 1990).

The assumption of this model is that research is a social process. The model represented in figure 1.1 is described as a systems theoretical model with three subsystems. The subsystems, the intellectual climate, the market of intellectual resources and the research process, interact with one another and the research domain within a specific discipline. In the case of this research, industrial psychology is considered to be the discipline. The five dimensions influence research in a discipline and project context.

The sociological dimension at a discipline level involves the existence of broader research communities and networks, social control mechanisms, ethics, ideologies and interests. At a project level it is manifested in decisions about individual and team projects, contract and self-initiated research differences, project supervision and management, and planning and control of time and resources (Mouton & Marais, 1990). Within the context of this research, the sociological dimension involved the discussion and agreement with the management and staff of the accounting organisation within which the research took place. This included agreement of when, how and why the research would take place and what would happen with the results.

The ontological dimension at a disciplinary level refers to the ways research domains are defined and classified, such as behaviourist versus cognitive approaches. At a project level, the unit of analysis is important, that is, individuals, groups and interactions (Mouton & Marais, 1990). Within the context of this research, the domain was two offices and specific subgroups to ensure an adequate sample size.

The teleological dimension from a disciplinary perspective refers to social science as a goal-driven activity. From a project perspective, it refers to the specific project objectives, such as exploratory, descriptive and explanatory research (theoretical) (Mouton & Marais, 1990). The objective of this research was to conduct a descriptive and explanatory investigation into the differences and relationships between subgroups with regard to stress, strain and coping in the accounting organisation.

The epistemological dimension for the discipline would relate to the historical definitions provided by great researchers in the discipline, such as the search for truth and problem solving. At a project level, it refers to validity, reliability or replicability of research findings (Mouton & Marais, 1990). Within the context of this research a reliable and valid instrument, namely the Occupational Stress Inventory – Revised (1998) was used. Although, generalisability is limited because of constraints in the research design, the research is replicable and of interest to organisational and industrial psychologists in business and to other researchers in the field.

The methodological dimension refers to the high-level paradigms or schools of thought. At a project level there are three approaches, namely quantitative, qualitative and participatory action research (Mouton & Marais, 1990). This is a quantitative study, which provides results based on a statistical analysis of the results. It does not, however, provide in-depth insight into the individual justification and rationale for specific answers, which may have been a limitation in the study.

1.4.1   The intellectual climate

The intellectual climate refers to the metatheoretical beliefs and values systems held by practitioners within a specific discipline. These would include beliefs, values and assumptions (Mouton & Marais, 1990). The assumptions for this research are that organisations and their management tend to target specific groups in the fight against the effects of stress. These assumptions are possibly incorrectly founded on the belief that only more senior employees suffer the negative consequences of stress (Antonioni, 1996, Gherman, 1981). According to Gherman (1981, p. 22),

"Executives (and managers) especially have been bombarded with advice from all sources about the dangers of stress produced by their jobs".

1.4.2 The market of intellectual resources

The market of intellectual resources refers to the collection of beliefs that have to do with the epistemic value of scientific statements. A distinction is made between theoretical and methodological beliefs about the nature and structure of the research phenomena and process respectively (Mouton & Marais, 1990). Theoretical beliefs are considered to be any statements about the descriptive and interpretive aspect of human behaviour, which would include hypotheses, typologies, models and theories (Mouton & Marais, 1990). For the purposes of this research, a hypothesis will be stated, and models and theories of occupational stress considered.

1.4.3 The research process

During the research process, the researcher tends to focus on certain paradigmatic beliefs. By selectively internalising only those beliefs which can be seen as relevant to the research goals, researchers do not necessarily adhere to one specific identifiable paradigm in their research. Generally, the constraints that the phenomena being studied place on the researcher will determine whether a qualitative or quantitative approach to the research is chosen (Mouton & Marais, 1990).

INTELLECTUAL CLIMATE
Meta-theoretical
(ontological) assumptions

What is man?
(Images of man)

What is the nature of society/ culture/ economic history?

MARKET OF INTELLECTUAL RESOURCES

Theoretical beliefs

Methodological beliefs

PROCESS OF
SELECTIVE
INTERNALIZATION

THE RESEARCH PROCESS

DETERMINANTS OF RESEARCH

DOMAIN ASSUMPTIONS

Assumptions about specific aspects of the research domain

THEORETICAL-METHODOLOGICAL FRAMEWORK

Theory (theories), models, methods, and techniques

Research goal

Research strategy

RESEARCH DECISIONS

(i)   Choice of a research topic
(ii)   Problem formulation
(iii)   Conceptualisation and operationalisation
(iv)   Data collection
(v)   Analysis and interpretation of data

INTERACTIVE OR DIALECTIC PROCESS

RESEARCH DOMAIN

Figure 1.1: Conceptual model of the research process (Mouton & Marais, 1990, p. 22)

1.5 PARADIGM PERSPECTIVE OF THE RESEARCH

Mouton and Marais (1990) state that a specific paradigm perspective, including specific statements and the market of intellectual resources, directs the research. The current research project adopts an eclectic paradigm perspective: a number of paradigms will be used during the research process in order to fully understand the problem and interpret the results.

1.5.1 Field of study

In the disciplinary context, the focus of this research is on industrial psychology which, according to Reber (1988), is the scientific study of human behaviour and psychological conditions in the production, distribution and consumption of goods and services of society, and in order to use this knowledge to minimise problems. According to Kruger (1987), the main areas in industrial psychology are organisational, personnel, occupational psychology and psychometrics. Industrial psychologists perform a wide variety of tasks in the world of business and industry. Tasks include running human resource departments, working to improve staff morale and attitudes, striving to increase job satisfaction and productivity, examining organisational structures and procedures and making recommendations for improvements (Cascio, 1987; Schneider, 1991; Wieten, 1997).

The subdisciplines on which the research is focussed are occupational mental health and organisational behaviour. Occupational mental health is classically defined as the individual's thoughts, feelings and behaviour, which could influence behaviour both in the workplace and in society (Noland, 1973).

1.5.2 Relevant paradigms

Kuhn (1970) popularised the term "paradigm". He referred to a paradigm as being "an accepted model or pattern" (Kuhn, 1970, p. 23). He used the term "normal science" to mean research based upon certain scientific achievements, acknowledged by a given scientific community, and forming the basis for further research. Normal science is the practice of research within a framework of a dominant paradigm (Kuhn, 1970).

As indicated earlier, an eclectic paradigm is followed, in that elements from a number of paradigms are applicable to this research. Aspects of the following paradigms are used:

1.5.2.1   *Salutogenic paradigm*

The salutogenic paradigm focuses on how the individual remains healthy, despite the presence of stressors. The concept is a departure from the pathogenic paradigm where the main focus is on the identification of stressors. According to the proponents of salutogenesis, although stressors are endemic and all individuals have a high stressor load, some individuals maintain their position on the wellness-illness continuum, with a few moving towards wellness (Strümpfer, 1990). This implies that stressors are neutral in their health consequences, which depend instead on the individual's response and ability to cope with the stressor. The generally accepted assumption that all stressors are bad has been rejected in favour of the belief that stressors may also have healthy consequences. Kroemer, Kroemer and Kroemer-Elbert (2001, p. 146) state that "a stressor may generate a positive 'stress' that spurs more activity, or it may result in 'dis-stress', which overloads the person and generates ineffectiveness, evasive behaviour, anxiety and even illness". Psychology must attempt to understand cases where individuals remain healthy despite the presence of stressors (Antonovsky, 1987; Coetzee, 2002; Kroemer et al., 2001; Strümpfer, 1990, 1995; Viviers, 1996).

1.5.2.2   *Systems paradigm*

Systems theory makes it possible to describe behaviour in organisations both internally and externally (Lundin, 1996). Internally, one can investigate how and why people within organisations perform their individual and group tasks. Externally, the transactions of organisations can be related to other organisations and institutions. The organisation is dependent on the environment for inputs, in the form of resources and acceptance of outputs (changed by organisational processes). In this research a systems paradigm approach, as used in organisational behaviour models, will also be used. In particular, the interaction between the organisation (system), groups (subsystems) and individuals (subsystems), and the individual's

behaviour in the organisation, will be a point of departure. The individual as an employee within the greater structure of the organisation is the fundamental unit of analysis. Individuals are not only part of a greater organisational system but have within themselves a variety of body systems, which are affected in different ways by stress (Hobfoll, 1988; Ivancevich & Matteson, 1993).

1.5.2.3   *Ecological psychology*

Within the ecological psychological paradigm, the behaviour of an organism is inseparable from its context (Lundin, 1996). The context includes interpersonal, social and physical factors. Researchers such as Moos (1984; 2002) used ecological models to understand stress and individuals. In this paradigm, people are part of social systems and any attempt to understand them outside the context of these systems will produce a partial understanding that does not reflect the whole. Stress and coping occur within social settings, and the characteristics of these settings are just as important as the characteristics of the individual. This type of approach requires a mulitidisciplinary understanding of stress, owing, to the fact that understanding human behaviour requires a background in anthropology, biophysiology, sociology and psychology (Hobfoll, 1988; Lundin, 1996; Moos, 1984; Moos, 2002).

1.5.2.4   *Functionalist paradigm*

According to Lundin (1996), psychological functions are adjustments or adaptations to the environment. They serve the organism (in this case the individual) in its attempt to survive. The key is the organism's ability to make changes according to its changing relationship to its environment. This school is seen as probably the most flexible and eclectic of any of the paradigms (Coetzee, 2002; Lundin, 1996).

The empirical investigation is presented according to the functionalist paradigm. A quantitative process will be used during the research, and as such the following statements are relevant from a functionalist point of view (Babbie, 1995; Morgan, 1980):

- The object of study is observable or measurable behaviour.

- Human behaviour is measurable and can be statistically explained and interpreted.

- The measurement of behaviour is associated with an objective measurement process.

- The aim is to achieve prediction and control.

1.5.3   Theoretical statements of the research

Theoretical statements are statements about beliefs regarding social phenomena which are testable, that is, assertions about the "what" and "why" aspects of human behaviour (Mouton & Marais, 1990).

The following theoretical statements serve as a point of departure for discussion in this research, and will be divided into conceptual descriptions and theoretical models and theories.

1.5.3.1   Central hypothesis

The central hypothesis is formulated as follows:

> There is a difference in the perceived stress, experienced strain and moderating coping resources of professional staff from different subgroups in an accounting organisation.

1.5.3.2   Relevant concepts

The following concepts relevant to the research are defined:

- stress and stressors

- psychological strain and stress effects

- coping

- stress management interventions

1.5.3.3   *Theoretical models and theories*

Models and theories fulfil the function of classifying, ordering and creating connections between facts and data. In the area of stress research there are large numbers of theories and models. The following specific models and theories will be discussed in more detail in chapter 2:

- Person-environment fit

- House's paradigm for stress research

- Managerial models of stress

- Occupational stress model (Cooper, Sloan & Williams, 1988)

- Conceptual model of occupational stress – revised (Osipow, 1998)

1.6   RESEARCH DESIGN

An overview of the research design is provided below. The aim of a research design is to provide a planned and structured way of achieving the research goal and to enhance validity and reliability (Mouton & Marais, 1990).

1.6.1   Variables

The term "variable" refers to the characteristics of the object being researched. Independent variables are typically the antecedent phenomenon, under the control of the researcher, while dependent variables are the consequent phenomenon (Mouton & Marais, 1990). In this particular research, the variables being studied are perceived stress, experienced or reported strain and coping resources (dependent variables) for each of the organisational subgroups, namely, gender, age, seniority level and race (independent variables).

1.6.2   Ensuring reliability

Reliability is the requirement that the application of a valid measuring instrument to different individuals and groups under different sets of circumstances will result in the same conclusions (Mouton & Marais, 1990). In order to promote the reliability of this research, the following controls will be incorporated into the research design:

- *Assurance of anonymity*. Individuals were not required to put their names on the answer sheets.

- *Establishing rapport*. a letter explaining the rationale behind the questionnaire and what was to happen with the results was included in the "pack".

- *Reliability of the measuring instrument*. The Occupational Stress Inventory, which complies with stringent validity and reliability requirements, was used.

- *Construct replication*. This inventory has been used in a number of other research projects with similar goals.

1.6.3   Ensuring validity

In the literature review validity is promoted by

- formulating a central hypothesis which describes the goal of the research

- providing conceptual descriptions of all relevant concepts and constructs that are used in the research, as they are seen theoretically and used empirically in the research

- using theories as the basic starting point

- making the literature collection and review as comprehensive as possible, by using computer searches

In the empirical research, the internal validity, which Mouton and Marais (1990) describe as referring to fact that the study has generated accurate and valid findings of the specific phenomena being studied (contextual level), was promoted by

- measuring the constructs in a valid manner

- ensuring that collected data are accurate and reliable

- analysing the data in an appropriate manner

- ensuring that the data support the final conclusions

This study can be seen as being of general interest to other researchers, although external validity and generalisability will be influenced by the fact that the sample used was from one organisation and was not randomly selected. From a research point of view, an overview of the literature will be provided, and questionnaire scores for a sample of the population (accounting professionals) will be gathered in order to undertake this quantitative study (Mouton & Marais, 1990).

According to Mouton and Marais (1992), the research design is a depiction or blueprint of the research project that is being pursued. The process to be followed is decided beforehand in order to prevent errors and keep costs as low as possible. Highly structured and controlled research is the ultimate goal for a quantitative researcher. The aim of the research design is to plan and structure the project in such a way that the resulting validity of the research findings are increased. Internal validity is the logical forerunner to external validity and research findings cannot therefore possess external validity before they are considered to have internal validity. Research with a contextual interest places the highest priority on internal validity (Mouton & Marais, 1992).

1.6.4   Types of research

According to Mouton and Marais (1990), the research aim provides a broad indication of what must be achieved by the research and this encompasses different types of research. Is the aim of the research to describe, explain or predict, or explore a new area? Two types of research are described below, with reference to their roles in this specific research.

1.6.4.1   Descriptive research

In this type of research, an in-depth investigation and description of phenomena, such as specific situations, groups, cultures or objects are undertaken (Mouton & Marais, 1990). The aim of this type of research is to systematically classify the variables of a construct. The overriding goal is to describe the attributes as accurately and precisely as possible. The present research project is predominantly descriptive in that there will be statistical analysis of the variables being tested quantitatively through analysis of variances between subgroups.

1.6.4.2   Explanatory research

In this type of research, the main aim is to indicate causality between variables or events. Explanatory research is used in cases where the researcher goes beyond showing the differences between variables by indicating the magnitude of the difference and where any correlations between variables exist. An attempt will be made to determine the relationship between perceived occupational stress, psychological strain and coping resources. The direction of the relationship will be discussed with reference to the research subgroups - age, seniority, race and gender (Mouton & Marais, 1990).

1.6.5   Unit of analysis

The broad area of investigation for this research is in the field of occupational stress. The following four main categories of units of analysis can be distinguished, namely individuals, groups, organisations and social artefacts.

For the purposes of this research, the units of analysis are subgroups, based on age, seniority level, race and gender, within a professional accounting organisation. The sample and population is described in chapter 3.

1.7   DIVISION OF CHAPTERS

In achieving the aims of the research the chapters will be presented in the following manner:

Chapter 2: Stress, strain and coping

   The findings of the literature review are discussed. This chapter focuses on the concepts of stress, strain and coping, as well as related issues such as stress management.

Chapter 3: Empirical research

   The research design is discussed in detail. This chapter includes information pertaining to the sample, choice of measuring instrument, research procedure and hypothesis.

Chapter 4: Results

   In this chapter, the results are tabulated and interpreted. The focus is on descriptive and comparative statistics.

Chapter 5: Conclusions, limitations and recommendations

   In the final chapter, a number of deductions are made based upon the findings of the research and relating back to the initial problem statement, hypothesis and findings of previous research. The limitations of this research are highlighted and recommendations made for future investigations in this field.

1.8   CHAPTER SUMMARY

In this chapter the background to and motivation for the research was discussed. The problem statement was formulated along with the aims of the research. Thereafter the research model was discussed and the paradigm perspective considered. Lastly the research design and method was presented followed by the division of the chapters.

CHAPTER 2 : STRESS, STRAIN AND COPING

STRESS, STRAIN AND COPING

In chapter 2, the most relevant research, theories and models pertaining specifically to stress, strain and coping amongst professional and managerial employees will be discussed. The concepts of stress, strain and coping will be defined and explained. The chapter will also deal with perspectives on stress management and the organisation.

2.1   ORIGIN OF THE STRESS CONCEPT

Stress research has come a long way since its earlier origin as an engineering term to be subsequently used in human factors research. Originally stress was seen primarily as a physical trauma to which humans respond. More recently it has been linked to physical events, as well as the appraisal of the events, which is a cognitive phenomenon (Appley & Trumbull, 1986; Jones & Bright, 2001; Kroemer et al., 2001).

An early contribution to stress research was the Yerkes-Dodson Law, first formulated in 1908 (as cited in Cooper, Cooper & Eaker, 1988). This model provides insights into the association between arousal and performance. It postulates that up to a point, arousal further increases performance, but, after an optimum peak, performance levels drop as arousal increases. Stress as a concept gained even wider acceptance from the Second World War onwards. Selye (1956), a biologist, is said to have been instrumental in this popularisation of the stress concept (Hobfoll, 1988; Selye, 1956). He researched the physiological reactions to stress, as a non specific (wide range of stressors) response of the body to any demand made upon it. He defined a stressor as any stimulus that causes a stress response. If the stimulus does not abate, a stress response the so-called General Adaption Syndrome results, thus causing damage on a physiological level (Selye, 1956). Selye's work extended that of Benard (1859) and Cannon (1932) (as cited in Appley & Trumbull, 1986). In the 19th century, Benard suggested that external changes in the environment could

cause a disruption in a living organism. In order to adjust, organisms have to achieve stability of internal functioning and maintenance of vital balance in the *milieu interieur*. Cannon (1932) further developed these ideas by describing and researching the process of homeostasis (Appley & Trumbull, 1986; Ivancevich & Matteson, 1993; Jones & Bright, 2001; Kroemer & Kroemer, 2001; Selye, 1956, 1980, 1993; Sharit & Salvendy, 1982).

2.2   DEFINING STRESS

There are numerous definitions, models and theories on how individuals are influenced by stress in the workplace. The growth of the study of psychology and stress in particular, has resulted in a wide range of definitions, not all of which assist in clarifying the meaning of the term (Jones & Bright, 2001; Sharit & Salvendy, 1982).

After extensive literature reviews, Cox (1985, p. 1155) defined stress as "a complex psychological state deriving from the person's cognitive appraisal of the adaptation to the demands of the work environment". He found that the process of appraisal took account of the following four factors:

- demands on the person

- individual characteristics, skill and ability to meet the demands, that is, Personal resources

- constraints individuals are under when coping

- support received from others in coping

According to Sharit and Salvendy (1982), stress can be segmented into physiological, psychological and social types, integrating the concept of coping strategies. They acknowledged the problem of defining stress as either a stimulus or a response. They further hypothesised that the degree to which an event is stressful depends on a complex interaction of factors that include genetic predisposition, early

social experience, cultural factors, and a lifelong conditioning process. According to Cox (1985, p. 1156):

> The absolute level of demand would not appear to be the important factor in determining the experience of stress.   More important is the discrepancy that exists between the level of demand and the person's ability to cope (personal resources).

