

**CONFIRMATORY FACTOR ANALYSIS ON THE
MEASUREMENT OF SIX SALUTOGENETIC
CONSTRUCTS**

JOYCE BALOYI

**CONFIRMATORY FACTOR ANALYSIS ON THE
MEASUREMENT OF SIX SALUTOGENETIC CONSTRUCTS**

by

JOYCE BALOYI

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(ii)

DECLARATION

I, the undersigned, hereby declare that this dissertation titled "Confirmatory factor analysis on the measurement of six salutogenetic constructs" 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.

J. Baloyi
J BALOYI

JUNE 2000

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SUMMARY

**CONFIRMATORY FACTOR ANALYSIS ON THE MEASUREMENT
OF SIX SALUTOGENIC CONSTRUCTS**

BY

JOYCE BALOYI

SUPERVISOR Prof FVN CILLIERS

DEGREE MADMIN (INDUSTRIAL PSYCHOLOGY)

The aim of this dissertation is to establish the factor structure of six salutogenic constructs. The six constructs are conceptualised from the salutogenic paradigm - namely sense of coherence, hardiness, self-efficacy, learned resourcefulness, locus of control and potency. A personality profile of the salutogenic functioning person as well as relevant international and South African research are presented.

Measurements for the six constructs and biographical data are administered to a representative sample of 100 administrative officers. The instruments were found to be reliable in this study.

Pearson product moment correlations indicated that salutogenesis does not differentiate between gender, race or qualification, and that coping ability increases with age. Factor analysis indicated a distinct three factor structure consisting of sense of coherence, hardiness and a combination of self-efficacy and potency (self-control). Confirmatory factor analysis indicated a good fit confirming the literature on and personality profile of the salutogenic functioning individual.

KEY TERMS

salutogenesis, sense of coherence, hardiness, self-efficacy, learned resourcefulness, locus of control, potency

CHAPTER 1 SCIENTIFIC BACKGROUND TO THE RESEARCH

This dissertation focuses on confirmatory factor analysis on the measurement of six salutogenic constructs.

This chapter firstly outlines the background and problem statement. Next, the aims of the research are formulated. The paradigm perspective, research design and methodology are also discussed. The chapter layout is given and the chapter summary concludes this chapter.

1.1 BACKGROUND TO THE RESEARCH

The pathogenic view of stress has dominated research over the past few decades. The focus was on the negative impact of stress, which cause people to become ill while they are treated as victims. An example of pathogenic thinking in stress research, includes Hans Selye's (1974) General Adaptation Syndrome. This explains the way that the body reacts to stress, the difference between A and B personality types and its effect on coronary heart disease as well as the measurement of the effect of stress on the individual. The focus on pathogenic research ignored the aspect that some people survive and cope well in the same difficult conditions (Strümpfer, 1988).

Salutogenesis as a new paradigm towards stress and coping behaviour, was introduced by Antonovsky (1979) to complement the above pathogenic view. The focus of salutogenesis is on the health and strength of individuals to survive the difficulties that they are exposed to on a daily basis. The positive view of stress became evident in the workplace where a certain level of stress is necessary for effective performance (Antonovsky, 1979; 1984).

In an attempt to explain salutogenic behaviour, a number of constructs were identified by Strümpfer (1990), of which the sense of coherence, hardiness, self-efficacy, learned resourcefulness, locus of control and potency are seen as the most important. Various

research studies have explored the nature of these constructs in individual as well as organisational functioning. (These findings will be discussed in chapter 3.) This research project is another attempt to investigate the psychometric characteristics of these six important salutogenetic constructs.

1.2 PROBLEM STATEMENT

Many South African organisations have undergone business and social re-engineering over the past 5 years. This refers to quality aspects, cost effectiveness, high technology, diversity, restructuring and mergers. Such changes are supposed to result in increased production, business excellence, improved national and international competition as well as employee well-being. Unfortunately, these changes tend to increase stress in the organisation, which result in re-actional behaviour such as low productivity, accidents, absenteeism and other cost ineffective organisational phenomena.

The salutogenic paradigm and the measurement of its constructs are used increasingly to explain and measure the way in which individual employees cope with these changes. Although the widely used instruments for the measurement of these constructs - as suggested by Strümpfer (1990) - exhibit psychometric qualities such as reliability and validity, it is not clear whether their measurement confirm the underlying theoretical models used in explaining stress and coping with change in the various organisational settings in which they are used. Research on the correlations between different constructs has been reported. For example, Kossuth (1998) found high reliability between sense of coherence, self-efficacy and locus of control and Viviers and Cilliers (1999) between sense of coherence, hardiness and learned resourcefulness. No research could be traced investigating all six the constructs identified by Strümpfer (1990) as the core dimensions of the salutogenic paradigm. Information about the inter-correlation between these could help future research in understanding the nature of the general salutogenic construct as well as individual's and organisation's coping with change behaviour.

From the above, the following research questions are formulated.

1. How can salutogenesis be conceptualised, what are its constructs and can a personality profile of the salutogenic person be presented from this literature?
2. What international and South African research exist to illustrate the need for confirmatory factor analysis on the salutogenic constructs to confirm the above literature and personality profile?
3. Does factor analysis confirm the literature and personality profile?
4. What recommendations can be formulated from this result?

1.3 AIMS OF THE RESEARCH

The general aim of the research is to establish the factor structure of the six salutogenic constructs.

The specific literature aims are as follows.

1. To conceptualise salutogenesis, determine its constructs and to present a personality profile of the salutogenic person.
2. To ascertain what international and South African research exist to illustrate the need for confirmatory factor analysis on the salutogenic constructs.

The specific empirical aims are as follows.

3. To perform confirmatory factor analysis on the six salutogenic constructs to ascertain whether its measurement confirms the literature and personality profile.
4. To formulate recommendations from this result for the future understanding of individual's and organisation's coping with change behaviour.

1.4 PARADIGM PERSPECTIVE

The research model of Mouton and Marais (1993) serves as a framework in this research. It aims to incorporate the five dimensions of social sciences research, namely, the sociological, ontological, teleological, epistemological and methodological dimensions and to systematise them in the framework of the research process.

This research is conducted within the boundaries of Industrial Psychology as a discipline, defined as the scientific study of the relationship between man and the world at work: the study of the adjustment people make to the places they go, the people they meet, and the things they do in the process of making a living (Guion, 1965). This research falls within the sub-field of Organisational Psychology, defined as a study of how people are affected by the system within which they work together. It also deals with how they exert influence on the conversion of the inputs of human energy, money, materials and information on the system's manifold outputs of wealth, goods, services and satisfaction (Bass & Ryterband, 1979). The focus of Industrial and Organisational Psychology is essentially positive in nature (Van Vuuren, 1994). Though it often addresses situations characterised by dysfunction, it probably has a more salutogenic than a pathogenic orientation. This research also makes use of psychometric principles, defined as the branch of Psychology dealing with measurable factors (Rust & Golombok, 1989).

On the meta-theoretical level, the concepts of personality, stress, coping and measurement are relevant. They are conceptualised as follows.

Personality refers to the individual's characteristic modes of thinking and feeling patterns which determine his/her adjustment to the environment. The personality characteristics serve as an additional role in stressor-strain relationship through their influence on coping and social support. Thus, variations in the type of coping mechanism used by the individual have been found to relate to age, gender, organizational tenure, trait, anxiety, mastery, self-esteem, as well as social and

autonomy needs (Fleishman, 1984).

According to Lazarus (1966), **stress** is a result of the dynamic interaction of the individual with the environment and it is triggered by the former's perception of threat.

Coping refers to any process of analysis and evaluation to determine how to protect oneself against the adverse effects of any stressor and its positive outcomes (Schuler, 1986). Lazarus (1966) refers to coping as the process of managing external and/or internal demands that tax or exceed the resource of the person. Thus, coping is viewed as the cognitive, affective and behavioural aspects which are intended to, eliminate or reduce the source of discomfort, alter one's appraisal of the stressor and manage or reduce the feeling of discomfort (Murphy, 1985).

Measurement can be defined as a system governed by rules for assigning numbers to objects in such a way as to represent quantities of attributes (Nunnally, 1978).

The literature is presented from the salutogenic paradigm (Antonovsky, 1979; 1984), based upon the following assumptions.

- The dichotomy of people being either diseased or healthy is dispelled. The focus is on the health ease/disease continuum, in which people fall somewhere between the two theoretical poles.
- The commonly held assumption that stressors are inherently bad, is rejected. The issue is no longer on eradicating stressors, but how to learn to live well with stressors, and possibly turn their existence to an own advantage.
- The focus is on the study of the "deviant case" referring to those who make it against the high odds posed by human existence.
- The emphasis is on how people manage stress and stay well.