Both overload (demands greater than abilities) and underload (demands less than abilities) in a work context can result in perceived stress because, it is only if an individual believes there is a discrepancy between the demands and abilities, that a "stress state" has been reached (Cox, 1985; Kroemer et al., 2001; Sharit & Salvendy, 1982). According to Kroemer et al., (2001), there are three major aspects to stress:

(1) job demands which depend on the tasks, the task environment and the conditions of the task, and are considered to be the job stressors

(2) a person's capability to fulfil the demands of the job

(3) the person's attitude (influenced by physical and psychological well-being) which must match the demands

The classic stressful situation is one in which the person's resources are not well matched to the level of demand and where there are constraints in coping and little social support. McGrath (1970, p. 20) has provided one of the most widely accepted definitions of stress: "a perceived, substantial imbalance between demand and response capability, under conditions where failure to meet the demand has important, perceived consequences". Stress is considered to be an individual psychological state, which has to do with the person's perception of the work environment and the emotional experience of it (Cox, 1985; Sharit & Salvendy, 1982).

According Jones and Bright (2001), the term "stress" has in the past been used to include a range of environmental stimuli or "perceived stressors", stress responses (strains) and other factors that influence the relationship between the two (coping behaviours and personality). Some of the more important "stress" variables are depicted in figure 2.1.

Stressors (perceived)	Intervening variables	Strains (experienced)
Major life events • Marriage • Bereavement • Marital breakdown • Illness **Daily hassles** • Arguments • Car breakdowns **Chronic stressors** • Workload • Role ambiguity and/or conflict • Poor housing **Laboratory stressors** • Mental arithmetic tasks	**Personality** • Type A • Locus of control • Pessimism and/or optimism • Negative effect **Coping styles and strategies** • Emotion-focused • Problem-focused **Environmental factors** • Social support • Control	**Psychological effects** • Psychological well-being • Anxiety/depression • Moods • Job satisfaction **Physiological functioning** • Heartbeat • Blood pressure • Adrenaline secretions **Disease** • Coronary heart disease • Colds and flu **Behaviour** • Work performance • Smoking and/or drinking

Figure 2.1: Typical variables included within the stress framework (Adapted from Jones & Bright, 2001)

2.3   MODELS AND THEORIES OF STRESS

Over the past 50 years, valuable research has been undertaken in the field of occupational stress. Some of the more popular and widely used models are discussed below and an attempt is made to highlight the commonalities in the research.

Stress is multifaceted, requiring that more than one stressor to be focused on at any one time. This precludes thinking about problems from one single causative perspective. All the models discussed below take this complexity into account (Sharit & Salvendy, 1982).

2.3.1   Person-environment (P-E) fit

French, Rodgers and Cobb (1974) saw stress and resulting strain as a product of the interaction between the individual and the potential sources of stress in the environment. According to this model, occupational stress is primarily a result of inadequate person-environment fit. Figure 2.2 depicts the P-E fit model graphically. One kind of fit is the extent to which the individual's skills and abilities match the demands and requirements of the job. The second fit is the extent to which the job environment provides support to meet the individual's needs. The resulting stress and stressors are major contributors to psychological and physical strain. French, et al. (1974) define occupational stress as the characteristics of the job that pose a threat to the individual, and occupational strain as the deviation from a normal response that an individual would experience in any situation (Furnham & Schaeffer, 1984; Osipow, 1998; Sharit & Salvendy, 1982; Harrison, 1978).
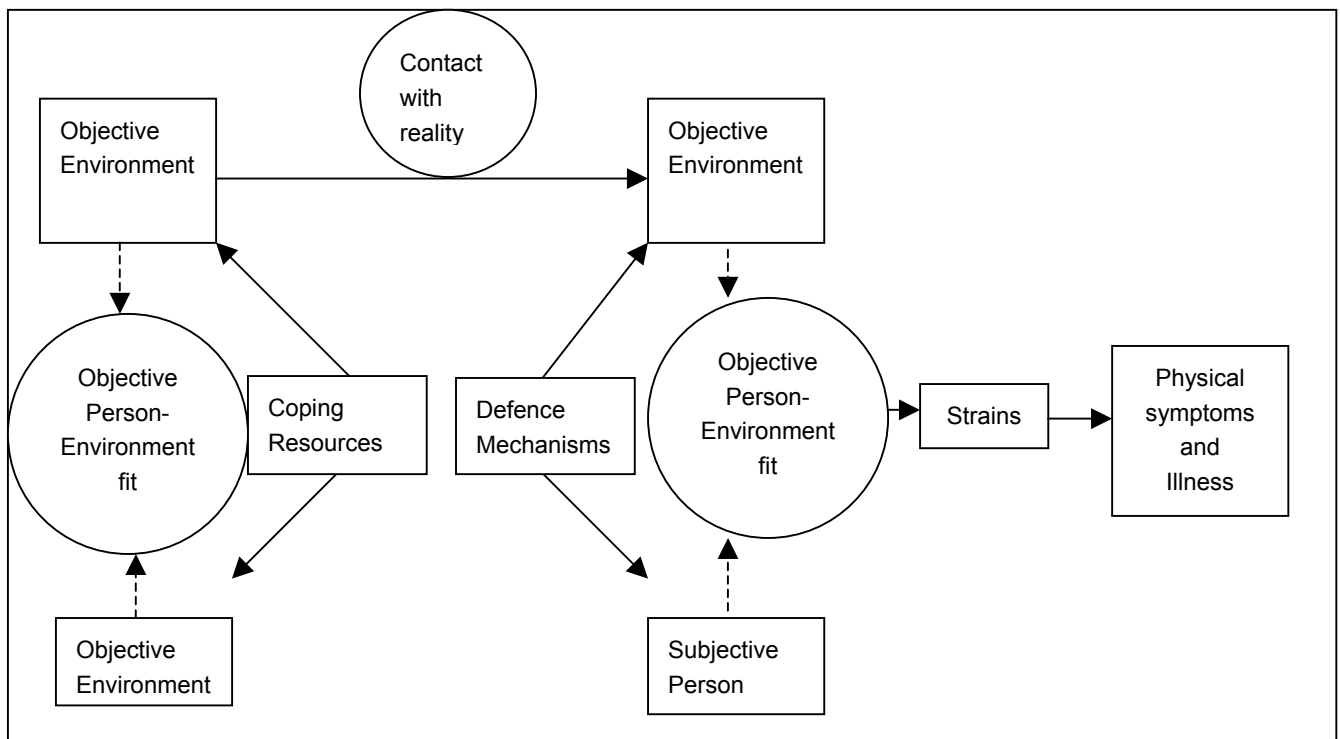
Figure 2.2: Person–environment fit model (Adapted from Harrison, 1978)

2.3.2 House's paradigm for stress research

House (1974) put forward an operational approach to occupational assessment (fig 2.3). The interdependence of dimensions is clearly visible in this model. Such an operational approach is useful to develop ways of classifying, categorising and predicting stress. The dimensions include perceived stress and the individual's physiological, cognitive and behavioural responses and outcomes.
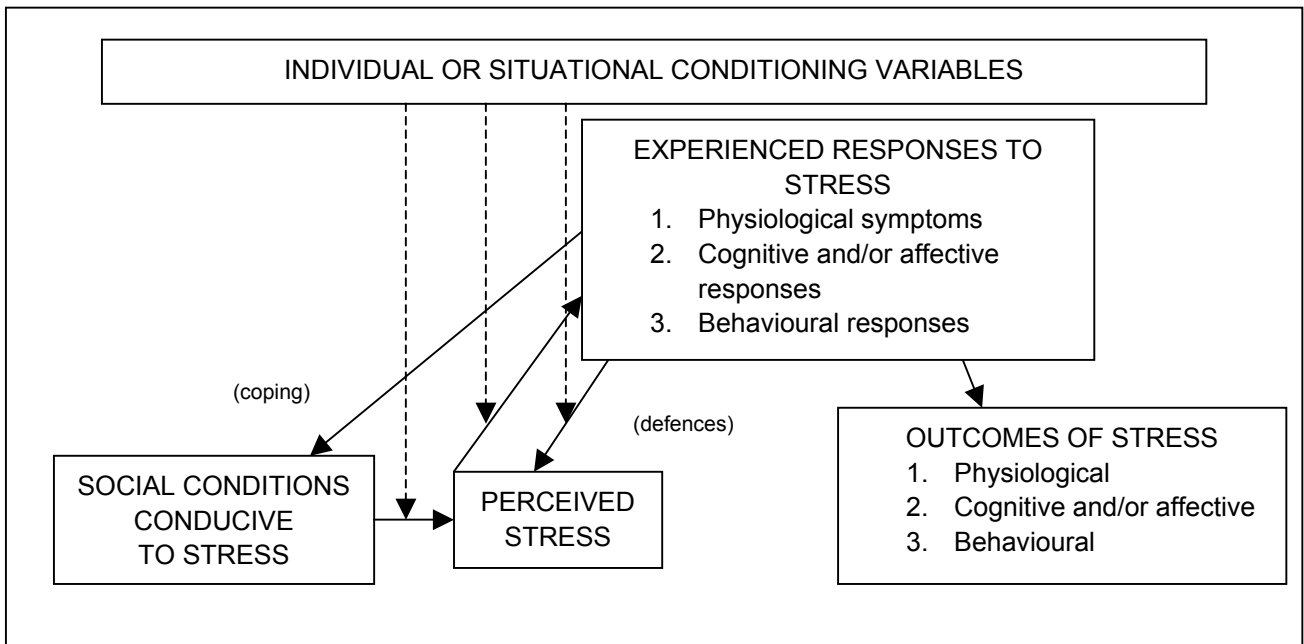
Figure 2.3: A paradigm for stress research (Adapted from House, 1974)

2.3.3 Managerial stress models

Sources of stress in the workplace have been identified by most of the recent stress researchers. Various approaches have been used to classify these sources into a useful model (Cooper & Marshall, 1978; Cooper et al., 1988; Fletcher, 1988; Jones & Kinman, 2001; Sharit & Salvendy, 1982), including physiological versus psychological sources, task characteristics, work environment characteristics, extraneous factors to the job and individual characteristics.

Cooper and Marshall (1978) identified seven major categories of managerial stress, as depicted in figure 2.4. This model still serves as a sound framework for discussion of the concepts.
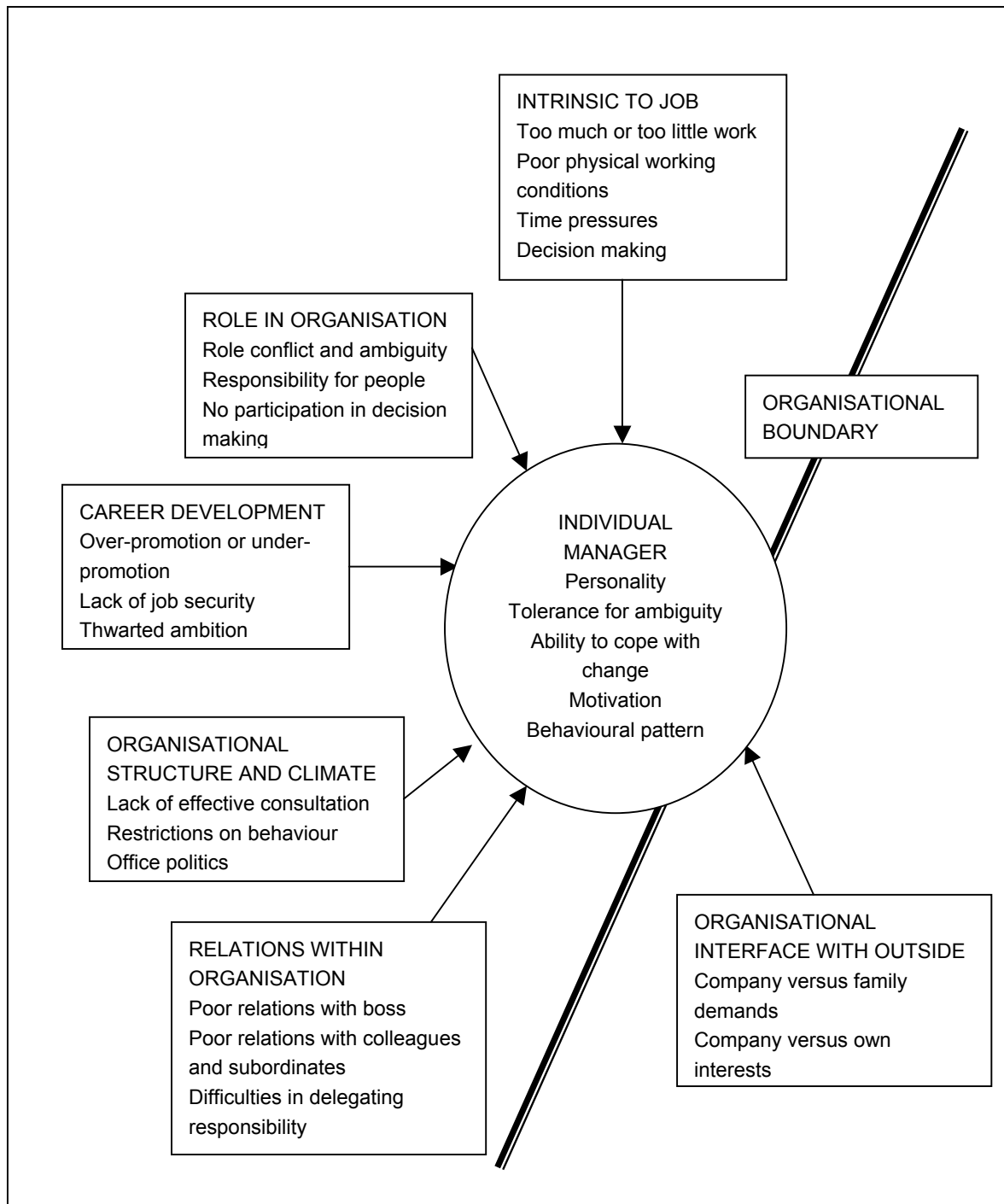
Figure 2.4: Sources of managerial stress (Cooper & Marshall, 1978, p. 88)

2.3.3.1   Stress factors intrinsic to the job

According to Cooper and Marshall (1978), factors intrinsic to the job were the first and vital focus of study for early stress researchers. This focus relates to the belief that stress can be caused by too much or too little work, time pressures and deadlines, having too many decisions, fatigue from physical strains, excessive travel, long hours, having to cope with changes at work and the expenses of making mistakes. Every job description includes factors, which will result in stress for some people at some point in time. Two factors appear to have received the major focus of the research effort in this area, namely working conditions and work overload (Cooper & Marshall, 1978; Sharit & Salvendy, 1982).

a   Working conditions and physical environment

Working conditions of jobs have been linked to physical and mental health. It was found that poor mental health related directly to unpleasant work conditions, physical effort and speed in job performance and excessive, inconvenient hours (eg shifts). In addition, researchers have found increasing evidence that repetitive and dehumanising environments adversely affect physical health (Cooper & Marshall, 1978; Kornhauser, 1965; Osipow, 1998; Osipow & Davis, 1988; Sharit & Salvendy, 1982).

b   Work and/or role overload

Work overload, also known as role overload, is considered to be a more important stressor for managers and "white-collar workers" than working conditions. It can be seen in terms of quantitative and qualitative overload. Quantitative overload refers to having too much to do, whereas qualitative overload refers to work that is too difficult for the incumbent to perform (French & Caplan, 1973). It has been theorised that "overload" in any system will result in a breakdown of some kind within the system. In one study conducted by French and Caplan (1973), it was found that quantitative overload was linked to cigarette smoking (a risk factor for coronary heart disease). They found that people with more telephone calls, office visits and meetings per given unit of work time were found to smoke significantly more cigarettes than

people with fewer stressors of this nature. In a study by Margolis, Kroess and Quinn (1974) (as cited in Cooper & Marshall, 1978), quantitative work overload was significantly related to indicators of stress such as escapist drinking, absenteeism from work, low motivation to work, lowered self-esteem and an absence of suggestions to employers. These results show that work overload is a potential source of occupational stress that adversely affects both health and job satisfaction. Qualitative overload is primarily relevant to managers in senior positions in organisations and is particularly associated with low self-esteem where individuals perceive they are overloaded with work they cannot do (Cooper & Marshall, 1978; Osipow, 1998; Osipow & Davis, 1988; Sharit & Salvendy, 1982).

In a summary by French and Caplan (1973), quantitative and qualitative work overload produced at least nine different symptoms of psychological and physical strain, namely low job satisfaction, job tension, lower self-esteem, threat, embarrassment, high cholesterol levels, increased heart rate, high skin resistance and increased smoking. It is important to recognise, however, that these stressors and resulting strains need to be considered in relation to the individual's personality and ability to cope. A discussion on coping resources can be found in section 2.5.

2.3.3.2   Role in the organisation

A source of major managerial stress is considered to be associated with the individual's role at work. Since the research by Kahn, Wolfe, Quinn, Snoek and Rosenthal (1964), the focus has been on three key concepts in this area.

a   Role ambiguity

Role ambiguity is the result of the individual having insufficient information about his/her work role. This lack of clarity about work objectives, expectations and the scope and responsibilities of the job, result in lower job satisfaction, high job-related tension and lower self-esteem (Kahn et al., 1964). Margolis et al. (1974) (as cited in Cooper and Marshall, 1978) also found that role ambiguity was associated with physiological strain such as increased blood pressure and pulse rate. Other indicators were depressed mood, lowered self-esteem, life dissatisfaction, job

dissatisfaction, low motivation to work, and intention to leave the job. Although not strong, the relationships were significant and indicate that "lack of clarity" could be one of many potential stressors at work (Burke, 1988; Cooper et al., 1988; Cooper & Marshall, 1978; Osipow, 1998; Osipow & Davis, 1988).

b   *Role conflict*

Role conflict occurs when the individual is "torn" by conflicting job demands or doing things he/she does not want to do or does not feel are part of the job specification. This occurs most frequently when a person is expected to perform in different ways by different groups of people. Kahn (1974) found that men who suffered more role conflict had lower job satisfaction and higher job related tension. In addition, the more power and authority the person/s sending the conflicting messages has, the greater the job dissatisfaction as a result of role conflict. An interesting finding relating to studies across occupations by French and Caplan (1973) was that fewer physical occupations had a greater relationship between role conflict and ambiguity, and abnormal electrocardiograph readings and coronary heart disease. It is also believed that the more extensive and diverse an individual's interpersonal communications network, the more stress symptoms he/she experiences. Positions at the boundary of departments, organisation or to the outside environment tend to have high communication and influencing requirements, and are thus more stressful. Hence managerial and supervisory roles are found to be significantly more stressful than clerical or shop-floor jobs (Burke, 1988; Cooper et al., 1988; Cooper & Marshall, 1978; Osipow, 1998; Osipow & Davis, 1988).

c   *Responsibility*

Responsibility can be divided into "responsibility for people" and "responsibility for things". Responsibility for people is significantly more likely to lead to coronary heart disease than responsibility for things (Wardwell, 1964, as cited in Cooper & Marshall, 1978). This stress results from the need to spend more time interacting with employees and other people, attending meetings, working alone - hence more time is spent trying to meet deadlines. It was also found that physical stress was linked to age and level of responsibility in the organisation; the older and more responsible the

executive is, the greater the probability of coronary heart disease symptoms and risk factors. In another study cited by Cooper and Marshall (1978), the relationship between age and stress-related illness was explained by the fact that older senior executives experienced other stressors on top of responsibility; further advancement is unlikely, increased isolation and narrowing of interests and an awareness of approaching retirement. French and Caplan (1973) found that responsibility for people plays a part in the process of stress, particularly for clerical, managerial and professional workers. Their findings showed that responsibility for people was significantly related to higher levels of risk factors such as heavy smoking, high blood pressure and cholesterol (Burke, 1988; Cooper et al., 1988; Cooper & Marshall, 1978; Osipow, 1998; Osipow & Davis, 1988).

d   Other role stressors

Other potential role stressors include having too little responsibility, lack of participation in decision making, lack of managerial support, having to keep up with increasing standards of performance and coping with rapid technological change (Burke, 1988; Cooper & Marshall, 1978).