The empirical study will be presented from the functionalist paradigm (Louw, 1990), based upon the following assumptions.

- The mind should be viewed as a system of processes or functions rather than a set of structural components.
- Mental activity helps the individual to adapt to the environment.
- The focus is on human conscious experience, for example methods people use to adapt to their environments, satisfy their needs and increase their inborn abilities.

Specifically reference will be made to theories on the mentioned constructs, the sense of coherence as proposed by Antonovsky (1987), hardiness by Kobasa (1982), self-efficacy by Bandura (1982), learned resourcefulness by Rosenbaum (1980), locus of control by Rotter (1976) and potency by Ben-Sira (1985).

1.5 RESEARCH DESIGN

According to Mouton and Marais's (1993; 1994) description for exploratory, descriptive and explanatory research, this research can be seen as follows.

- This research is exploratory in that it attempts to gain insight into confirmatory factor analysis on the measurement of six salutogenetic constructs.
- This research meets the requirements of descriptive research by describing the characteristics of the six salutogenesis constructs.
- This research meets the requirement of explanatory research, because the researcher seeks to explain and confirm the six salutogenic constructs. The researcher attempts to demonstrate the relationship between the variables as well as the direction of the relationship between them, which makes this research exploratory.

The applicable person roles are that of researcher and psychometrist. The researcher designs the research and structures the method, reports and interprets the results, formulate conclusions and present recommendations to the theoretical and practical fields of Organisational Psychology. The psychometrist administers the chosen

measuring instruments according to the standard psychometric principles.

Research is seen as a collaborative human activity in which the social reality is to be studied objectively. The aim is not merely to understand the phenomena, but to provide a valid and reliable understanding of reality (Mouton & Marais, 1993). This research will address validity by means of careful planning and reporting of the design and the method, and by choosing measuring instruments with a high level of validity. Reliability will be addressed by ensuring that the process of data collection conforms to standard psychometric principles and that the measuring instruments are reliable.

1.6 RESEARCH METHOD

In conducting the research project, the following plan is structured and executed in order to comply with the scientific research criteria.

PHASE 1 LITERATURE REVIEW

Step 1 Conceptualization of salutogenesis and its constructs

Salutogenesis will be conceptualized, its constructs will be described and a personality profile of the salutogenic person will be presented from this literature.

Step 2 Investigating international and South African research

The relevant international and South African research will be studied to illustrate the need for confirmatory factor analysis on the six salutogenic constructs.

PHASE 2 EMPIRICAL STUDY

Step 1 Population / sample

The population is established as the administrative staff of the University of South Africa. From this, a representative sample of 100 will be drawn.

Step 2 Measuring instruments

Measuring instruments for all six salutogenic constructs will be chosen and justified for

use in this research. A biographical questionnaire will also be included.

Step 3 Data gathering

The participants will be approached by means of a letter signed by the head of the Department of Human Resources, requesting them to take part in this research project. Attached will be the chosen instruments with clear instructions for completion. A date for returning the material back to the office of the researcher, will be given.

Step 4 Data processing

The data obtained from the measuring instruments will be processed to include the descriptive statistics, reliability analysis, comparable numeric scores, analysis of variance, Pearson product moment correlations, exploratory factor analysis and confirmatory factor analysis.

Step 5 Hypothesis

The research hypothesis will be formulated to direct the discussion of the results.

Step 6 Reporting and interpreting results

The results will be reported and interpreted.

Step 7 Formulating of the conclusions, limitations and recommendations

The conclusions will be discussed in terms of the specific aims of the research. The relevant theoretical and methodological limitations will be identified and finally the recommendations will be formulated in terms of the future understanding of individual and organisational coping with change behaviour.

1.7 CHAPTER DIVISION

The chapters will be presented in the following sequence.

- Chapter 2 The conceptualisation of salutogenesis
- Chapter 3 Research on the salutogenesis constructs
- Chapter 4 Empirical Study
- Chapter 5 Results
- Chapter 6 Conclusions, limitation and recommendations

1.8 CHAPTER SUMMARY

Chapter 1 provided the scientific background to the research. This started with the background and problem statement of the research. Then the aims and paradigm perspective, research design and methods were discussed and the chapter ended with the chapter division.

In Chapter 2, the conceptualisation of salutogenesis will be discussed.

CHAPTER 2 THE CONCEPTUALISATION OF SALUTOGENESIS

The aim of this chapter is to conceptualise salutogenesis, determine its constructs and to present a personality profile for the salutogenic person. Firstly pathogenesis be explained followed by the development of salutogenesis and its description. Thereafter the constructs will be discussed by referring to their definitions and dimensions. This will culminate in the presentation of a personality profile of the salutogenic person. The chapter will end with a summary.

2.1 PATHOGENESIS

Stress is defined by Selye (1974) as the body's non-specific response to any demand made upon it. As a physician he observed that certain symptoms seemed to be correlated with illness. Working from a medical and thus pathological view, he based his work on the following assumptions (Selye, 1956).

- Signs, symptoms and syndromes are important and need to be treated.
- Diseases have specific causes which must be treated.
- Discrete and continuous variables should be studied.
- External factors impact on the individual.
- The individual needs to adapt to the situation.
- The individuals' responses may be adaptive or maladaptive.

Selye (1956) coined the term "general adaptation syndrome" which divides stress into three stages.

- The alarm stage. This entails bodily changes associated with the emotional or physical arousal as the body prepares itself for fight or flight when hormones are released.
- The resistance stage. Stress continues for some time until a person enters the resistance stage. During this stage one recovers from the initial outburst of

emotion, and attempts to endure the emotion-producing situation as well as possible. The body works to reduce or alleviate the stress symptoms.

- The exhaustion stage. Because stress stimuli becomes overwhelming and the individual is unable to cope with it, he/she enters the third stage, namely exhaustion. At this stage, all internal resources for managing stress are exhausted, even though the original sources of stress, and any new stressors which may have arisen during the resistance phase, continue to distress the individual. During this stage the body is particularly vulnerable to illness. In response to continuing stress, individuals may develop a wide variety of behavioural and physical symptoms or diseases as internal resources are depleted.

Holmes and Rahe (1967) referred to major and minor life events that occur in a person's life that require a certain level of adjustment. The major life events such as death of a spouse, divorce, marital separation, jail term and death of a close family member demand a high degree of adjustment, as opposed to minor events such as lesser violation of the law, Christmas, vacation as well as changes in eating and sleeping habits.

Friedman and Rosenman (1959) introduced Type A and B personality types to this scenario and explained how they relate to coronary heart disease. These have been used over the years to explain stress and coping. They believe that there is a correlation between the way in which an individual perceives his/her environment, and the qualities of the individuals' personality. Type A individuals tend to exhibit such traits as competitive achievement striving, a sense of urgency, intense drive and ambition, restlessness and impatience. Type B individuals are more relaxed, patient, and less competitive.

Symptoms of stress include the following.

- Physical (fatigue, sweating, difficult breathing, sleep disturbance and eating

disturbance)

- Cognitive (memory impairment, mental confusion and intrusive thoughts)
- Emotional (anxiety, fear, depression, grief and numbness)

2.2 THE DEVELOPMENT OF SALUTOGENESIS

A review of literature indicates that Antonovsky (1979) first developed the concept of salutogenesis in reaction to the existing theories which perceived stress as a threat to the well-being of people. The salutogenic paradigm emphasises the maintenance and enhancement of health and well-ness irrespective of the omnipresence of stressors (Antonovsky, 1979).

According to Cilliers et al (1995) there are two critical salutogenic questions that help in the understanding of stress and coping, namely, 1) how do people manage to stay healthy? and 2) how is that some people are able to develop a sense of coherence within the world of which they form part?

The answers to the above questions are to be found in the study of the post concentration camps experience in women, which is important in the development of the salutogenesis constructs (Antonovsky, 1979). The findings showed that a certain number of survivors were well adapted despite the difficult environment which they lived in. This research led to the realisation of the existence of the so called general resistance resources (GRR's) (Antonovsky, 1979). This concept is central to the explanation of salutogenesis and is described as any characteristics of the person, group, the subculture or society that facilitates avoiding or combatting a wide variety of stressors. When the person regularly experiences the availability of GRR's, a sense of coherence develops (Antonovsky, 1979).

The range of GRR's described by Antonovsky (1979) includes the following.