2.3.3.3   Relationships at work

According to Cooper and Marshall (1978), the third major source of stress at work focuses on the nature of relationships in the workplace (with the individual's seniors, subordinates and colleagues). It is believed that good relationships between members of a work group or organisation are an important factor in individual and organisational health. However, it appears that more research is needed in this area to prove this statement conclusively. Studies by Kahn et al. (1964) and French and Caplan (1973) found that mistrust of co-workers was positively related to high role ambiguity, and thus resulted in inadequate communication, which in turn led to psychological strain symptoms such as low job satisfaction and job-related threat to well-being (Burke, 1988; Cooper & Marshall, 1978).

a   Relationship with superior

Employees' relationships with their superior are found to be affected by stress, in that workers who are under pressure report that their bosses do not give them constructive criticism, that perceived favouritism is prevalent and that seniority is perceived negatively under pressure. In other words, supervisors who are perceived to be more considerate to subordinates have a significant effect on reduced feelings of pressure in the work situation (Burke, 1988; Cooper & Marshall, 1978).

b   Relationships with subordinates

With the advent of participative management, there is evidence that managers may feel resentment, anxiety and stress as a result of a mismatch of formal and actual power (Cooper & Marshall, 1978). There has also been an erosion of the formal managerial role and authority (loss of status and rewards) in some organisations. Counterproductive pressures, such as encouraging participative management and the need to achieve high productivity work in opposition to each other, creating a highly stressful situation for managers (Burke, 1988; Cooper & Marshall, 1978).

c   Relationships with colleagues and social support

Stress can be caused, not only by the pressure of relationships, but also by the lack of adequate social support in difficult situations. This may therefore be both a stressor and a coping strategy. Problem sharing is an important support mechanism amongst colleagues, especially early in careers. However, it was found that there was a tendency towards isolation the further up the corporate hierarchy one advances. In studies cited by Osipow (1998), social support, the ability to draw on friends and co-workers, reduced the impact of all stressors with the exception of physical environment (Burke, 1988; Cooper & Marshall, 1978; Osipow, 1998).

2.3.3.4   Career development

Cooper and Marshall (1978) identified two major areas of potential career stressors:

(1)   lack of job security, fear of redundancy, obsolescence or early retirement

(2)   status incongruity, under or over promotion, frustration with reaching career ceiling (Cooper & Marshall, 1978).

Managers frequently regard career progression as vital and it is through promotion that they earn money, status and job-related challenges. During the early career stage, this goal and the ability to adapt quickly to changing situations is more often than not rewarded by the organisation. Once reaching middle management levels, however, many individuals experience slowed progression and fewer job opportunities. Those that are available are more complex and take longer to master, and there is an ever-present threat of "new talent" and competition. In addition, individual energies are required for family as well as work activities. These fears are frequently "suffered in silent isolation" and may be the cause of great stress (Burke, 1988; Cooper & Marshall, 1978).

 According to Cooper and Marshall (1978) "executive neurosis" is the result of an overpromoted manager overworking to keep down a high level job and hiding a sense of insecurity. This has consequences for both the individual's performance and the organisation.   As a result of the rapidly changing environment, age is no longer revered as it used to be. Technological, economic and social changes mean that most individuals will need to change career during their working lives and this trend results in uncertainty. Global competitiveness has resulted in organisations undergoing massive strategic and structural changes, including transfers of location, new technological processes, mergers and acquisitions and obsolescence, in order to improve productivity and increase market share in a highly competitive environment. This has resulted in a lack of security for employees, with lay-offs and downward mobility being commonplace.   Research shows that employees, especially older ones, seek stability and unless they adapt their expectations and perceptions to new circumstances, "career development" stress becomes more common, especially in latter life career stages. Organisations of the future need to respond quickly to shifting market conditions, which requires employees and especially managers who are flexible and have an orientation to lifetime, continuous learning and improvement (Burke, 1988; Cascio, 1995).

2.3.3.5   Organisational structure and climate

Simply being in an organisation is a source of stress. The risk of losing individual freedom, autonomy and identity can create problems such as lack of participation in decision-making processes, no sense of belonging, lack of effective consultation, poor communication, restrictions on behaviour and office politics. French and Caplan (1970) reported that individuals who had greater opportunities for participation in decision making showed significantly higher job satisfaction levels, lower job-related feelings of threat and higher feelings of self-esteem. Employees who were most "under pressure" reported that their supervisors "ruled with an iron hand". There is a strong indication that greater participation leads to lower staff turnover and higher productivity, and when absent it results in lower job satisfaction and higher levels of physical and mental health risk (Burke, 1988; Cooper & Marshall, 1978).

According to Cascio (1995) the current trends in the global economy have seen changes from mass production and large organisations to new 21st century organisations, which are characterised by:

- smaller organisations employing fewer people

- a shift from vertically integrated hierarchies to networked specialists

- technicians replacing operatives as the worker elite

- pay being linked less to a person's position or tenure and more to the market value of his/her skills

- the change in the paradigm from making a product to providing a service

- the redefinition of work through the emphasis on constantly changing work

These changes and their implications, which are expected to continue well into the 21st century, require constant learning, higher-order thinking, and the availability to

work outside of standard, accepted working hours. All of this increases the perception and experience of stress amongst workers (Cascio, 1995).

In addition, there has been a shift in the managerial requirements from command-and-control styles to the need for articulation of organisational vision and goals, operationalising the vision and using it as a benchmark to assess progress. This emphasises the need for organisational democracy and a climate of breaking down barriers, sharing information, collaborative approaches to problem solving and continuous learning. For many managers and management teams these new requirements create added responsibility and uncertainty owing to the fact that they are skills that have previously not been required, resulting in additional stress during transitions and organisational change. This stress may be dysfunctional both at an individual and a group or organisational level if not dealt with adequately (Ashford, 1988; Cascio, 1995; Rance, 1998).

2.3.3.6   *Extra-organisational sources of stress*

The final source of external job stress relates to the interfaces between life outside and life inside the organisation which put pressure on the individual. These include family issues, life crises, financial difficulties, conflict of personal beliefs with those of the organisation and conflict of organisational and family demands. The stress most often results from the multiple roles one person may play at work and at home (Burke, 1988; Cooper & Marshall, 1978; Frone & Rice, 1987; Greenhaus, Bedeian & Mossholder, 1987; Kinman & Jones, 2001). The main problems relating to the family are as follows:

- Time-management-based problems result when the individual does not have enough time available to balance the needs of family and organisational roles.

- Strain-based conflict arises when overlapping roles result in individuals worrying about work during time at home thus creating conflict and distance from family and friends.

- Behavioural-based conflict results when one role is incompatible with the behaviours required in another role. This can cause inappropriate behaviour in the home context thus increasing conflict and stress (Kinman & Jones, 2001).

Organisations have increasingly tried to implement flexible work schedules in the erroneous belief that work exerts a negative effect on families only to the extent that it physically keeps workers apart from their home and families. The key to developing a greater understanding of the relationship between work and family life is to study the perceptions of the work itself (Burke, 1988; Frone & Rice, 1987; Greenhaus et al., 1987; Kinman & Jones, 2001).

2.3.3.7   *Individual characteristics*

Different people react differently to pressure in the work situation. Some have better abilities to cope than others and are able to adapt their behaviour in order to meet the challenge. According to numerous authors (Cooper & Bright, 2001; Cooper & Marshall, 1978), many factors contribute to these differences, ranging from personality, gender, motivation, inability to deal with problems in an area of expertise, fluctuations in ability (often related to age), to insight into personal motivations and development areas. Most research into individual differences in characteristics has focused on personality differences between high and low stress individuals. Psychometric studies have shown that a high relationship exists between certain psychometric measures such as anxiety, emotional instability and depression, to name but a few, and the incidence of coronary heart disease (CHD). In addition, initial research in the early 1960s showed the relationship between behaviour patterns and CHD. This relationship was later referred to as the coronary-prone behaviour pattern Type A. This behaviour pattern is characterised by extreme competitiveness, restlessness, hyperalertness, explosiveness of speech, time urgency and being challenged by responsibility. Such individuals are frequently deeply committed to work and neglect other aspects of their lives (Cooper & Bright, 2001; Cooper & Marshall, 1978). Individual differences will be dealt with further from a coping perspective in section 2.4.1.

2.3.4 Occupational stress audit models

The idea of stress audits has become more popular in recent years. Owing to the previous confusion surrounding the causes of stress and conflicting approaches, this type of audit may be fraught with difficulty (Jones & Bright, 2001). In order to achieve success in such an audit, clear definitions of the measures are of utmost importance. Models and theories of stress research have been used by more recent researchers to develop integrated models and associated "off-the-shelf" measurement instruments. Two such models are Cooper et al.'s Occupational Stress Indicator (1988) and Osipow and Spokane's Occupational Stress Inventory – Revised (1998). They are similar in many respects in that they are "off-the-shelf" measuring instruments, and are convenient to administer. However, time permitting, an audit constructed specifically for the particular needs of a specific organisation may better identify issues (Jones & Bright, 2001).

2.3.4.1 Occupational Stress Indicator (Cooper, Sloan and Williams (1988))

The Occupational Stress Indicator (Cooper et al. in Jones & Bright, 2001), is based on a model of stress incorporating a range of stress sources, individual and organisational effects, and many intervening variables, which include personality factors, perception of control and coping strategies. The model and its variables are depicted in figure 2.5.

Although the model has been used for many studies, it has been criticised because of the fact that it tries to measure too many aspects at one time (Jones & Bright, 2001). Jones and Bright (2001, p. 192) defend this type of instrument by stating that "its broad brush approach may be useful to identify problem areas in an organisation that can then be investigated further using more focused approaches".
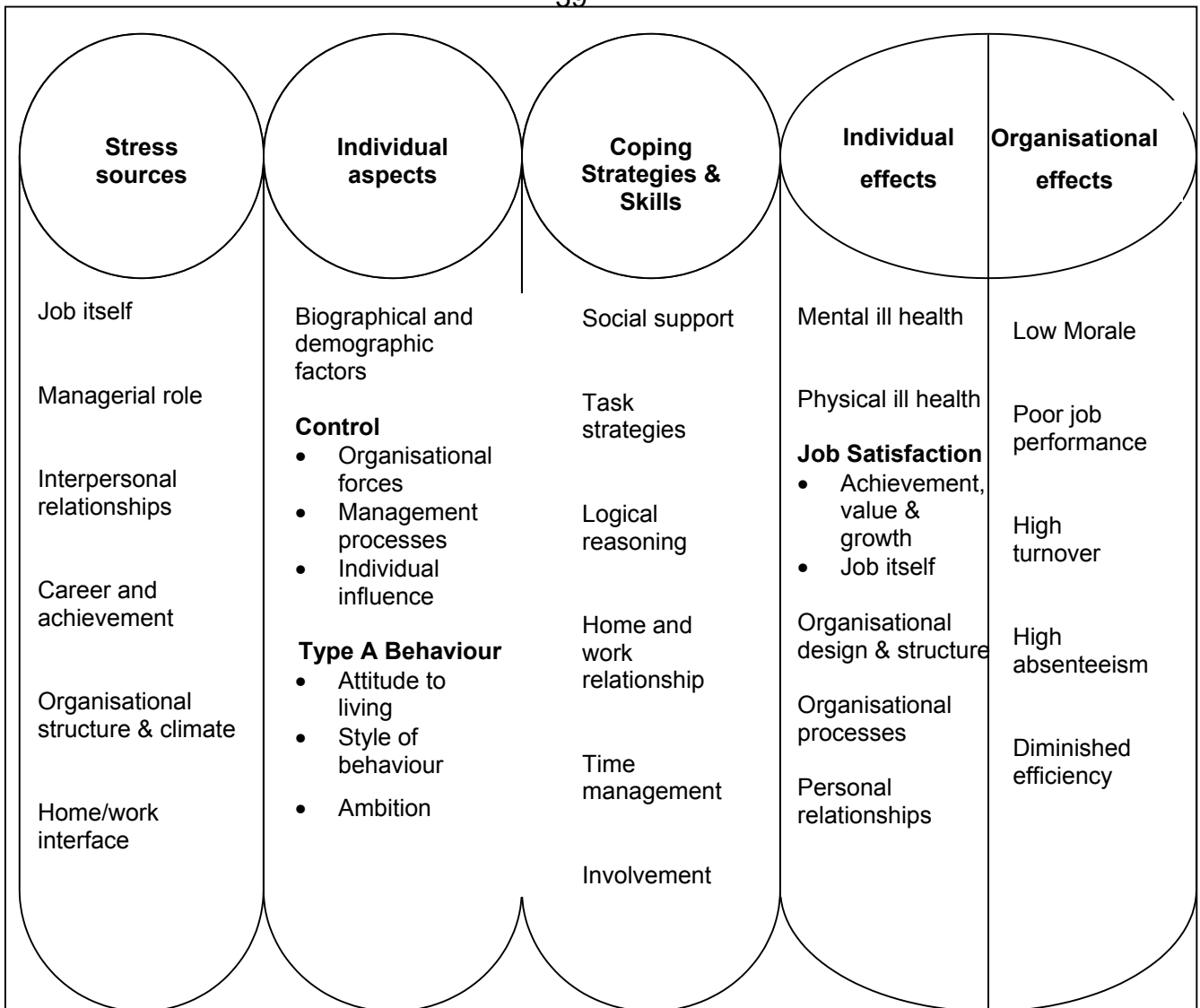
Figure 2.5: Occupational stress model (Adapted from Cooper et al., 1988)

2.3.4.2   Occupational Stress Inventory (Osipow and Spokane (1984) – Revised (1998))

Osipow and Spokane (1984) developed a model of stressors applicable across occupational levels and environments.   This model integrates sources of work environment stress, the resultant psychological strains and available coping resources (Swanson, 1991).

In the stress models reviewed, occupational stresses are perceived to have consequences for the individual. These consequences are experienced as strain in one form or other. This perceived stress and resulting strain could, among other

things, have an effect on work performance. Osipow identified the distinction between perceived stress and experienced strain, which has been seen as critical to any successful model of occupational stress. This distinction became the basis for the model underlying the Occupational Stress Inventory (OSI) (Osipow, 1998).

In addition to the above constructs, a definition of coping resources (as researched by Lazarus, Averill, & Opton, 1974; Roskies & Lazarus, 1980) is considered vital for any model of occupational stress and mental health. In the initial development of the OSI, Osipow and Davis (1988) focused on the measurement of occupational stress, consisting of the three related domains of

(1)   occupational stressors

(2)   occupationally induced psychological strain

(3)   coping resources available to counteract the effects of stress

The underlying factors (as discussed in sec 3.2) for each of the domains were used to develop the scales on which the measurements would be based (Swanson, 1991).

 According to Osipow (1991, p. 324):

> The model and measure that emerged was that the work environment places individuals in roles that create the perception of stress, that people use various methods to resolve (cope with) these stresses, and the degrees of success of these methods in combination with the intensity of the stress as well as a number of personal variables interact to produce a level of strain.

The focus of this occupational stress model is on the individual's perception of stressors and experience of strain. In other words, subjective levels of stress are of more relevance than objective levels of stress. In addition, given equal levels of stress, the amount of strain an individual experiences is moderated by the amount of coping resources available (Osipow & Spokane, 1984).

2.4 OCCUPATIONAL STRAIN AND THE EFFECTS OF STRESS

In the past, the effects of stress have received less attention from researchers than the nature of stress itself. Strain can be defined as the response to stress that is manifested by the individual, and may include psychological strains such as depression or anxiety, or physical and biological strains such as disease. Strain is considered to be the outcome of stress or the negative effects of stressful events (Fletcher, 1988; Hobfoll, 1988; Jones & Kinman, 2001).

Jones and Fletcher (1996) described strain as the result of an imbalance in the demands and constraints placed on an individual in relation to the supports available. Cox (1985) views the effects of stress in terms of change and the realisation that things are not "as expected" or "normal". In other words, a change has occurred and been recognised. A further factor in the effects of stress revolves around the interaction of response systems, which involves control loops. Situational and individual differences play a significant role in the experience and effects of stress on a person. According to Cox (1985), a hierarchical model of outcomes is applicable. The term "responses" is used to refer to changes at the individual level, while "effects" has a wider connotation of consequence, which includes social, organisational and societal levels.

2.4.1 Interactional approaches to stress and strain

Early researchers used basic input-output or stimulus-response approaches, whereby the extent to which major life events or features of work design predicted a negative outcome – be it, psychological, physiological or behavioural (Jones & Kinman, 2001). More recently, the specific conditions under which stressors lead to strain, have become the predominant focus of research. This focus includes the way in which factors in the individual or the environment interact to determine the level of negative effects experienced as strain. According to Jones and Kinman (2001), a variety of approaches have been developed to explain how individual and environmental factors interact with stressors. Typically, the following three types of measures are used in this type of interactional approach (Jones & Kinman, 2001):

(1)   Measures of environmental events or situations (stressors) such as workload and stressful life events

(2)   Measures of intervening or moderating variables such as personality traits or coping strategies

(3)   Measures of strain outcomes such as anxiety or physical symptoms

One of these interactional approaches to stress is the Osipow and Spokane (1984) Occupational Stress Model which was revised in 1998 (see sec 2.3.4) (Jones & Kinman, 2001; Osipow, 1998).

2.4.2   Individual responses to stress

It has been popular in stress literature to categorise the response to stress as psychological, behavioural and physiological. When a stressful situation is perceived as a negative emotional experience, an immediate response is elicited. There are a variety of often negative feelings reflecting the individual disposition and situational factors. These strains are seen as undesirable consequences of stressors. This stress response or emotional experience may be accompanied by changes in perceptual or cognitive processes and in behavioural or physiological functioning. Apart from their own undesirable nature, some strains may have additional undesired consequences for individual task performance and well-being. The type, number and severity of strains an individual develops are subject to individual differences (Cox, 1985; Winnubst, De Jong & Schabracq, 1996).

According to Osipow and Davis (1988), the outcome of the occupational stressors is believed to be personal strain, which, is manifested in vocational, physical, interpersonal and psychological strain (Cox, 1985; Osipow & Davis, 1988).

2.4.2.1   Psychological symptoms of strain

Psychological reactions to stress begin with initial shock and disbelief followed by defensive reactions, denial, blame and ultimately acceptance. Strain reactions may

be temporary or long term, mild or severe depending on the longevity of the causes, how strong they are and the strength of the individual's ability to recover and cope (Bailey & Bhagat, 1987; Kessler, Price & Wortman, 1985).

The following examples of psychological strain symptoms that can be measured are (Ivancevich & Matteson, 1993; Winnubst et al., 1996):

- subjective symptoms of mental disorder (such as anxiety, depression, irritation, anger and loss of temper, frustration, low self-esteem, nervousness and apathy)

- cognitive symptoms (inability to make decisions, poor concentration, short attention span, hypersensitivity and mental blocks)

- worrying and neurosis about work (continuity of organisation, relations with others and own competence levels)

- behavioural symptoms of psychological strain, which can have physically detrimental effects (alcoholism, drug abuse, emotional outbursts, excessive eating, excessive smoking and impulsive behaviour).

2.4.2.2 *Vocational strain*

Some of the symptoms of vocational strain are behavioural reactions to stressful work situations. These include boredom, dread, lack of interest, poor concentration, and increased accident proneness. These symptoms may have a direct affect on the organisation. Job dissatisfaction, for example, may result in lowered productivity levels (Gherman, 1981; Sutherland, Fogarty & Pithers, 1995).

According to Osipow and Davis (1988), vocational strain is related to the occupational stressors role overload, role insufficiency, role boundary and physical environment.

2.4.2.3 *Physical and physiological symptoms of strain*

Traditionally, studies of physiological responses to stress have focused on the functioning of neuro-endocrine systems and measures of cardiovascular health (Cox, 1985, Jones & Bright, 2001). The changes, which accompany the experience of stress, have different immediate and long-term consequences. Selye (1980) introduced the concept of "disease of adaption", which contrasted the short-term adaptability of the neuro-endocrine stress response, with the longer-term relationship to pathogenesis. Adaptation has had an immediate survival function but there is a longer-term cost to health (Cox, 1985).

An assumption made in much of the stress research to date, is that '"stress" causes disease (Bright & Jones, 2001). This relationship between stress and disease is discussed in many models and frameworks (Cooper & Marshall, 1978). The experience of stress is associated with changes in attitudes and behaviours, which relate to the maintenance of a healthy state (Antonovsky, 1987). These changes could include the inhibition of health-promoting behaviours, such as exercise and the practice of relaxation, or the development of health-threatening behaviours, such as smoking, alcohol abuse or drug taking. Other changes relate to an individual's neuro-endocrine responses to stress, which may interfere with normal physiological functioning, thus inhibiting the body's natural defences and promoting pathogenic change, causing disease (Cox, 1985).

There are a number of ways that physical strain symptoms have been studied. These include self-report measures of experienced symptoms and objective physiological measures, which are regarded as having superior validity compared to the former. Objective indices are typically used to measure physiological changes thought to be precursors of disease, such as, cardiovascular symptoms (eg blood pressure and cholesterol level) and biochemical symptoms (eg uric acid and cortisol). The relationship between objective physiological symptoms and stress is difficult to establish conclusively because of such factors as genetic influences (high cholesterol counts) and accidents; an individual's state of health changes relatively slowly; longitudinal studies over extended periods of times would need to be done; and finally, the criterion for health is unclear (Bright & Jones, 2001).

According Osipow and Davis (1988), who used self-report indices to ascertain the influence of stress on strain symptoms, physical strain is most likely to occur as a result of the following occupational stressors: role overload, role insufficiency and responsibility.

a   Minor physical and behavioural symptoms

A number of physical symptoms of stress have been identified which commonly occur prior to the onset of serious stress-related illness. These include lack of appetite, insomnia, nervous twitches, headaches, high blood pressure, nail biting and indigestion. It is important to deal effectively with the stressors when minor physical manifestations of stress occur in order to prevent an escalation in physiological strain symptoms (Cooper et al., 1988).

b   Cardiovascular disease

Human physiological processes are ideal and adaptive for survival in stressful situations, which require an energetic behavioural response (fight or flight responses). The problem with modern life is that it rarely requires sufficient levels of activity to warrant these responses. Health problems arise when the stress response system is repeatedly activated, thus causing unnecessary damage to the cardiovascular system. Increased blood pressure and deposits of fatty acids can result in heart attacks and decreased blood flow to the limbs (Clow, 2001; Rodin & Salovey, 1989).

Karasek (1979) developed the job strain model, which suggests that high job demands (workload and pace) and little control are particularly important in predicting strain. There has been a large amount of research into the relationships between work stress (specifically job demand and control) and health, particularly the presence of cardiovascular disease (Jones & Bright, 2001). In numerous studies discussed by Jones and Bright (2001), there seemed to be a causal relationship between job strain and cardiovascular disease.

c   Immune system diseases

The body uses two ways of warding off infection: Firstly, antibodies are secreted which bind invading pathogens thus rendering them inactive and clearing them from the body (active during the daytime). Secondly, a more aggressive defence is used whereby the immune cells actively destroy the invading pathogens such as cancers and viruses (active during the night). The body's immune cells are the white blood cells which are produced and stored in the bone marrow. Stress influences the body's ability to balance the daily fluctuation between the two immune strategies and thus the possibility of disease (Clow, 2001; Rodin & Salovey, 1989).

Jones and Bright (2001) discussed the mounting evidence for the influence of stressors on immune functioning. According to Jones and Bright (2001), emotionally distressing events are implicated in all types of cancer. This information can be traced back to medical literature from the 19th century. However, more recently, literature on research into breast cancer has identified both methodological flaws and confounding variables, which may have influenced the outcomes of much of the research. It seems that more research is needed to conclusively show the causality between life events and cancer (Jones & Bright, 2001).

According to Jones and Bright (2001) a large number of studies have demonstrated the relationship between stressor and colds. It was found that the strongest associations and susceptibility were found where interpersonal conflicts and work stressors were more enduring and chronic. Findings show that perceptions of stress were not crucial, but that emotional distress was associated with greater risk of infection, while experience of chronic life events seems to be associated with actually becoming ill (Jones & Bright, 2001).

d   Mechanisms underpinning relationship between stressors and disease

The following stress responses may be linked to health and disease (Jones & Bright, 2001):

- In the cognitive-behavioural pathway, cognitive, affective and behavioural aspects of the stress response (strain) may have an impact on health but may be independent of direct physiological effects. For example: work stressors lead an individual to feel anxious (affective); he/she thinks that a cigarette will help relaxation and coping (cognitive) and therefore smokes more (behavioural). Thus developing a smoking-related disorder is an indirect effect of smoking rather than a direct effect of the strain (reaction to work stressors). Alcohol and drug abuse are considered to be other symptoms in this category.

- Three physiological processes are involved in the psychophysiological pathway. Firstly, under stress, a hyper-reactive response is experienced, where there is an exaggerated physiological response implicated in the cause of disease. For example, high blood pressure responses to stress may predict future blood pressure. Secondly, hyper-reactivity may destabilise existing disease processes to exacerbate a disease such as diabetes.   Thirdly, stressors have an effect on the immune response, for example, via their impact on endocrine responses, thus lowering resistance to infection (Jones & Bright, 2001).

2.4.2.4   *Interpersonal symptoms of strain*

Human beings' contact with other people is a basic need. This need for interpersonal contact can be fulfilled in numerous settings - work, home and social. In the work context, interaction happens in the form of formal meetings, informal discussions and interactions with peers, subordinates, customers, general public and other business contacts. The degree of pressure and stress experienced will vary between individuals depending on their perception of the situation and comfort in dealing with others. The strength of the relationship depends on whether it serves or frustrates the individual, and the way people behave is determined by their reactions to each other as individuals or in groups. Both prolonged isolation and too much interpersonal contact increase stress.   Underload and overload of interpersonal contact may result in negative emotional reactions, excessive conflict, restlessness and anxiety, which need to be balanced to prevent mental and physical illness (Gherman, 1981).

2.4.3   Organisational effects of stress

The cost of stress is experienced at both individual (as seen by the discussion on physical and psychological strain symptoms) and corporate level (by reductions in productivity and on-the-job performance). According to Cox (1985), the wider organisational and economic effects of stress revolve around the changes in the systems in which the individual functions. Individual behaviour and its effect on the system can be seen as being a continuum, with absence from illness, poor time-keeping and task performance at one end, and labour turnover, low group morale, productivity and poor industrial relations, at the other. The latter are less affected by a single individual's behaviour (Cooper et al., 1988; Cox, 1985; Ivancevich & Matteson, 1993).

Job satisfaction can be detrimentally affected by stressful conditions, although it should be noted that certain occupations are considered to be inherently more stressful than others (Cooper et al., 1988; Gherman, 1981; Sperry, 1991).

Low morale amongst employees and managers is frequently an organisational strain that requires an organisation-wide process to counteract. No action can result in decreased productivity and high turnover, resulting in losses in profits and a dent in the bottom-line of the organisation (Cooper et al., 1988; Gherman, 1981; Jones & Bright, 2001).

Individual job performance improves with increased levels of stress, up to certain limits. After a point, stress becomes dysfunctional and reduced performance is experienced. This is evidenced in the Yerkes-Dodson model of the effect of anxiety on performance. Both too much and too little stress have a detrimental effect on performance (Cooper et al., 1988; Jones & Bright, 2001).

Absenteeism is an obvious, major cost of stress to the organisation. The problem is universal and accelerating rapidly. Analysts have recognised the direct link between employee's regularity of attendance on the job and the general level of health and well-being. In addition, high turnover can become expensive to organisations. Turnover can to some extent be attributed to natural and stress-related causes.

Retirement, voluntary changes in careers and dismissals are encountered in normal business operations. However, stress can lead to early retirement, medical boarding and dismissal of often highly competent employees. Executives and managers are more frequently "dropping out" of highly stressed corporate jobs to seek a more balanced lifestyle. The costs of recruiting and training new employees reduce overall efficiency and disrupt other workers. The estimated cost of labour turnover is five times an employee's monthly salary (Cooper et al., 1988; Gherman, 1981; Jones & Bright, 2001).

2.5   COPING RESOURCES

Many writers have proposed that coping resources moderate relationships between stress and strain (Osipow & Davis, 1988). Osipow and Spokane's (1984) research and subsequent model postulated a closed system. Occupational stress, strain and coping resources interact in this closed system (interactional approach). If occupational stressors were equal for two people, differences in coping resources would serve to moderate the resulting strain. Therefore, high occupational stress in itself does not necessarily predict strain. It is only by including the extent to which coping resources exist that an adequate prediction of strain is possible (Osipow, 1998; Osipow & Spokane, 1984).

According to Cox (1985), coping is a form of problem-solving behaviour, whereas stress is the result of failed problem solving. Coping involves cognitive and behavioural strategies, and represents either an adjustment to the situation or an adjustment of the situation. Coping is successful if the source of the problem has been dealt with or because the experience of stress has been directly reduced. Whether successful or not, there is a feedback mechanism which alters the person's initial perception of the work environment and other aspects of the process. Attempts at mastering a problem situation or dealing with the experience of it are termed "coping". Osipow and Davis (1988) investigated the effect of coping resources on stress-strain relationships. They found that all coping resources were effective in reducing the global strain (Cooper & Bright, 2001; Cox, 1985).

Research has shown that stress contributes to ill health in at least two ways. Firstly, the perceived stressful experience and resulting strain are associated with changes in attitudes and behaviours relating to the maintenance of a healthy state. These changes can either result in the inhibition of health-promoting behaviours, such as exercise, self-care and relaxation, or the development of health-threatening behaviours, such as smoking, excessive drinking or drug abuse (Cox, 1985; Winnubst et al., 1996).

2.5.1 Classifications of coping

Hobfoll (1988) distinguished between two types of coping resources – internal and external resources. Internal, individual resources are seen as those factors that exist within the individual, such as personalities, personal styles and ways of looking at problems. External, environmental resources are those that come from outside the individual, such as social support, valued aspects of the physical environment and material resources available to the individual. Semmer (1996) highlighted the most basic dichotomy of coping classifications, problem-focused and emotion-focused coping, as originally suggested by Lazarus. Other researchers have subsequently included classifications for appraisal-focused and perception-focused coping, approach and avoidance coping, and mature versus neurotic coping. These classifications for coping show that there is no absolute consensus on the area of coping and the number and kind of dimensions that make up this controversial topic (Hobfoll, 1988; Semmer, 1996).

2.5.2 Individual differences in reactions to stress

According to Jones and Bright (2001), it is clear that not all individuals who are subject to particular stressors experience or react to them in the same way. Whether or not certain stressors affect an individual will depend on his/her individual physiological, psychological and social predisposition. These include amongst other things individual personality factors, gender, and age and life stage, career and environmental factors, such as social support (Gherman, 1981; Jones & Bright, 2001).

2.5.2.1   Individual personality traits

Research into the stress and disease-health continuum (Antonovsky, 1987; Jones & Bright, 2001) has highlighted certain personality factors that are regarded as being associated with dysfunctional coping styles and strategies.   One cluster of characteristics associated with negative emotions, in particular, has been related to disease.   These include Type A personality (seen as impatient, irritable, hostile, competitive, involved in the job and achievement oriented) and negative affectivity (the tendency towards a disposition that experiences negative emotions and self-concept) (Jones & Bright, 2001; Rodin & Salovey, 1989).

Other personality traits that have been implicated in the stress process are locus of control (Rotter, 1966) and hardiness (Kobasa, 1979; Manning, Williams & Wolfe, 1988).   Locus of control describes the tendency for individuals to see events as being under personal control (internal) or under the control of external forces (external locus of control) such as fate, luck or chance.   Those with high internal loci of control are believed to exert greater effort to control their environment, exhibit better learning, actively seek and use information more effectively and focus on information rather than the social demand of situations.   They are also considered to be more resistant to stress, with externals reporting both higher stressor and strain levels (Semmer, 1996).

According to hardiness theory, the "hardy" individual is buffered against stress by virtue of a cognitive appraisal system (Cooper & Bright, 2001; Manning et al., 1988; Semmer, 1996).   This system is characterised by the following three strategies:

1. commitment – a belief that one's life and activities have value and importance

2. control – belief that one can control events

3. challenge – change in one's life is expected and can be beneficial

It is believed that negative affectivity and hardiness correlate well, thus leading to the opinion that the "hardy" individual is someone low on negative affectivity. Type A is more closely related to high negative affectivity (Cooper & Bright, 2001; Viviers, 1996).

2.5.2.2   Gender

Gender as an individual differentiator in the effects of stress is a controversial issue. According to Cooper and Bright (2001), although men are four times more likely to die of coronary heart disease, five times more likely to die of alcohol-related diseases and have an average life expectancy eight years shorter than women, studies show that women report more strain symptoms and health-related behaviours such as visits to doctors and psychologists. Symptoms such as depression are more likely to be diagnosed in women than men.   This may be the result of different cultural expectations of men and women, with women more likely to admit negative feelings and lack of confidence.   An alternative hypothesis suggests that as gender roles equalise there will be less significant differences between genders (Cooper & Bright, 2001).

In a study by Osipow, Doty and Spokane (1985) using the Occupational Stress Inventory, gender was not found to be a major contributor to differentiations in stress, strain and coping, whereas age appeared to be an important contributor (Osipow et al., 1985).

2.5.2.3   Age and career stage

Over a lifetime, an individual experiences a variety of environmental demands that interact with his/her personal development in specific age or life-stage related ways. Productivity and work satisfaction are areas that show differences during the life span of an adult worker (Crites, 1969; Super & Jordaan, 1982). Osipow et al. (1985, p. 99) noted that information about age-stage relationships and job stress, strain, and coping, was absent from research on life-stage career problems, and they stated the following:

> It is reasonable to raise the question of whether or not workers at all ages experience similar occupational stresses and strains and use similar coping mechanisms to deal with them, or whether there are substantial differences across the life span in stress, strain and coping.

From a career development point of view, each life stage presents unique stresses and strains together with varying development of coping resources that show the individual's experiential background.

According to Selye (1980), aging reflects the accumulation of all earlier stresses experienced, and Osipow et al. (1985) predicted that life stage will reflect differences in occupational stresses and will result in different occupational strains and differing availability of coping resources. This was confirmed during the research they conducted. Workers tended to experience increased responsibility and work overload as they matured. However, there was a decrease in stress and conflict over role demands as age and tenure increased. This, however, did not seem to result in an increase in total strain experienced, and could be attributed to a shift in the coping skills as people mature. The tendency was for workers to use more of all coping mechanisms (except social support) as they matured. The findings were that "given equal amounts of stress, strain varies as a function of coping resources" (Osipow et al., 1985, p. 105).

Osipow et al (1985) studied occupational stress, strain and coping in relation to life span. They used the Occupational Environment Scales Questionnaire (a forerunner of the OSI Occupational Role Questionnaire) in their study, and concluded that older respondents were generally found to have more overload and responsibility and fewer insufficiencies, boundary role, and physical environment stresses. In addition, older respondents showed a tendency towards decreasing vocational, psychological, physical and interpersonal strain in comparison with their younger counterparts. No differences were seen in the use of social supports in coping in their study. They postulated that older workers learn to use coping resources, and therefore experience reduced strain given equal amounts of stress. They did, however, highlight the fact that some workers who did not cope optimally would tend to leave the labour force as they aged, as a result of illness, unsuitability for employment or early retirement (Osipow et al., 1985).

Age and career (life) stage were found to be an important contributor to experienced strain. For younger respondents, stresses such as insufficiency, physical environment and boundary-spanning roles are most salient, while for older

respondents stressors such as overload and responsibility for people appear to be the most substantial. For younger subjects, psychological and interpersonal strains may be most significant, while for older subjects less strain appears in general. It was felt that this might reflect an improved ability to cope with stresses over time, or alternatively, a form of occupational self-selection that results in people leaving careers in which they perceive stress to be intolerable over time (Gherman, 1981; Osipow et al., 1985).

As far as coping mechanisms are concerned, social support is used at all ages. According to Osipow et al. (1985), there are, however, age differences in the use of other coping techniques. Recreational, physical and rational-cognitive coping was not used much by younger respondents, although it appeared to be higher in older respondents. It appeared to Osipow et al. (1985) that older respondents had developed more available coping resources than their younger counterparts.

Cooper and Bright (2001) drew a distinction between an individual's chronological and physiological age. Based on research by Ivancevich and Matteson (1980), chronological age is related to the type of stressors an individual is exposed to while physiological age is related to the outcome and consequences of exposure to the stressors. An individual's body and health status is related to these definitions of age. They observed that more physically robust individuals coped better with stressors and stressful situations than physically weaker ones. It was felt that more investigation is required into the effect of age as a differentiating factor for stress (Cooper & Bright, 2001).

2.5.2.4   Educational and social status

Many individual difference factors are acquired over time. These include education or financial assets, social supports or various coping strategies that individuals may develop to deal with stressors (Cooper & Bright, 2001). Education and occupational status are related to income, which has an effect on psychological and physical health. The effect of socioeconomic status on physical health and mortality has been well established by researchers. Education may influence the way individuals report their strain symptoms. It has been found that men with higher levels of education are more likely to express reactions to environmental stressors in

psychological terms, such as feelings of self-doubt, vulnerability, anxiety and mental breakdown. On the other hand, those with lower educational status tend to report more physical symptoms (Cooper & Bright, 2001).

2.5.2.5   *Social support*

Social support refers to the relationships with family and friends as well as social groups. It is important for individuals to have people they can count on and talk to about their work problems. In many cases individuals who experience high stress and job dissatisfaction blame their co-workers for it. Social support comes in a variety of forms (Winnubst & Schabracq, 1996), such as the following:

- instrumental support (helping others directly by doing things)

- emotional support (giving care, love, sympathy)

- informational support (providing information that can be used for coping)

- appraisal support (feedback about personal functioning directed at enhancing esteem)

In addition, help in doing home-based chores is important (Cooper & Bright, 2001; Frone & Rice, 1987; Jones & Fletcher, 1996; Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

2.5.2.6   *Recreation*

Recreational activities provide a distraction from stressful events and are a source of satisfaction outside of the work environment. In coping with stress it is critical for individuals to take advantage of leisure time due to them and engage in activities they find relaxing. Making use of spare time for recreational and hobby activities is an important aspect of coping (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

2.5.2.7 Self-care

The involvement in healthy and health promoting activities is another coping strategy which differentiates individuals who cope better with stress. Regular exercise, sleep, a healthy diet, dental health, relaxation techniques and avoiding harmful substances, and a general awareness of personal safety all contribute to this positive coping strategy (Cooper & Bright, 2001; Osipow, 1998; Osipow & Davis, 1988; Rodin & Salovey, 1989; Swanson, 1991).