- Physical and biochemical GRR's such as immune suppressors

- Artefactual material GRR's such wealth to buy food and clothing
- Cognitive GRR's such as education and knowledge
- Emotional GRR's such as ego identity
- Coping strategies such as an overall plan of action for overcoming stressors
- Interpersonal-relational GRR's such as social support and commitment
- Macro socio-cultural GRR's such as answers provided by one's culture

According to Antonovsky (1979) all GRR's have in common the idea that they "facilitate making sense" out of the countless stressors with which the person is constantly bombarded. Through repeated experience of such sense making, a person gradually develops a strong sense of coherence. (Other salutogenesis constructs will also be discussed in this chapter.)

2.3 DESCRIPTION OF SALUTOGENESIS

Salutogenesis as a concept originates from the Latin word "salus" meaning health and the Greek word "genesis" meaning origins (Antonovsky, 1979).

Strümpfer(1995) is of the opinion that introducing the construct "fortigenesis" seems to be more descriptive of the field of study than the term salutogenesis. Fortigenesis comes from the Latin word "fortis" means strong and the Greek "genesis". He argues that these behavioural phenomena would better be served if called fortigenesis because the focus is more on the enhancement of strength in the individual in general than in the why's and how's of staying well (Strümpfer, 1995). For purposes of this research the salutogenesis concept will be used, although fortigenesis will be kept in mind in the interpretation of the results.

Salutogenesis is defined by De Wet (1998) as the study of the strength individuals exhibit in order to manage the tension and stress in their lives and not to succumb to illness.

2.4 CONSTRUCTS OF SALUTOGENESIS

Strümpfer (1990) identified six constructs within the salutogenesis paradigm which has become known, accepted and used by many researchers (Marais, 1997; Viviers, 1999; Wissing & van Eeden, 1994, 1997a, 1997b). On these grounds, these six constructs are also chosen for this research project.

2.4.1 Sense of coherence

The first central construct of salutogenesis is sense of coherence.

2.4.1.1 Definition

Antonovsky (1987) defines sense of coherence “as a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement”.

2.4.1.2 Dimensions

Sense of Coherence consists of three dimensions, namely comprehensibility, manageability and meaningfulness.

- **Comprehensibility**

Comprehensibility refers to the extent to which one perceives the stimuli that confront one, deriving from the internal and external environments, as making cognitive sense (Antonovsky, 1987). Although such information can be disordered, random, accidental, inexplicable and may come as a surprise, the individual with a high sense of comprehensibility expects that these stimuli will at the very least, become order able

and explicable in future.

Comprehensibility refers to the extent to which the person perceives the stimuli, from both within and without, as clear, ordered, structured and consistent information, and on the basis of which (s)he can expect that these stimuli will in future also be orderable, explicable and even predictable. Basically, these perceptions make cognitive sense (Strümpfer, 1988).

- **Manageability**

According to Antonovsky (1987) manageability refers to how much an individual believes that he/she has adequate personal and social resources to meet environmental demands. This refers to the extent to which one perceives that resources are at one's disposal (resources being under one's control), that are adequate to meet the demands posed by the stimuli which bombard one. People with a high sense of manageability will not feel victimized by events or feel that life treats one unfairly (Antonovsky, 1987).

Manageability refers to the extent to which the person perceives the events of his/her life experiences as bearable, that can be coped with or challenges that can be met. The "available resources" may be under the person's own control but may also be under the control of legitimate others who have the power to resolve matters in the individual's interest, for instance a spouse, relatives or formal authorities (Strümpfer, 1988).

- **Meaningfulness**

According to Antonovsky (1987) meaningfulness refers to the feeling that it is worthwhile to try to cope actively with stressful circumstances. Meaningfulness focuses on the extent to which the person feels that life makes sense emotionally, rather than cognitively. At least some of the problems and demands of living are welcome challenges, motivating one to invest energy (Strümpfer, 1988). Meaningfulness focuses on the problems and demands posed by living and which requires commitment, engagement and challenge. People with a high sense of meaningfulness will willingly

take up a challenge, will be determined to seek meaning in stressful situations and will do their best to overcome it with dignity (Antonovsky, 1987).

2.4.2 Hardiness

The conceptualization of hardiness as a source of resistance to the negative effects of stressful life events on health, derives from the existential personality view (Kobasa & Maddi, 1977). Hardiness is presented as facilitating the kind of perception, evaluation and coping that lead to successful resolution of the situation created by stressful events. Kobasa et al (1982) assumed that a positive association between hardiness and adaptive coping might explain why hardiness operates as a psychological buffer when stressors occur.