2.5.2.8 Cognitive and/or rational coping

Cognitive skills involve the ability to reduce stress through the effective management of time and effort and the use of a systematic approach to problem solving, thinking through the consequences of choices and identifying important elements of problems encountered. The setting and follow-up of priorities and techniques to avoid being distracted, as well as being able to reorganise the work schedule when required are significant aspects of this type of coping behaviour. In addition, the ability to separate the job and home and the realisation that there are other jobs besides their present one that they can do, enable individuals to cope better with stressful work conditions (Cooper & Bright, 2001; Osipow, 1998; Osipow & Davis, 1988; Semmer, 1996; Swanson, 1991).

2.6 STRESS MANAGEMENT

According to Gherman (1981), the question is no longer whether organisations should implement stress management and awareness programmes, but how. Understanding the sources of stress and identifying relevant coping strategies that moderate the resulting strain, is only the first step in reducing stress (Ivancevich & Matteson, 1980). According to Osipow and Davis (1988, p. 14), "Organisations may benefit from identifying sources of environmental stress. Employees who suffer strain and fail to cope with it may have reduced productivity and, thus, increase the costs of doing business".

The last few years have seen an increase in health promotion and "wellness" programmes. Activities such as exercise, weight control, smoking cessation and stress management are being encouraged in the media and community. They take place in a variety of settings, from community centres and schools to worksites. From a work perspective, the responsibility for maintaining health should be a reflection of the basic relationship between the individual and the organisation. It is in the best interests of both parties that reasonable steps are taken to live and work sensibly. There are two levels at which management can intervene to reduce the amount of distress employees experience. These preventative interventions are classified as organisational and individual (Cooper & Marshall, 1978; Geurts & Gründemann, 1999; Liukkonen, Cartwright & Cooper, 1999). A model for stress management interventions is depicted in figure 2.6   (Schreurs, Winnubst & Cooper, 1996).

There is no limit to the number of remedies that have been suggested for stress, ranging from off-the-shelf products containing aromatherapy oils for relaxation, to therapies based on contemporary medicine and psychotherapy. The two main areas in which research and success have been reported are in the workplace and in a medical setting (Jones & Bright, 2001).   Murphy (1996) highlighted three main categories of stress reduction intervention:

1. Primary prevention involves reducing the stressor at the source and would include environmental interventions to remove stressors either in the workplace or elsewhere – for example, job redesign (discussed in sec 2.6.2).

2. Secondary prevention involves reducing the severity of the symptoms prior to their resulting in serious problems - for example, stress management training courses.

3. Tertiary prevention involves treatment through counselling, which is aimed at alleviating the problem once it has occurred. This is the most common approach in the workplace (Geurts & Gründemann, 1999; Liukkonen et al., 1999; Murphy, 1996).

Interventions	Outcomes/ Measureables
Individual-oriented approach:	**Individual focus:**
Relaxation techniques	Mood states (depression, anxiety)
Cognitive coping strategies	Psychosomatic complaints
Biofeedback	Subjectively experienced stress
Meditation	Physiological parameters (blood pressure
Exercise	muscle tensions)
Employee assistance programmes	Sleep disturbances
Time management	Life satisfaction
Career planning	
Training in:	
Stress education	
Coping with conflicts	
Social skills	
Wellness programmes – lifestyle approach	
Individual/organisational interface:	**Individual/organisational interface focus:**
Relationships at work	Job stress
Person-environment fit	Job satisfaction
Role issues	Burnout
Participation and autonomy	Productivity and performance
	Absenteeism
	Turnover
	Health care utilisation and claims
Organisation-oriented approach:	**Organisational focus:**
Organisation structure	Productivity
Selection and recruitment	Turnover
Training for management	Absenteeism
Physical and environmental	Health care claims
characteristics of the job	Recruitment and retention success
Health concerns and resources	
Job rotation and enrichment	
Mentorship programmes	

Figure 2.6: Summary of stress management interventions and outcomes (Adapted from Schreurs et al., 1996)

2.6.1 Individual role in stress management

Ellis (1978) highlights the fact that there are a large number of stressors in today's world, which significantly contribute to various harmful experiences and symptoms for virtually all humans. Some of these effects, which are rampant in modern society, include acute and prolonged feelings of anxiety, depression, inadequacy,

hostility and low frustration tolerance. An additional stressor occurs when individuals who already do not deal with stress well, berate and condemn themselves for their poor reactions. This results in a vicious cycle of "self-flagellation" (Ellis, 1978).

Individuals need to take responsibility for their health because maintaining wellness means more than simply following what doctors instruct you to do when you actually become ill. For the individual, wellness, building and maintaining good health mean, firstly becoming aware of the precursors to health breakdown; secondly, doing things to prevent the onset of disease; thirdly, actively promoting health through effective stress management; and finally, consciously excluding the stressors that are damaging your well-being (Geurts & Gründemann, 1999; Gherman, 1981; Liukkonen et al., 1999).

There are a variety of interventions and techniques that individuals can use to better understand and cope with the stress symptoms and reactions they experience. These include the following:

2.6.1.1 Counselling and psychotherapeutic approach

This type of tertiary intervention typically assists people in reconstructing their views about particular situations or experiences. Counselling, psychotherapy and cognitive techniques such as positive thinking are popular methods of dealing with stress related symptoms. Individuals have an opportunity to explore their problems and concerns with a trained third party (Jones & Bright, 2001).

a Employee assistance programmes (EAP)

EAP personnel typically provide counselling and referral for employee's problems, such as alcohol and drug counselling. For EAPs to be effective there must be commitment and support from management for the goals of the EAP. In addition, employees need to be reassured about the role and limits of the EAP. This is typically done through clear written policies which include issues such as confidentiality. The effectiveness of EAPs can be enhanced in the organisation by providing supervisors and managers with training on the symptoms of stress. A key

success factor is whether the EAP has the capability of referring clients with serious problems to appropriate external services. Effective record-keeping is vital if the EAP is to be evaluated appropriately as part of an organisational stress management strategy (Geurts & Gründemann, 1999; Jones & Bright, 2001; Schreurs et al., 1996; Sperry, 1991).

b   *Cognitive-behavioural approaches*

Cognitive restructuring, behavioural modelling and time management involve individuals changing the way they think and behave in relation to issues that make them stressed. These activities enhance personal effectiveness and alter the ways in which people structure and organise their worlds (Jones & Bright, 2001). Specific techniques such as the following have been proposed:

i   *Rational-emotive therapy (RET)*

RET is based on the principle that "stressful conditions do not exist in their own right but vary significantly in relation to the perceptions and cognitions of those who react to these conditions" (Ellis, 1978, p. 210). This means that a series of "activating events" cause a subsequent set of emotional and behavioural consequences. Between the stimulus and the response is the individual with his/her particular biosocial make-up, which makes him/her respond in a particular way.   In other words, people choose or create their own feelings of anxiety by choosing a certain kind of belief system about situations, "activating events" or environments. Thus, their reactions or the emotional consequences thereof are directly related to their belief systems and less so to the actual stressor (Ellis, 1978; Murphy, 1996).

RET works by helping individuals to dispute their perception of the activating event causing their consequent emotional anxiety. Each irrational belief is actively and directively disputed until the individual realises that he/she is not fulfilling a functional purpose and "gives them up". RET largely consists of cognitive restructuring and philosophical methods of assisting people suffering from stress to realise what they do to exacerbate the conditions of their lives, by overreacting to them. Eventually individuals are able to dispute their beliefs themselves, without the aid of a therapist.

As a therapy, RET is one of the most successful techniques which teaches people how to treat themselves by encouraging a realistic attitude towards life (Ellis, 1978; Murphy, 1996).

ii   Neurolinguistic programming (NLP)

NLP is a set of beliefs associated with the relationship between thinking and communication. It is based on certain assumptions about mental capacity and claims that acceleration in learning is possible by following the NLP techniques, of which a form of relaxation is central to the process (Jones & Bright, 2001).

2.6.1.2   Coping with specific stressors

A secondary type of individual intervention involves helping people to cope with particular stressors in the short or long term by using interventions focusing on the following:

a   Relaxation techniques and training

These interventions may include progressive muscular relaxation techniques, for body and mind, such as meditation techniques and relaxation therapies, all aimed at alleviating the symptoms of stress being experienced and to give an individual the ability to relax prior to an anticipated stressful situation. Therapists and trainers use exercises such as deep breathing, positive imagery, reducing external stimuli or introducing soothing stimuli such as music to the environment. Biofeedback devices are often used to provide the individual with physiological feedback (Jones & Bright, 2001; Murphy, 1996; Sharit & Salvendy, 1982).

b   Biofeedback techniques

When stress management is approached through biofeedback techniques, the individual receives information on physiological functioning. The heart rate, blood pressure or EEG is measured and the individual is able to learn to modify inappropriate responses or develop more appropriate responses to stressors. Biofeedback and self-regulation provide an individual with an understanding of and

responsibility to his/her body. This type of intervention has proven useful in reducing high blood pressure. However, there is no way of identifying who would benefit from this type of training (Jones & Bright, 2001; Murphy, 1996; Sharit & Salvendy, 1982).

c   *Training in specific areas*

Training individuals to manage conflict and to clarify work expectations, as well as leadership and communication, helps them to manage situations involving quantitative work overload, time pressure, role ambiguity and role conflict. The training may involve a number of skill development steps in order to learn how to manage conflicts. Assertiveness training may assist in communicating the needs and expectations of others. Learning to influence others without direct authority and interpersonal negotiation skills could help to build a strong foundation for resolving conflict (Antonioni, 1996; Jones & Bright, 2001; Sperry, 1991).

2.6.1.3 *Balanced lifestyle*

This type of intervention (secondary category) assists people to adopt lifestyles that improve their ability to withstand the pressure of stressors (Jones & Bright, 2001; Schreurs et al., 1996). These interventions include the following:

a   *Prioritising goals and activities*

Individuals are encouraged to take time out to plan their lives and prioritise personal goals and activities. This allows them to have better control over what happens to them and the way they handle future stressful situations (Sharit & Salvendy, 1982).

b   *Physical health programmes*

Physical fitness and exercise programmes have been noted to improve both physical endurance and mood states, and healthy nutrition and diet, including vitamin supplementation, helps to maintain a healthy body and combat stress symptoms (Sharit & Salvendy, 1982).

c   *Social support strategies*

Allowing time to build support networks amongst friends, family and colleagues, results in better working and family relationships, which in turn help to support the individual during stressful situations (Sharit & Salvendy, 1982).

2.6.1.4   Combination and multimodal methods

Stress covers a multitude of symptoms with many psychological, physical and environmental causes. As a result, there are many different interventions designed to reduce stress. Despite the multifaceted nature of stress, as has been previously discussed, many interventions appear to focus on certain symptoms. These single strategy interventions are unlikely to do more than provide temporary relief of symptoms rather than tackling the root cause of the problem (Jones & Bright, 2001). The use of two or more interventions in combination has an increased efficacy across different outcome variables, such as blood pressure, muscle tension, anxiety, subjective stress and psychological symptoms, than a single type of intervention which may relieve one or two. However, it has been recognised that in many organisational situations it is not possible to attempt more extensive interventions aimed at removing the stressors (Geurts & Gründemann, 1999; Jones & Bright, 2001; Liukkonen et al., 1999).

Stress management training, however, typically includes a number of the techniques previously discussed, packaged into one intervention. This type of intervention may include training on stressors, relaxation (or meditation) techniques, cognitive-behavioural restructuring and assertiveness training. In many cases, the more successful interventions are not one-off courses, but are scheduled over a number of weeks. This provides an opportunity to reinforce behaviour over time and results in a greater chance of sustaining the change. In addition, success of stress management programmes is dependant not only on the content of the programme but on the way it is led, either by a trained expert or trained peer-led sessions, and the size of the group (Jones & Bright, 2001).

When implementing a stress management programme it is iimperative to understand the interaction of individuals in the organisational setting. This will provide not only insight into situational stressors, but also determine whether individuals will enrol in individually-oriented programmes, whether they will attend regularly, whether positive changes will be experienced and whether the changes will be maintained (Geurts & Grűndemann, 1999; Schreurs et al., 1996).

2.6.2   Organisational role in stress management

The human costs of doing business are resulting in the implementation of   esearch gly more organisational problem-solving resources to improve the quality of working life. This is done by taking appropriate actions to control modern diseases, many of which are stress related or stress aggravated, such as hypertension, cardiovascular disease, immune system diseases, depression and anxiety, to mention but a few. Organisations provide a major portion of the total stress experienced by an individual oweing to the amount of time spent on the job, and to the organisation's demands for performance and interaction with others. There is an argument that the organisation has a more direct effect on stress, and that it has a more negative impact on productivity and satisfaction than the stress produced by other established risk factors. In the future, employers may become liable for the physical and mental problems their employees experience as a result of job stress (Geurts & Grűndemann, 1999; Gherman, 1981; Schreurs, Winnubst & Cooper, 1996).

Implementing an effective stress management programme requires conscious and sustained effort and commitment over time. Executives and managers need to buy into the process, evaluate the levels of stress in their organisation, inspire their workforce and mobilise resources to maintain a health-enhancing working environment that encourages and stimulates productivity. This can be done by offering programmes to deal with stress, which are regularly evaluated and the results thoroughly documented. In this way stress management should become a recognised part of corporate personnel policy (Geurts & Grűndemann, 1999; Gherman, 1981; Schreurs et al., 1996).

Employers and researchers need to consider the broader focus of stress management interventions and the potential range of outcomes for the programmes. Activities aimed solely at individual reactions to stress will not be sufficient to avoid any future negative impacts, including possible legal ramifications. The organisation must target and modify the circumstances surrounding the stressful situation (Geurts & Gründemann, 1999; Gherman, 1981).

The effects of the work environment can lead to physical and emotional distress if the workplace is not organised to minimise stress-producing factors. Problems relating to role overload, ambiguity and conflict can be remedied by role analysis and restructuring, whereby roles and jobs are redefined. This is a fundamental process that should be revisited periodically to buffer the employee from outmoded job definitions and functions (Geurts & Gründemann, 1999; Gherman, 1981).

The organisational processes that could alleviate stressors in the workplace are outlined below:

2.6.2.1   Recruitment and selection procedures

Choice of occupational category is vital in understanding and managing stress. Some occupations and career paths are potentially more stressful than others. It is important to match the resources and capabilities of an individual to the requirements of the job. Recruitment and selection methodologies, techniques and strategies should be developed that allow employers to identify prospective employees with lower resistance to stress in comparison with other employees. Person-environment fit should be taken into account when employing new staff, as well as vocational counselling and training opportunities. This will influence the quality of the employees that can be recruited and the ability to retain them once they are hired (Geurts & Gründemann, 1999; Gherman, 1981; Jones & Bright, 2001; Schreurs et al., 1996; Sharit & Salvendy, 1982).

2.6.2.2   Job enrichment and rotation

Job enrichment can be used to build motivational factors such as recognition and responsibility into a job. Job elements may be added, deleted or modified, based on the need of the incumbent in order to optimise the load factors related to productivity and satisfaction. The opportunity to regularly experience new and different work, especially in cases where the tasks are repetitive can help to alleviate stress as a result of boredom (Geurts & Gründemann, 1999; Gherman, 1981; Schreurs et al., 1996).

2.6.2.3   Performance planning and management

Performance planning can be done. This type of planning uses analysis of responsibilities inherent in a job to clarify expectations and reduce the distress experienced when performance standards are not understood. This helps to enhance an employee's sense of security and provides clear goals for achievement (Gherman, 1981).

2.6.2.4   Work design and organisational structure

An effective stress management programme needs to address the issues of work design and personnel selection. The work and organisational structure needs to be designed or redesigned in such as way that it minimises the occurrence of occupational stress. This should be done in scientifically and systematically manner (Sharit & Salvendy, 1982).

2.6.2.5   Reduction in workloads

Reduction in distressful workloads is important in managing overload. Delegation and work sharing can reduce chronic overload. Skills in working more efficiently and effectively can be developed through in-house training, procedure manuals, courses and coaching. Conversely, individuals need to be open to asking for more work or responsibility if underload is experienced (Gherman, 1981).

2.6.2.6 Relationships at work

Improvement of professional and white-collar worker interpersonal relations is generally done through employee assistance programmes, support groups and individual therapy. Macro-aspects of social support are less easy to change and improve, largely because systems are fixed in organisational design and are institutionalised to the organisational culture. Changes can be made, however, through group training and individual counselling, whereby structural and cultural influences can be challenged. Improving communication in a small group and improving the ability of the individual to give and receive social support is critical to the effectiveness of interventions (Winnubst & Schabracq, 1996).

2.6.2.7 Change management

Inextricably tied to individual and organisational stress management activities, is the need to develop procedures to overcome organisational resistance to change. Many organisations have started supporting stress management classes for employees, but are not willing to modify some of the sources of their stress such as job design and managerial practices. By documenting the organisational costs of stress, conducting "stress audits" or surveys of certain employees and assessing other stress-related indices such as use of the Employee Assistance Programme (EAP), absenteeism and turnover rates, health care claims, steps can be taken to reduce the effect stress has on the organisation. In addition, the mechanisms to maintain and sustain change at all levels are crucial. Long-term follow up of interventions is essential for evaluating their effectiveness and determining whether new stressors can be handled or if the programme needs to be modified (Geurts & Gründemann, 1999). By creating an organisational climate that encourages communication, openness and trust, in order for managers and their employees to express their inability to cope, their work-related fears and pleas for help will promote sustained change and a psychologically and physically healthier workforce (Cooper & Marshall, 1978).

Stress reduction programmes are less costly than ignoring strain. Stress reduction may take the form of training individuals to cope with stress, providing coping

mechanisms such as recreational facilities and employee assistance programmes. The best option would be to reduce or even eliminate occupational stressors in the organisation through constructive management principles. According to Winnubst & Schabracq (1996, p. 100):

> A work environment without stress and strain is an impossible goal. However, much can be done to reduce the risk of stress, strain and burnout, and much of that risk has to do with social support, organisational structure and culture.

There is a tendency in the occupational stress literature to focus on organisational level (primary) interventions as the simple answer to managing stress in organisations. However, a balanced approach may be more appropriate, with decisions based on thorough assessment of the situation, and a combination of individual and organisational interventions specifically tailored to circumstances in the particular organisation (Jones & Bright, 2001).

2.7   CHAPTER SUMMARY

In Chapter 2, the stress concept was introduced and various popular definitions were discussed. Numerous theories and models pertinent to this research were identified and discussed. The constructs of stress, strain and coping, their underlying variables, as well as individual and organisational roles in stress management were investigated.

CHAPTER 2 : STRESS, STRAIN AND COPING

EMPIRICAL RESEARCH

The aim of chapter 3 is to describe the specific research process that was followed in determining the relationship between stress, strain and coping amongst employees in a professional services organisation.

3.1   THE POPULATION AND SAMPLE

For the purposes of this research a professional services organisation provided access to members of their staff. In order to obtain as large a sample as possible, the Occupational Stress Inventory – Revised Edition was distributed to staff within two offices: one in a major commercial centre which had a total of 110 employees (Pretoria) and the other in a smaller town, with a total of 30 employees (Nelspruit). A total of 122 questionnaires were distributed to staff classified as "professional".   This meant that the staff in the sample either had or were studying for a tertiary educational qualification in commerce. In total, a 69.6% response rate was achieved (N=85).

Table 3.1: Frequency statistics for the sample (N=85)

Variable	Group	N	Percentage
Office	Nelspruit	26	30,6
	Pretoria	59	69,4
Seniority level	Trainee	38	44,7
	Supervisor	18	21,2
	Management	17	20,0
	Senior management	12	14,1
Age[*]	18–25 years	45	52,9
	26–62 years	40	47,1
Race	White	76	89,4
	Black	9	10,6
Gender	Female	37	43,5
	Male	48	56,5

*The split in age groups was done on the basis of the numbers of subjects in each age subgroup. The younger age group conveniently corresponds with the traineeship and trainee supervisor category. The wide spread of ages in the older age group was the result of there being too few subjects in the sample if it was split strictly into 10-year age groups.

3.2   DESCRIPTION OF THE VARIABLES

3.2.1   Independent variables

The main purpose of this investigation is to examine differences between various subgroups in the organisation with regard to stress, strain and coping. The independent variables are seniority level, age, race and gender.

3.2.2   Dependent variables

The dependant variables forming part of this investigation are:

- stress

- strain

- coping

These variables were defined and discussed in detail in chapter 2.

3.3   CHOICE OF PSYCHOMETRIC INSTRUMENT

The Occupational Stress Inventory – Revised Edition (OSI-R), based on the original Occupational Stress Inventory (OSI) (Osipow & Spokane, 1987), was chosen for the purposes of this quantitative empirical study. According to Dorn (1991, p. 328) the OSI "provides an opportunity to assess not only stress in the workplace but also to teach clients about the impact that occupational stress can have on their personal well-being". The decision to use the OSI-R was largely because of its applicability to the models and the theories in stress research, its numerous applications as an instrument and the availability of reliability and validity information.

3.3.1   Development and rationale of the OSI and OSI-R

The origin of the Occupational Stress Inventory can be found in the work of Osipow and Spokane, two career psychology researchers. According to Osipow (1998), the

OSI was developed for two primary reasons, namely: (1) to develop generic measures of occupational stressors which could apply to multiple occupational levels and work environments; and (2) to provide operational measures for their theoretical model which integrates the sources of work stress and environment stress, the resultant psychological strains and available coping resources (Swanson, 1991).

The development of the original OSI and its theoretical model was based on a review of other occupational stress models. The OSI model focuses on the subjective perception of the individual with regard to the occupational stress and the amount of strain being experienced, which is influenced by the availability of coping resources. In other words, stress, as the individual perceives it, and strain as it is experienced, are moderated and influenced by the individual's ability to cope. Occupational stresses have consequences for the individual in terms of strain, which can affect work performance. The difference between perceived stress and experienced strain is a critical element in this model of occupational stress. Coping skills are seen as crucial to the definition of any occupational stress or mental health model and were therefore included in the OSI model (Osipow, 1998; Swanson, 1991).

With the three major domains having been identified, the development of the scales and measures underlying them began. Within the OSI model of occupational stress, the work context is seen as an integral part of the research domain (Osipow & Spokane, 1987). It is for this reason that recognition is given to the stress involved in specific job roles. In addition, a worker in any occupation can potentially occupy a variety of social roles. Six work roles were identified and defined. These work roles are measured as part of the Occupational Roles Questionnaire, the first instrument in the OSI and OSI-R. Four types of responses to stress were identified within the psychological strain dimension of the Psychological Strain Questionnaire, and finally, four sets of moderating, coping behaviours were defined in the Personal Resources Questionnaire. For each of the sub-scales, items were generated and selected for the initial development of the OSI based on their face validity. Changes were subsequently made based on test-retest reliability studies. The resultant inventory was published as the OSI (Osipow & Spokane, 1987). The current version OSI-R is the result of further reliability research. The OSI was modified by changing 26 of the 140 items (McLean, 1974; Osipow, 1998; Swanson, 1991).

3.3.2   Description of the Occupational Stress Inventory – Revised Edition

The OSI-R is a self-report inventory consisting of three questionnaires. Each of the three is composed of five-point Likert scale items.   Together, the three sub-questionnaires take approximately 30 minutes to complete. Some of the items are reversed to ensure response consistency. The summation of the 10 item scores results in a subscale score for a particular variable. This raw score is converted to a T-score using published norm table information.

3.3.2.1   Occupational Role Questionnaire (ORQ)

The Occupational Role Questionnaire (ORQ) measures the amount of stress induced by work roles. There are 60 items in this scale, which are divided into the following six subscales   (Osipow, 1998):

a   Role overload

This subscale measures the extent to which role demands are perceived by the individual as exceeding personal and workplace resources, and the perceived ability to accomplish the expected workload.   High scorers may report feelings of inadequate training or competence to do the job. There may be a need for additional resources and assistance in task completion and deadlines (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

b   Role insufficiency

This subscale measures the extent to which an individual's training, education, skills and experience are appropriate for the work he/she performs. High scores indicate that there is poor fit between skills and the job being performed. Feelings of career stagnation and uncertainty with regard to the future are common amongst high scorers. Boredom and underutilisation are also indicative of role insufficiency (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

c Role ambiguity

This subscale measures the degree to which priorities, expectations and evaluation criteria are clear to the individual.   High scorers reportedly need clarity on how they should structure their job and time, and often experience conflicting demands from supervisors (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

d Role boundary

This subscale measures the conflicting role demands and loyalties, as they are experienced in the work context.   High scorers reportedly have difficultly in identifying clear lines of authority and struggle with receiving tasks from more than one person (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

e Responsibility

This construct involves the amount of responsibility the individual has or feels for the performance and welfare of other people at work. High scorers are frequently sought for leadership and guidance, and are unable to deal with conflicting demands placed on them by difficult employees or colleagues. They often feel overawed by the level of responsibility for the performance and well-being of others (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991)

f Physical environment

This construct considers the amount of exposure to extreme physical conditions or environmental toxins.   High scorers report having excessive physical challenges in the work context, including erratic work schedules and isolation (Osipow & Davis, 1988; Osipow, 1998; Swanson, 1991).

3.3.2.2 Personal Strain Questionnaire (PSQ)

The Personal Strain Questionnaire (PSQ), which consists of 40 items, is divided into four subscales measuring the outcome of the occupational stressors, as manifested

in personal strain. A high subscale score depicts greater levels of strain. The four subscales are set out below.

a   Vocational strain

Vocational strain is the degree to which an individual has difficulty producing work quality or output. Work attitude is an important aspect of vocational strain. This type of strain is manifested in the area of work productivity, attendance and job satisfaction (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

b   Psychological strain

Psychological strain relates to the individual's reported ability to adjust psychologically and emotionally. Psychological strain can be seen in affective, subjective responses of various types, including: anxiety, depression and lethargy (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

c   Interpersonal or behavioural strain

Interpersonal or behavioural strain is the disruption in interpersonal relationships which the individual experiences.   This involves behaviours that include withdrawal, isolation, anger and irritability towards others (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

d   Physical strain

Physical strain covers the domain of physical illness or poor self-care habits, which the individual may exhibit. Physical strains may include the manifestation of psychogenic-based disorders, which may have cardiovascular and other health implications.   Other manifestations of strain may include sleep and eating disorders, as well as substance abuse (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

3.3.2.3   *Personal Resources Questionnaire (PRQ)*

The personal resources questionnaire (PRQ) is composed of 40 items in four subscales. It measures the coping mechanisms utilised by the subject. The following subscales are measured:

a   Recreation

Recreational activities provide a distraction from stressful events and a source of satisfaction outside of the work environment. In this scale, high scorers may report taking advantage of leisure time due to them and engaging in activities they find relaxing. They tend to report doing the things they enjoy in their spare time (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

b   Self-care

This construct emphasises the involvement in healthy activities. High scorers tend to report that they exercise regularly, sleep eight hours per day, are careful about their diet, practice relaxation techniques and avoid harmful substances such as drugs, alcohol, tobacco and coffee (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

c   Social support

The social support scale refers to the relationships with family and friends as well as social groups. High scorers tend to report that they have people they can count on and talk to about work problems. They tend to have help in doing home-based chores and report feeling close to at least one other individual (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

d   Rational-cognitive coping

Cognitive skills involve the ability to reduce stress through the effective management of time and effort. High scorers often report a systematic approach to problem solving, thinking through the consequences of their choices and identifying important elements of problems encountered. They can set and follow priorities and have

techniques to avoid being distracted, and can reorganise their work schedule when required. Importantly they are able to put their jobs out of their minds when they go home and believe that there are other jobs besides their present one that they can do (Osipow, 1998; Osipow & Davis, 1988; Swanson, 1991).

3.3.3   Reliability of the OSI-R

Reliability for the OSI-R was measured in two ways.   Test-retest reliability, as depicted in table 3.1, shows correlations ranging from a low of 0,39 for self-care to a high of 0,74 for the total PSQ score. Two correlations were less than 0,50 (self-care and role boundary), with all correlations between the administration sessions significant at the 0,01 level (Osipow, 1998). Despite the low reliability on two scales, it was decided to still use the OSI-R and to take this into consideration when interpreting the data for this research.

An internal consistency analysis was the second reliability estimate used.   The internal consistency (alpha coefficients) for each variable and scale are also depicted in table 3.2 (Osipow, 1998).

Table 3.2: Test-retest correlations ® and alpha coefficients for the OSI-R scales (Osipow, 1998)

Questionnaire	Subscale	r	Alpha co-efficient
ORQ		0,61	0,88
	Role overload	0,68	0,78
	Role insufficiency	0,64	0,85
	Role ambiguity	0,57	0,79
	Role boundary	0,41	0,72
	Responsibility	0,56	0,75
	Physical environment	0,60	0,89
PSQ		0,74	0,93
	Vocational strain	0,59	0,75
	Psychological strain	0,65	0,86
	Interpersonal strain	0,55	0,75
	Physical strain	0,67	0,85
PRQ		0,68	0,89
	Recreation	0,64	0,77
	Self-care	0,39	0,70
	Social support	0,52	0,88
	Rational and/or cognitive	0,71	0,81

3.3.4   Validity of the OSI-R

In order to ascertain the validity of the OSI-R, data were collected using the original OSI as well as the OSI-R. The resulting scale correlation proved to be relatively high, suggesting that the two versions were similar enough to generalise validity from the original OSI to the OSI-R (Osipow, 1998).

In numerous studies highlighted by Osipow (1998), the validity of the OSI was tested. Convergent validity studies used the OSI–R in conjunction with other recognised instruments (Employee Assistance Program Inventory and Career Attitudes and Strategies Inventory) (Guetter in Osipow, 1998). Generally, the results showed that there were statistically significant correlations between OSI scales and similar scales on other instruments. The correlational values were found to be statistically significant and thus consistent with the expectation that "high strain is associated with numerous workplace problems" (Osipow, 1998, p. 27).

Correlational studies were used to identify the relationships between the OSI-R and other theoretically related variables. Osipow (1998) presented a summary of the findings, which provided moderate to strong support for the concurrent validity of the OSI.

Treatment studies used the OSI scales to assess the effectiveness of stress reduction programmes in lowering occupationally induced stress and strain. It was found that the PSQ and PRQ effectively show differences as a result of stress reduction interventions (Osipow, 1998).

According to Osipow (1998), at least 24 studies had used the OSI as an experimental measure to provide evidence of the relationship between stress, strain and coping. Some of these studies are as follows:

- Dorr (1988) (as cited in Osipow, 1998) found that social support would interact with stressful life events and would buffer the effects of strain and job satisfaction

- Richard and Krieshoek (1989) (as cited in Osipow, 1998) showed that strain was experienced differently in women and men

- Hemmelgard and Laing (1991) (as cited in Osipow, 1998) found that women who scored higher on maternal identity scored lower on role strain. Job satisfaction and role strain were related in that the higher the satisfaction, the lower the strain.

- Segedin (1992) (as cited in Osipow, 1998) found that person-environment fit predicted social support, and that there was a positive relationship between age, recreation and self-care.

- Decker and Borgen (1993) (as cited in Osipow, 1998) studied adults in 75 occupations. The findings supported the validity of the interaction of stress, strain and coping in that individuals with higher stress scores had higher strain scores and lower job satisfaction.

3.3.5 Justification for the use of the OSI-R

The Occupational Stress Inventory – Revised (Osipow, 1998) is based on a clear model, which was appropriate for use in this research. It has well-researched and documented norms and norm tables. The normative data for the OSI-R were derived from a representative sample of 983 participants from a cross-sectional demographic background. For the purposes of this research, the most appropriate norm group for comparison is the "professional" normative sample. T-scores provide information about the individual's scores relative to the scores of participants in the normative sample. According to Osipow (1998), the T-scores are linear transformations of raw scores, with a mean of 50 and a standard deviation of 10.

The OSI-R is clearly set out, easy and quick to administer and complete. It has use as both a research instrument and in applied settings. It can be valuable in career counselling as additional information for choice or change, in counselling to facilitate discussion, and in organisational settings to assist in resolving issues and to assess the effectiveness of organisational or individual interventions (Osipow, 1998).

3.4 RESEARCH PROCEDURE

The research procedure includes the administration of the questionnaire, the data gathering process, data capture and data analysis.

3.4.1 Administration of the OSI-R

The questionnaire and a separate answer sheet were distributed to all professional services staff in two offices. All the staff in the professional services category were targeted. This meant that only employees studying for or having completed a commerce degree were included in the study. Clerical staff were not included in the sample in an attempt to control for education and type of job content, the aim being to ascertain the differences between groups from a professional accounting background. The material was handed out in the Nelspruit office (N=26) at a regular staff meeting and via internal mail to the Pretoria (N=96) subjects. A covering memorandum from the researcher explained the purpose of the research. Subjects

were requested to spend approximately 20 to 30 minutes of their time completing the questionnaires. It was made clear that individual results would remain anonymous and that confidentiality would be maintained. In addition, it was not compulsory to fill in their names when completing the biographical information. An e-mail reminder was sent to all subjects prior to the completion date. The subjects mailed their completed questionnaires directly back to the researcher.

The response rate from Nelspruit was 100%, with all 26 respondents returning their completed questionnaires. Pretoria achieved a 61,45% response rate with 59 out of the 96 subjects returning the questionnaire. In total a 69,6% response rate was achieved (N=85).

3.4.2 Data processing

The returned questionnaires were hand scored using a scoring template. They were screened for missing data and inappropriate responses. The item scores were summed to obtain the raw scores per factor, which were then converted to T-Scores using the relevant "professional population" norm table in the inventory manual. All the results were captured into the Statistical Package for Social Sciences (SPSS) for Windows 10.1.0 (2000) for ease of statistical analysis.

3.4.3 Data analysis

Data for the 85 subjects were analysed using SPSS. A t-test for equality of means was used for comparing the data of the two independent samples based respectively on age, race, gender and office. For each of the variables a test of significance was used to determine whether there is a statistically significant difference between the means of the groups. Analysis of variance was used to investigate the differences between the four groups on the seniority level variable. This analysis enabled the problem statement: "Are occupational stress, strain and coping resources significantly different between different subgroups in a professional accounting organisation?" to be answered.

Other questions that were answered were:

- How do employees at different seniority levels, of different age groups, races and gender in an organisation perceive and experience stress?

- What is the relationship between perceived stress, psychological strain and coping resources at different levels in an organisation?

In answering the questions, the following other statistical techniques were used:

- Descriptive statistics (range, mean and standard deviations) provided useful information on the data of the total sample as well as the different subgroups. The minima, maxima and range information gave an indication of extreme individual scores within the sample, while the standard deviation provided useful information on the variability of scores for each of the scales.

- A frequency analysis provided information which made it possible to determine the number of respondents in each of the subgroups.

- Correlational analysis was used to provide information the significance of the relationship between seniority level and age.

3.5 RESEARCH HYPOTHESIS

The purpose of the research hypothesis is to state the relationship between the variables being studied – in this particular research stress, strain and coping for different subgroups. The research hypothesis is as follows:

H_1 : There is a statistically significant difference in the stress, strain and coping behaviour of professional staff from different subgroups in an accounting organisation.

3.6   CHAPTER SUMMARY

In this chapter the population and sample were discussed, the rationale and motivation for the choice of psychometric instrument were given and the procedure for administering, gathering and analysing the data was provided.   Lastly, the research hypothesis was formulated.

The results of the empirical research will be presented in chapter 4.

CHAPTER 4 : RESULTS

RESULTS

The aim of chapter 4 is to report, interpret and integrate the results of the empirical research undertaken during this study, which used the Occupational Stress Inventory – Revised Edition data collected for the subjects at a professional services organisation.

4.1   DESCRIPTIVE STATISTICS

Means and standard deviations for each of the research variable groups were calculated.   In table 4.1, the descriptive statistics (minima, maxima, means and standard deviations) for the total sample on the OSI-R questionnaire and subscale are presented.

Table 4.1: Descriptive statistics for the total sample of T-scores on the OSI-R (N=85)

OSI –R scale	Variable	Minimum	Maximum	Mean	Std deviation
ORQ	Role overload (RO)	31	74	50,09	8,4
	Role insufficiency (RI)	32	70	47,07	8,2
	Role ambiguity (RA)	34	83	51,55	8,9
	Role boundary (RB)	33	84	46,89	8,7
	Responsibility ®	28	79	50,91	10,83
	Physical environment (PE)	39	69	46,18	5,22
PSQ	Vocational strain (VS)	34	77	49,64	9,29
	Psychological strain (PSY)	35	83	53,58	11,71
	Interpersonal strain (IS)	35	89	53,83	11,51
	Physical strain (PHS)	36	87	53,07	10,71
PRQ	Recreation (RE)	30	74	50,21	9,23
	Self-care (SC)	30	64	43,12	7,17
	Social support (SS)	27	62	50,68	8,12

Rational–cognitive (RC)	12	75	43,19	12,16

The results in table 4.1 are reported as T-scores, which are mathematically transformed raw scores, based on the professional norm table for the OSI-R. By using the interpretive guidelines (see appendix A), as described in the OSI-R manual (Osipow, 1998), the mean scores for all OSI-R variables are within a normal, average range (within 1 standard deviation of the mean). However, looking at the minima and maxima it can be seen that there are individuals within the sample that show significant levels of maladaptive stress and strain, particularly for responsibility, interpersonal, psychological and physical strain (except for physical environment). There are also individuals who report a lack of coping resources, particularly rational and/or cognitive coping. The score ranges for these scales are quite large, as is seen by the high standard deviations, thus showing greater variability between respondents.

Although the mean scores for the total population are all within the normal or average range, as obtained from the interpretive guidelines (Osipow, 1998), the statistically significant differences between the means of the various subgroups in the sample are discussed. Score ranges, means and standard deviations (based on T-scores) for each of the subgroups in this research are reported in appendix B.

4.2   COMPARISON OF MEANS

The differences in stress, strain and coping between age, race, seniority level and gender groups were investigated in order to ascertain their level of statistical significance. The results are reported and interpreted. Subscale abbreviations have been used for the purposes of simplicity.

4.2.1   Stress, strain and coping of different seniority levels

In order to determine whether there was a statistically significant difference in stress, strain and coping between the four levels of seniority in the organisation, a one-way analysis of variance was used. The results appear in table 4.2.

Table 4.2: One-way analysis of variance to assess the differences between seniority levels on the OSI-R (N=85)

OSI-R Scale	Variable	Analysis of variance F^1	p-value
Stress (ORQ)	Role overload (RO)	2,81	*0,045***
	Role insufficiency (RI)	2,73	*0,049***
	Role ambiguity (RA)	3,53	*0,019***
	Role boundary (RB)	2,92	*0,039***
	Responsibility ®	27,26	*0,000****
	Physical environment (PE)	1,44	0,238
Strain (PSQ)	Vocational strain (VS)	2,85	*0,043***
	Psychological strain (PSY)	1,31	0,278
	Interpersonal strain (IS)	2,62	*0,057**
	Physical strain (PHS)	0,72	0,546
Coping (PRQ)	Recreation (RE)	0,73	0,54
	Self-care (SC)	0,80	0,497
	Social support (SS)	0,97	0,409
	Rational–cognitive coping (RC)	1,21	0,313

1 F test for equality of variances   Degrees of freedom: df = 3

*Significant at the 0,1 level   **Significant at the 0,05 level   ***Significant at the 0,01 level

Responsibility shows a statistically significant difference between the seniority groups (p= 0,000 at the 0,01 level). The reason for this could be the fact that more senior employees perceive higher levels of stress as a result of their responsibility for people, tasks and outcomes. Based on the mean T-score results in appendix B, responsibility ® was higher in managers (T-score mean = 57,65) and senior managers (T-score mean = 64,42) than in supervisors (T-score mean = 50,78) and trainees (T-score mean = 43,71). This is in line with the theory discussed in the literature review, namely that as an individual is promoted within the organisation, the job becomes more complex and the responsibilities for people, tasks and resources increases and higher levels of stress are perceived. Within the organisation being studied, senior employees have high client responsibilities and in many cases are partners in the organisation that has specific responsibilities attached to the role.

The following variables show statistically significant differences between the different seniority level subgroups at the p<0,05 level:

- Role overload (p=0,045) shows a statistically significant difference between the subgroups. Role overload is perceived by more senior employees (manager and senior managers) as being more stressful than junior employees. Based on the mean T-scores it is evident that role overload (RO) was higher in managers (mean = 52,94) and senior managers (T-score mean = 54,5) than in supervisors (T-score mean = 48,94) and trainees (T-score mean = 47,97). As employees are promoted, they report that the workload and job complexities become increasingly unreasonable and unsupported by the required resources, and therefore higher levels of stress are perceived. These findings are in line with the findings in the literature review.

- Role insufficiency (p=0,049) was found to be statistically different between the subgroups. It is perceived by supervisors to be higher than any other seniority level subgroups. This could be a result of the perceived mismatch of skills to what is required of them by their roles. In many cases, they are not much older or more experienced than the trainees who work under them. There is no specific training provided for supervisors on how to handle the tasks,

responsibilities and pressure of the role, which may result in the reported high stress levels. In addition, they may experience a lack of recognition for the work they perform under difficult, stressful time deadlines.

- Role ambiguity (p=0,019), role boundary[*] (p=0,039) and vocational strain (p=0,043) all showed statistically significant differences between the subgroups. They are perceived by managers to be higher than for either senior managers or junior employees. These findings could be a result of uncertainty and lack of clarity reported by managers within the organisation, with regard to what is required of them by the partners and senior management. Although they perform a wide range of tasks and have a wide range of responsibilities, it would seem that in many cases they feel they need more support and guidance than what is being provided by their seniors. This, in turn, seems to result in reported anxiety, lack of interest and being unhappy in their jobs.

- Interpersonal strain has a slight statistical significance (p= 0,057) at the 0,1 level, between the subgroups. Interpersonal strain was highest amongst supervisors and trainees (more junior employees). This could be as a result of time spent away from family and friends, especially when working long hours away from home, as is the case during audits. Working within audit teams can also be a source of stress, particularly when there are deadlines and mundane tasks to be performed.

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[*] It should be noted that the reliability of role boundary as a subscale is questionable as a result of the reliability statistics for the OSI-R (r<0,50).

4.2.2 Stress, strain and coping of different age subgroups

In table 4.3, the means and standard deviations for the two age groups, on each of the questionnaires and subscales measuring stress, strain and coping, are reported, together with the statistical significance of the comparison of the means of the groups as calculated using a t-test for independent groups.

Table 4.3: Differences between age groups on stress, strain and coping scales (N=85)

OSI-R scale	Variable	Age group (raw scores)				t	p-value
		18-25 years (N=45)		26-62 years (N=40)			
		Mean	Std dev	Mean	Std dev		
Stress	RO	24,96	5,11	27,6	6,3	-2,14	*0,036***
ORQ	RI	20,84	6,11	22,2	6,6	-0,98	0,328
	RA	21,86	6,16	22,1	5,26	-0,19	0,852
	RB	20,24	5,04	20,67	5,7	-0,369	0,713
	R	23,82	6,18	30,18	8,33	-3,95	*0,000****
	PE	15,26	3,7	14,75	3,56	0,65	0,515
Strain	VS	16,38	4,31	17,62	4,7	-1,28	0,206
PSQ	PSY	22,13	7,66	21,52	7,45	0,37	0,712
	IS	23,98	7,01	21,2	6,04	1,94	*0,055**
	PHS	22,44	7,76	22,08	7,87	0,22	0,828
Coping	RE	27,04	7,48	24,6	6,46	1,6	0,113
PRQ	SC	21,66	4,9	22,2	5,9	-0,45	0,651
	SS	41,16	6,4	40,3	9,4	0,495	0,622
	RC	32,49	6,78	33,43	7,83	-0,59	0,556

● Significant at the 0,1 level (p<0,1).

** Significant at the 0,05 level (p<0,05).

*** Significant at the 0,01 level (p<0,01).

The split in age groups was done on the basis of the number of subjects in each age group. The younger age group corresponds with a convenient organisational stage of the traineeship and trainee supervisor category. The wide spread of ages in the older age group was a result of there being too few subjects if the sample was split into smaller age groups.

The results presented in table 4.3 indicate that there is a statistically significant difference between age groups with regard to the following variables:

- For role overload the difference between the two groups was statistically significant at the 5% level (p=0,036) with older employees perceiving higher levels of role overload (raw score mean = 27,6; T-score mean = 52,13 [see appendix B]) than their younger counterparts (raw score mean = 24,9; T-score mean = 48,23 [see appendix B]). Older employees in this sample tend to find their workload and demands increasing, with an unreasonable and possibly unsupported needed for resources. Tight deadlines are often indicative of higher scorers on role overload. There is a need to maximise time management and work reorganisation skills in order to cope with role overload. Reorganisation of tasks and allocation of additional resources, whether they are people or time, would assist in alleviating any dysfunctional stressors.

- For responsibility the differences between the two groups was statistically significant at the 1% level (p=0,000) with older employees having a higher level of perceived stress from responsibility, specifically for people. The raw mean score for older employees is 30,18 (T-score mean = 55,5), as opposed to 23,82 (T-score mean = 46,8) for younger employees. This statistically significant difference may be the result of the higher levels of responsibility for the activities and work performance of subordinates. In addition, older employees tend to be sought out for leadership and guidance, having to respond to the problems of others. Higher scores may also indicate that there may be a need to focus more on improving work relationships and reducing the pressure from working with difficult employees. Conflict management, team cohesiveness and delegation skills could be emphasised to assist in managing the stress related to higher levels of responsibility.

90

- For interpersonal strain, the difference between the two groups was statistically significant at the 10% level (p=0,055). There is a slight difference between older and younger employees. Younger employees (raw score mean = 23,97; T-score = 56,11) scored higher on experiencing interpersonal strain symptoms than their older counterparts (raw score mean = 21,2; T-score mean = 51,28).   This reported difference could indicate that younger employees need to have more time to spend with friends or simply away from work. There may be a tendency for work relationships to be somewhat strained.   There could be a need to develop better interpersonal and social coping skills, which can develop with age and experience.

4.2.3   Stress, strain and coping of different race subgroups

Table 4.4 indicates the means and standard deviations for the two race groupings, and comparison of their mean scores for each of the questionnaires and subscales measuring stress, strain and coping.

Table 4.4: Differences between race groups on stress, strain and coping scales (N=85)

| OSI-R scale | Variable | Race group (raw scores) | | | | t | p-value |
| | | White (N=76) | | Black & other (N=9) | | | |
		Mean	Std dev	Mean	Std dev		
Stress	RO	26,38	5,72	24,67	6,76	0,834	0,407
ORQ	RI	21,16	6,16	24,22	7,61	-1,377	0,172
	RA	21,7	5,32	25,44	7,91	-1,955	*0,054**
	RB	20,36	5,42	21,22	4,82	-0,459	0,648
	R	27,36	7,86	22,22	7,08	1,87	*0,065**
	PE	15,00	3,24	15,22	6,26	-0,173	0,863
Strain	VS	16,86	4,46	17,89	5,18	-0,647	0,519
PSQ	PSY	21,75	7,31	22,67	9,63	-0,344	0,732
	IS	22,78	6,61	21,78	7,65	0,422	0,674
	PHS	22,49	7,59	20,44	9,44	0,744	0,459
Coping	RE	26,7	6,25	19,11	10,12	3,2	*0,002***
PRQ	SC	22,3	4,9	20,11	8,60	1,067	0,289
	SS	41,22	6,75	36,78	14,52	1,609	0,111
	RC	33,33	6,32	29,56	12,86	1,484	0,142

- Significant at the 0,1 level (p<0,1).

** Significant at the 0,05 level (p<0,05).
*** Significant at the 0,01 level (p<0,01).

- There was a slight statistically significant difference between race groups on role ambiguity scores (p=0,054 at the 0,1 level). The white subgroup (raw mean

score = 21,7; T-score = 50,92) perceived lower levels of stress from role ambiguity than the black subgroup (raw mean score = 25,44; T-score = 56,89) in the sample.   This could be as a result of uncertainty about what they are expected to do in the work situation. Black employees tend to be unclear on how they should be spending their time and how their performance will be evaluated. Pressures relating to conflicts with supervisors can impact on the role ambiguity stressor. In order to resolve this type of stress it is important that employees must be given more direction and support, more clarity on their role and what they should do to "get ahead" in the organisation.

- Responsibility showed a statistically significant difference (p=0,065) at the 0,1 level between the two race subgroups.   White employees (raw mean score =27,36; T-score mean = 51,67) reported higher levels of perceived stress from responsibility than black employees (raw mean score = 22.22; T-score mean = 44,56). This could be a result of the fact that there are fewer black employees at senior levels, where there is responsibility for the performance and well-being of people, tasks and outcomes. This is a result of the historic situation in South Africa, which requires strategies to empower previously disadvantaged subgroups in order to change the future and increase the percentage of black employees, in more senior, responsible positions, especially in the professional occupations.

- Recreation shows a statistically significant difference (p=0,002) at the 0,01 level, between the two race subgroups. White employees report using recreation more (raw mean score =26,7; T-score mean = 50,91) than black employees (raw mean score =19,11; T-score mean = 43,63). These results indicate that white employees report making more use of the recreation time available to them and engage in activities they find relaxing and distressing.

- Black employees scored lower on all coping resource variables. This could either indicate a need for more awareness around the development of coping skills and strategies, or could be a result of age.   The black respondents in the sample tended to be on average younger than the white respondents.

For this study, however, the sample size and the skewness of sample age could have resulted in less than optimum findings for the race category. The sample size in the black group is very small, and it is likely that the majority of respondents are junior staff, as a result of previous disadvantages. This adds another dimension in terms of the age, race and organisational culture, which will not be discussed in this research.

4.2.4   Stress, strain and coping of different gender subgroups

Table 4.5 indicates the means and standard deviations for the two gender groupings (male and females), for each of the questionnaires and subscales measuring stress, strain and coping.

Table 4.5: Differences between gender groups on stress, strain and coping scales (N=85)

OSI-R scale	Variable	Gender				t	p-value
		Female (N=37)		Male (N=48)			
		Mean	Std dev	Mean	Std dev		
Stress	RO	25,68	5,83	26,60	5,84	-0,727	0,469
ORQ	RI	21,57	5,97	21,41	6,68	0,108	0,914
	RA	21,57	6,18	22,29	5,38	-0,576	0,566
	RB	19,78	4,57	20,96	5,86	-1,006	0,317
	R	25,65	7,79	27,71	7,95	-1,195	0,236
	PE	15,57	4,26	14,60	3,02	1,219	0,226
Strain	VS	17,51	4,99	16,54	4,11	0,984	0,328
PSQ	PSY	22,14	7,71	21,62	7,45	0,308	0,759
	IS	23,95	6,85	21,69	6,45	1,558	0,123
	PHS	25,16	8,19	20,04	6,69	3,171	*0,002**
Coping	RE	25,41	6,52	26,27	7,54	-0,556	0,580
PRQ	SC	22,83	4,86	21,21	5,69	1,394	0,167
	SS	41,37	7,7	40,27	8,09	0,638	0,525
	RC	32,62	5,48	33,16	8,43	-0,341	0,734

- Significant at the 0,1 level (p<0,1).

** Significant at the 0,05 level (p<0,05).

*** Significant at the 0,01 level (p<0,01).

There is only one statistically significant difference reported (p=0,002) at the 0,01 level between the mean scores of males and females, namely for physical strain. This indicates that females (raw score mean = 25,16; T-score mean = 57,03), as opposed to males (raw score mean = 20,04; T-score mean = 50,02) reportedly experienced more physical strain symptoms, such as frequently worrying about health issues, anxiety, disturbances in sleep patterns and feeling lethargic and/or apathetic, especially when under extreme pressure.

The next aspect to be investigated was the relationship between age and seniority level and stress, strain and coping scores respectively. The correlation results are presented and discussed in the next section.

4.3   CORRELATIONS

Correlation results, using Pearson Correlation Coefficients for age and seniority level, are presented in Table 4.6. These results were used to assess the nature of the relationship between age and seniority level on the OSI-R variables relating to stress, strain and coping.

Table 4.6: The relationship between age, seniority level and OSI-R variables using Pearson correlation coefficients (N=85)

OSI-R Questionnaire	OSI-R Scales	Correlation with			
		Age		Seniority	
		r	p-value	r	p-value
Stress (ORQ	RO	0,08	0,46	0,296***	0,006
	RI	-0,06	0,564	-0,14	0,202
	RA	-0,24**	0,026	-0,22**	0,041
	RB	-0,13	0,235	-0,05	0,682
	R	0,34***	0,002	0,71***	0,000
	PE	-0,07	0,541	-0,21	0,06
Strain (PSQ)	VS	-0,57	0,605	-0,05	0,635
	PSY	-0,11	0,321	-0,07	0,528
	IS	-0,24**	0,026	-0,24**	0,025
	PHS	-0,06	0,599	-0,065	0,556
Coping (PRQ)	RE	0,006	0,956	-0,09	0,41
	SC	0,13	0,244	0,12	0,296
	SS	-0,003	0,975	0,18*	0,098
	RC	0,17	0,112	0,16	0,136

*Correlation is significant at the 0,1 level (p<0,1).

**Correlation is significant at the 0,05 level (p<0,05).

***Correlation is significant at the 0,01 level (p<0,01).

The results in table 4.6 indicate that the following statistically significant relationships between the scales of the OSI-R and seniority level and age exist:

There is a statistically significantly relationship between age and seniority levels and role ambiguity (RA), responsibility ® and interpersonal strain (IS).

- A statistically significant relationship exists between age and responsibility (p=0,002), as well as between seniority and responsibility (p=0,000), at the 1% level of significance. This means that older, more senior employees, compared with their younger, more junior counterparts, reported higher levels of stress relating to responsibility for the performance and well-being of subordinates and colleagues.

- A negative correlation exists between age and role ambiguity (RA) (p=0,026), and between seniority and role ambiguity (RA) (p=0,041), as well as between age and interpersonal strain (IS) (p=0,026), and seniority and interpersonal strain (IS) (p=0,025) at the 5% level of significance.   This means that younger, more junior respondents perceived more role ambiguity (RA) than older respondents, reporting less direction, structure and understanding of what was required from the job. They have a need for clarity about what they are expected to do, on what they will be evaluated and how they should be spending their time. They also experience higher levels of unresolved conflict and interpersonal strain (IS) with superiors, co-workers and even family members, on whom they may feel dependent.

- A statistically significantly relationship exists between seniority and role overload (RO) at the 1% level of significance (p=0,006). The more senior an employee is in the organisation, the greater the perception that the workload is increasing and becoming unreasonable, with a need for more resources. Tight deadlines may impact on their ability to complete the work to their satisfaction, resulting in feelings of inadequacy and incompetence.

- A slight statistically significant relationship exists between seniority and social support (SS) at the 10% level of significance (p=0,098), with more senior employees tending to use social support (SS) as a coping resource more than their junior counterparts. This could explain the fact that younger, more junior employees experience higher level of interpersonal strain (IS), in that they need to learn and understand the value of a support network in coping with stressors.

4.4   INTEGRATION AND DISCUSSION

A trend evident in this research, namely that individuals with higher levels of occupational stress have lower levels of coping resources and therefore significantly higher personal strain, is reflected by numerous studies cited by Osipow (1998). These results replicate the basic model of the relationship between stress, strain and coping as discussed in the literature survey (Cooper & Marshall, 1978; Cooper et al., 1988; Decker & Borgen, 1993; Jones & Kinman, 2001; Sowa, May & Niles, 1994, Sutherland, Fogarty & Pithers, 1995).

Seniority level is an important contributor to the different perceptions of stress, experienced strain and coping resources within the accounting organisation used in this research. Senior managers perceived higher levels of role overload (RO) and responsibility ® and lower levels of stress because of role insufficiency (RI), role ambiguity (RA) and role boundary (RB). Middle managers reported higher levels of stress from role boundary (RB) and vocational strain (VS).   More trainees and supervisors reported higher statistically significant levels of interpersonal (IS) than their more senior counterparts.

Older employees showed higher levels of role overload (RO) and responsibility ®. Younger employees showed higher levels of interpersonal strain (IS). Both of these findings are similar to the seniority level findings. This was confirmed by the correlation results which indicated that there is a statistically significant correlation between seniority and age, especially for role overload, responsibility and interpersonal strain.

The findings are in line with other research conducted using the OSI and other similar questionnaires. In a study by Osipow et al. (1985), they found that older respondents reported more overload and responsibility and fewer insufficiencies, boundary role and physical environment stressors compared with younger respondents.   They also displayed a trend towards decreasing vocational, psychological, physical and interpersonal strain, with greater recreational, self-care, and rational-cognitive coping resources than their younger counterparts.

They found no differences between age groups in the use of social supports for coping (Osipow et al., 1985).

According to Osipow et al. (1985, p. 107):

> For younger respondents, stresses such as insufficiency, physical environment, and boundary-spanning roles are most salient, while for older respondents stressors like overload and responsibility for people appear to be the most substantial. For younger subjects psychological and interpersonal strains may be most significant while for older subjects less strain appears in general.

These findings may reflect an improved ability to cope with stresses over time, and with age and career experience. Alternatively, a form of occupational self-selection may occur that results in people leaving careers in which they perceive stress to be intolerable over time. According to Spokane (1985), using person-environment fit theory, congruent individuals, those who "fit" into the environment will be reinforced, satisfied, and less likely to change environments. Incongruent people will be influenced by the dominant environment to change in the direction of congruence. However, those individuals with strong, consistent and differentiated personality patterns are more likely to attempt to make changes in their environments. In other words, they will tend to modify the environment or leave it (Spokane, 1985).

Gender was not found to be a major contributing factor to differences in stress, strain, and coping. Only one statistically significant difference between gender groups was noted. The females reported higher levels of strain, specifically physical strain, than the males. Other differences were not statistically significant and included females experiencing slightly higher levels of vocational, interpersonal, psychological and physical strain than males. Males reported using recreation and rational-cognitive coping more than females, who used self-care more. This concurs with research conducted by Richard and Krieshok (1989) who found that strain was experienced slightly differently by women and men. In their research, strain was reduced for men as their rank increased, whereas the reverse was true of women.

These findings could be the result of the multiple roles females play, especially compounded by the home-work interface (Cooper & Bright, 2001; Frone & Rice, 1987; Jones & Fletcher, 1996). It can be concluded, however, that within the accounting organisation used in this research, gender is not a major contributing factor to differences in stress, strain and coping.

These findings are in line with the research cited in Osipow (1998) who found that there were minimal gender differences which probably represent a combination of factors – differential stress from nonworkplace overload, females were more represented in younger groups than in older groups and occupation differences between genders.

The black employees in this research reported higher levels of role insufficiency (RI), role ambiguity (RA), role boundary (RB), vocational (VS), and psychological strain (PSY) than white employees. In general, their scores for the Personal Resources Questionnaire indicated that they did not use coping resources effectively to reduce the impact of stress, thus minimising the symptoms of strain. White employees reported higher levels of stress from responsibility, interpersonal strain and the use of recreation as a form of coping. During the literature survey, no studies dealing specifically with the differences in stress, strain and coping between black and white employees were found. This could be because of the unique situation in South Africa, where black and white groups are specifically reported on separately in order to encourage development, empowerment and employment equity.

From the results of this study it can be concluded that certain employees in all subgroups of employees in the accounting organisation, young and black employees specifically, would benefit from an increased awareness of stress, its impact and how to manage it more effectively. The black employees in the sample tended to be younger, more junior employees and with time, development and experience it is believed that they can be assisted in coping more effectively with workplace stress. In studies done to validate the OSI-R using treatment programmes it was found that "significant decreases were found in total PSQ (Personal Strain Questionnaire) and state anxiety scores, and a significant increase was found in total PRQ (Personal Resources Questionnaire) scores among participants" (Osipow, 1998, p. 35). The

results revealed that the PSQ and PRQ are sensitive to outcome measures of treatment effects. In these studies the lack of change in the actual stress scores, as measured by the ORQ, is predicted by Osipow's model and confirms the important role coping resources play in stress reduction programmes (Osipow, 1998). In addition, it was found by Higgins (1986) and Murphy (1984), who researched the effectiveness of stress management programmes using all or part of the original OSI, that the programmes have the potential to help employees understand and cope, thus reducing the symptoms and risks associated with occupational stress and strain to individuals and the high cost to organisations (Fletcher, 1988; German, 1981; Murphy, 1984; Sperry, 1991).

In view of the results in this chapter, the hypothesis, namely that there are differences between different subgroups with regard to their perceived stress, experienced strain and coping resources, can be accepted.

4.5 CHAPTER SUMMARY

In this chapter the results of the empirical research were reported, interpreted and discussed. The aim of determining the differences between various groups within an accounting organisation, with regard to stress, strain and coping variables as conceptualised by the Occupational Stress Inventory – Revised Edition, has thus been achieved. In addition, the results and findings in this chapter are in line with previous research, as discussed in the literature research.

In chapter 5, the conclusions, limitations and recommendations will be presented.

CHAPTER 5 : CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter, conclusions will be formulated and discussed with regard to the objectives as stated in chapter 1. The limitations of the research will be highlighted and recommendations will be made for the organisation with reference to the literature review and empirical study.

5.1   CONCLUSIONS

Based on the results of the empirical investigation, certain conclusions can be drawn.

The following aims for the literature review were stated in phase 1 of the research and were subsequently achieved in chapter 2:

- To identify and examine relevant literature in the field of stress research

- To identify and define the important constructs in relation to stress as a field of study, for example, perceived stress, experienced personal strain and coping

- To identify the similarities and differences between various constructs, for example, the difference between stress and strain

- To define the constructs as they pertain to this research, for example, stress, strain and coping

- To identify how individuals and organisations may benefit from growing awareness of stress and its management

The aims, as stated above, were achieved in chapter 2 where the background and history of stress research were summarised, followed by a discussion of pertinent theories and models of stress. The constructs of perceived stress, experienced strain and coping, as well as other contributing variables were defined and

discussed. This included an in-depth discussion of stress management programmes and techniques for individuals and managers to combat stress. Thus the aims of the literature review were achieved.

The following aims for the empirical study were stated in phase 1 of the research and subsequently achieved in chapter 3 and 4:

- To investigate perceived stress, psychological strain and coping resources through the use of an appropriate measuring instrument (achieved in chapter 3)

- To analyse the data and ascertain the relationship between the core constructs (stress, strain and coping) and employee variables such as seniority, age, gender and race within the sample population (achieved in chapter 4)

- To integrate the information gathered during the literature review with the results of the empirical study (achieved in chapter 4)

The aims of the empirical study were achieved in chapter 3 where the choice of measuring instrument was discussed, and chapter 4 where the results of the empirical study were reported and integrated with information gathered during the literature review. It is evident, taking the literature and the empirical study into account that the theoretical and empirical findings largely correspond. The results of this study generally concur with the findings of other similar research discussed in the literature review.

- Seniority level subgroups show statistically significant differences in role overload, role insufficiency, role ambiguity, role boundary, responsibility, vocational strain and interpersonal strain.

- Age subgroups show statistically significant differences in role overload, responsibility and interpersonal strain.

- Race subgroups show statistically significant differences in role ambiguity, responsibility and recreation.

- Gender subgroups show a statistically significant difference in physical strain symptoms.

Considering the original problem statement and on the basis of the literature review and empirical data, the following conclusion can be drawn:

> There is a difference in the perceived stress, experienced strain and moderating coping resources of professional staff from different subgroups in a professional accounting organisation.

The central research hypothesis for this research project has therefore been confirmed.

The findings show that stress management interventions and awareness campaigns are important for all levels, ages, races and gender employees. These programmes would provide increased awareness of stress, its impact and how to manage it more effectively, thus reducing the symptoms and risks of stress and strain for individuals and the high cost to organisations.

5.2   LIMITATIONS

The following limitations to this research have been noted, both from a literature review and empirical study perspective:

- Empirically, a larger sample size, selected more randomly from more than one organisation in a similar business sector would have provided a more stringent research design, thus allowing the results to be more generalisable rather than merely of interest to other organisations. The relatively small sample from one organisation used in this study provided a convenient way of conducting the research taking limited finances, time and human resources into account.

- From a research process perspective, interviews or focus groups conducted subsequent to the completion and marking of the questionnaires could have added useful information on qualitative explanations for scores. This information would have assisted in making a definitive assessment of the findings and more specific recommendations.

- The OSI-R has not been validated on a South African population or sample and as such cultural differences could have influenced the responses to the

questions, especially where respondents were not English or were from a different cultural background.

- The sample size of black employees was very small, mostly because of the imbalance of races as a result of previous legislation. This ratio will begin to correct itself with the advent of employment equity and better opportunities for the previously disadvantaged. For this study, however, the sample size and the skewness of sample age, with most of the black employees being trainees, could have resulted in less than optimum findings for the race category. The results for black employees showed that major interventions are required to assist them in order for trainees, in specific, to become more effective and successful in an organisational setting. A larger sample size would ensure that the results are more generalisable to the total black, professional accountant population, and thus not merely of interest. In addition, further research would add to the understanding of stress in the South African context.

- No use was made of personality type inventories. This could provide insight relating specifically to the hypothesis that certain personality types are more prone to stress than others. This type of research has been conducted in the past but would be useful from an organisational subgroup perspective in a South African context.

- Additional information, such as performance ratings, absenteeism records, health questionnaires and medical records would have provided other objective measures, not simply relying on self-report results. The insight gained in terms of the manifestation of stress in the behaviour and health of the individuals involved in the study would be invaluable.

- Multirater or 360-degree objective evaluations on how individuals are perceived to be coping with stress and strain would provide additional information from peers, managers and subordinates. At this stage it is unclear whether such a questionnaire exists or whether it would need to be developed.

- There was no measure of the organisational climate and culture or management style. This information could have provided useful insight into the context in which the individuals in the study fulfil their work roles and interactions. The

relationship between climate, culture and stress constructs would be an interesting topic for future research within the South African context.

- No specific stress management interventions were introduced or tested as part of this study. By introducing a more longitudinal, "test-teach-test", or pre and post-test concept, it would be interesting to investigate whether stress, strain and coping levels were different subsequent to the implementation of a stress management programme or series of interventions specifically designed for the different subgroups of the accounting organisation. The effectiveness of the methods discussed in the literature review could then have been determined.

- Additional, South African related literature would have provided useful insight because of the unique nature of business, organisations, human resources and the economy in this country.

Having highlighted the limitations of the literature and empirical study, the recommendations for future action are now considered.

5.3   RECOMMENDATIONS

The following recommendations are made on the basis of the findings:

Generally, it is to the benefit of the organisation and its management's that stress be managed in an organisational context. Simply sending senior employees for annual medical check-ups does not reduce the consequences of stress. In moving towards a salutogenic, healthy work situation, with the focus on optimum functioning, management and organisational/industrial psychologists in particular, need to justify the need for and drive regular stress management programmes and awareness workshops for all their staff. As evidenced by this and other research, programmes need to be customised to provide for the differences between subgroups and not purely for senior level employees.

Specifically, for the accounting organisation used in this research, apart from customising the interventions based on the findings for the subgroups, it is important to formulate a multimodal strategy for stress management, as discussed in the

literature review.   This will provide a more effective, broad-based intervention programme with an increased likelihood of success.

In addition to a multimodal strategy for stress management, it is important for the organisation to recognise that both individual and organisational level interventions are required to ensure effective stress management.   The following specific recommendations are made:

- Further research on stress in a South African organisational context should be encouraged.   Due the unique nature of business, organisations, human resources and the economy in this country benchmarking against South African organisations would provide useful information to industrial psychologists, human resource practitioners and managers.

- A stress management programme tailored to meet the needs of the different subgroups, based on the outcomes of studies should be designed to include life skills and coping techniques. This type of programme can also be customised to meet the needs of employees during times of organisational and career transitions. It is important for the programme be evaluated on the basis of specific criteria as discussed in the literature review and then retested on the OSI-R to identify whether the interventions were successful. The process should be well documented and monitored, with periodic follow-up and long-term commitment from management.

- Change management strategies should be introduced to create awareness and buy-in for new programmes and projects being implemented within the organisation. This will reduce the impact of organisational change and overload through proper communication and stakeholder management.

- There was evidence that a number of subgroups experienced stress and strain as a result of the lack of clarity on organisational and personal objectives. It is recommended that a comprehensive system to manage performance, job rotation, job enrichment and structural issues be implemented. This will provide greater clarity on what is expected at all levels and will allow achievable goals to

be set and followed up regularly. In addition, feedback on performance should be provided regularly.

• Employee assistance programmes, with the necessary access to counselling and therapy should to be made available to all staff. This type of employee service would help to deal with work-related, family-related and trauma-related stress, which all impact on the individual's ability to perform optimally.

• As evidenced by the findings of this research, building relationships and a positive organisational culture are imperative to assist young, black employees in particular, to feel part of the organisation. Integration and team cohesiveness programmes would result in better relationships between all groups and levels, thus providing much needed support during stressful, problem situations. Training in dealing with conflict and team types and dynamics will also enable both teams and individuals to work more effectively, thus reducing the risk of stress related to interpersonal relationships amongst other stressors.

• In addition to general life skills and stress management interventions, a comprehensive development programme should be implemented for black and younger employees, including mentorship programmes, life skills and other training that will encourage and enhance the competencies they will require to be successful in the South African business environment.

Finally, as the President of the American Institute of Stress in 1990 stated (Starr, 1990): "People can learn to control stress. It doesn't have to be self-destructive. Rather, it can be used as an advantage, ultimately enhancing a person's productivity."

5.4 CHAPTER SUMMARY

In this chapter the conclusions relating to the theoretical chapters and the empirical study were discussed. The limitations pertaining to the literature and empirical study were outlined, and certain recommendations made stemming from this research.

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APPENDIX A – INTERPRETIVE GUIDELINES (T-SCORES)

Occupational Role Questionnaire (ORQ) & Personal Strain Questionnaire (PSQ)

For T-scores:

≥70 T   : Strong probability of maladaptive stress and/or strain

60T – 69T   : Mild levels of maladaptive stress and/or strain

40T – 59T   : Within 1SD of the mean: normal range

<40T   : Relative absence of occupational stress and/or strain

Personal Resources Questionnaire (PRQ)

For T-Scores:

≥60T   : Strong coping resources

40T – 59T   : Average coping resources

30T – 39T   : Mild deficit in coping skills

<30T   : Significant lack of coping resources

APPENDIX B – DESCRIPTIVE STATISTICS

Descriptive statistics for seniority level subgroup using T-scores on the OSI-R (N=85)

OSI –R scale	Variable	Trainee (N = 38)				Supervisor (N = 18)				Management (N = 17)				Senior management (N = 12)			
		Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD
ORQ	Role overload (RO)	31	67	47,97	8,03	38	63	48,94	6,89	38	74	52,94	10,50	43	64	54,50	6,11
	Role insufficiency (RI)	32	62	47,08	6,88	35	70	49,11	10,34	39	63	48,88	6,85	34	65	41,42	8,66
	Role ambiguity (RA)	34	83	52,63	9,89	38	67	52,28	8,05	41	66	53,53	7,33	38	55	44,25	5,56
	Role boundary (RB)	33	72	46,63	7,86	36	66	46,67	8,86	41	84	51,29	10,53	33	49	41,83	5,83
	Responsibility (R)	28	66	43,71	7,00	40	66	50,78	8,84	35	79	57,65	9,17	54	76	64,42	6,32
	Physical environment (RE)	39	69	46,92	5,75	40	55	47,11	4,74	39	58	45,24	5,37	39	48	43,83	3,13
PSQ	Vocational strain (VS)	34	67	49,11	7,84	37	77	51,78	11,45	41	77	52,88	10,77	37	49	43,50	3,63
	Psychological strain (PSY)	35	83	53,39	12,09	38	74	54,94	11,96	40	82	56,47	12,48	35	59	48,08	7,72
	Interpersonal strain (IS)	35	89	55,29	12,56	35	73	57,56	11,12	37	70	51,41	9,45	37	65	47,08	8,52
	Physical strain (PHS)	36	87	53,03	11,61	39	73	54,61	10,94	42	75	54,29	9,77	36	66	49,17	8,71
PRQ	Recreation (RE)	32	74	52,46	10,57	30	58	47,56	8,18	32	58	48,41	6,57	36	63	49,83	8,79
	Self-care (SC)	30	64	43,32	7,73	33	49	40,83	4,58	33	61	43,82	7,34	31	62	44,92	8,34
	Social support (SS)	27	62	50,05	8,77	38	59	49,17	6,78	33	60	51,59	8,60	37	62	53,58	7,24
	Rational and/or cognitive (RC)	12	75	42,49	13,83	21	60	42,06	9,14	23	69	41,53	13,12	43	64	49,42	7,79

Descriptive statistics for the age subgroup using T-scores on the OSI-R (N=85)

OSI –R scale	Variable	Younger (18-25) (N = 45)				Older (26-62) (N = 40)			
		Min	Max	Mean	Std deviation	Min	Max	Mean	Std deviation
ORQ	Role overload (RO)	31	67	48,23	7,42	38	74	52,13	9,06
	Role insufficiency (RI)	32	70	46,24	7,91	34	65	48,00	8,54
	Role ambiguity (RA)	34	83	51,40	9,63	38	67	51,73	8,16
	Role boundary (RB)	33	72	46,56	8,19	33	84	47,28	9,40
	Responsibility (R)	28	66	46,84	8,41	33	79	55,50	11,50
	Physical environment (RE)	39	69	46,53	5,30	39	59	45,80	5,17
PSQ	Vocational strain (VS)	34	77	48,61	8,54	37	77	50,78	10,04
	Psychological strain (PSY)	35	83	54,02	11,93	35	82	53,10	11,59
	Interpersonal strain (IS)	35	89	56,11	12,07	35	73	51,28	10,42
	Physical strain (PHS)	40	87	53,36	10,69	36	75	52,75	10,86
PRQ	Recreation (RE)	30	74	51,42	10,52	32	63	48,82	7,36
	Self-care (SC)	30	64	42,36	7,30	31	62	44,00	7,03
	Social support (SS)	27	62	50,60	7,97	33	62	50,77	8,41
	Rational and/or cognitive (RC)	12	75	41,56	13,02	23	69	45,08	10,96

Descriptive statistics for race subgroup T-scores on the OSI-R (N=85)

OSI–R scale	Variable	White (N = 76)				Black (N = 9)			
		Min	Max	Mean	Std deviation	Min	Max	Mean	Std deviation
ORQ	Role overload (RO)	35	74	50,34	8,26	31	63	48,00	9,80
	Role insufficiency (RI)	32	68	46,66	7,96	35	70	50,56	9,89
	Role ambiguity (RA)	34	67	50,92	8,29	42	83	56,89	12,43
	Role boundary (RB)	33	84	46,75	8,87	35	64	48,11	7,79
	Responsibility (R)	28	79	51,67	10,78	33	66	44,56	9,62
	Physical environment (RE)	39	59	46,14	4,68	39	69	46,56	8,99
PSQ	Vocational strain (VS)	34	77	49,43	9,10	37	67	51,44	11,18
	Psychological strain (PSY)	35	83	53,42	11,37	38	82	55,00	15,06
	Interpersonal strain (IS)	35	89	54,01	11,37	37	77	52,33	13,32
	Physical strain (PHS)	36	87	53,37	10,45	36	78	50,56	13,12
PRQ	Recreation (RE)	32	74	50,91	8,87	30	65	43,63	10,62
	Self-care (SC)	30	64	43,05	7,27	36	58	43,75	6,58
	Social support (SS)	27	62	50,66	8,35	42	59	50,88	5,89
	Rational and/or cognitive (RC)	12	75	43,22	12,14	23	65	42,88	13,26

Descriptive statistics for the gender subgroup using T-scores on the OSI-R (N=85)

OSI –R scale	Variable	Female (N = 37)				Male (N = 48)			
		Min	Max	Mean	Std deviation	Min	Max	Mean	Std deviation
ORQ	Role overload (RO)	31	67	49,30	8,47	35	74	50,71	8,39
	Role insufficiency (RI)	32	68	47,11	7,73	34	70	47,04	8,64
	Role ambiguity (RA)	34	83	50,84	9,65	38	67	52,10	8,37
	Role boundary (RB)	33	64	45,92	7,47	33	84	47,65	9,60
	Responsibility (R)	28	66	49,35	10,64	33	79	52,13	10,94
	Physical environment (RE)	39	69	46,97	6,13	9	59	45,58	4,38
PSQ	Vocational strain (VS)	34	77	50,49	10,69	37	73	48,98	8,08
	Psychological strain (PSY)	35	82	54,03	12,00	35	83	53,25	11,60
	Interpersonal strain (IS)	35	77	56,03	11,81	37	89	52,15	11,12
	Physical strain (PHS)	39	87	57,03	11,25	36	75	50,02	9,28
PRQ	Recreation (RE)	32	74	49,08	9,15	30	74	51,11	9,29
	Self-care (SC)	31	64	44,08	7,25	30	62	42,36	7,11
	Social support (SS)	27	62	50,92	9,56	34	60	50,49	6,89
	Rational and/or cognitive (RC)	21	69	41,84	10,52	12	75	44,26	13,33