2.4.2.1 Definition

Kobasa (1979) coined the term personality hardiness which involves a factor of resilience, activates self-reliance and a zest for living. Kobasa (1982) studied people who managed to stay healthy and happy despite many life changes. In her studies it was found that people exposed to similar stressful events, experience different coping mechanisms - some become ill and others stay healthy. It was concluded that psychological resistance to stress seems to be based on the individual's approach to life.

2.4.2.2 Dimensions

Hardiness consists of three dimensions namely commitment, control and challenge.

- **Commitment**

Kobasa, Maddi and Kahn (1982) define commitment as a disposition to involve oneself in whatever one is doing. An interesting question to ask when dealing with commitment is, how do some people come to experience their environment and themselves as

interesting, worthwhile and satisfying, whereas others find them dull, meaningless or frustrating? This difference in sense of commitment to self and environment may well result from the overall degree to which the interactions are made, for example the provision of encouragement and acceptance.

Kobasa and Peccetti (1983) state that people who are committed, know what they are doing, and if this is not realised, a sense of alienation will result. People measuring high on commitment, have a sense of direction, have a purpose and a sense of active involvement in life. They involve themselves wholeheartedly in everything they do, be it work, family, hobbies or social situations. They easily get interested in doing anything, they always have something to do and they make the best of the situation they find themselves in. In contrast, alienated people find things boring or meaningless and avoid involvement (Maddi & Kobasa, 1984). Thus, commitment refers to the ability to believe in the truth, importance and value of what one is and what one is doing (Stümpfer, 1982). It is a tendency to involve oneself in many situations in life, such as work, family, friendship and social organisations.

- **Control**

Kobasa (1982) defined control as a tendency to believe and act as if one can influence the course of events. An interesting question to ask when dealing with control is, why do some people believe that, and act as if, they can influence ongoing events, whereas others passively succumb to being the victims of circumstances? Best (1994) states that individuals with a high level of control, attempts to identify reasons for occurrence from the perspective of their own responsibility and not from the viewpoint of the actions of others or even fate. They perceive the stressful situation as a consequence of their own activity which can be guided and manipulated by the self.

People with a high level of control believe that they have the power to influence things that happen around them. They tend to turn any disadvantaged situation into an advantage and would not take something at face value. Those with a low level of control, feel helpless and see themselves as passive victims of forces beyond

themselves. They experience difficulty in preparing themselves to handle difficult situations (Maddi & Kobasa, 1984). Thus, control can be seen as the tendency to believe and act as if by and large, one can influence the events in one's life, through what one imagines, says and does (Strümpfer, 1982). As a consequence, there is an emphasis on personal responsibility. It also acts as a self-fulfilling prophecy - believing makes one go ahead and do what one believes to be possible.

- **Challenge**

Challenge refers to a readiness to change things which appear threatening or at least to face up to them in a positive way, rather than to adopt a defeatist attitude (Dobson, 1982). An interesting question to ask when dealing with challenge is, why do some people expect life changes to be frequent and stimulating, whereas others expect stability and regard change as disruptive of security? People with a strong sense of challenge tend to approach every situation as such. They believe that things will change and this will assist them in their own self-development. They experience their life as exciting. In contrast, threatened people think that things will remain stable and they fear the possibility of change because it disrupts their comfort and security (Maddi & Kobasa, 1984).

Manning, Williams and Wolfe (1988) indicate that individuals with a high level of challenge, accept and expect change as a normal occurrence in life. To them, stability is viewed as not challenging and abnormal. Their approach towards life is one of growth and development, and they confront change with enthusiasm. Best (1994) states that the "challenge" component implies that the individual seeks out new experiences, and when he/she feels uncomfortable in new experiences, these individuals can identify the appropriate resources to approach difficult situations. Thus, challenge can be seen as the expectation that it is normal for life to change and that such change will present one with opportunities and incentives for development, rather than merely constituting a threat to one's security (Strümpfer, 1982). As a consequence, one tends to practice responding to the unexpected, by exploring one's surroundings, taking action to find out more about the changes and incorporate them

into an ongoing life plan by learning from change.

2.4.3 Self-efficacy

Self-efficacy is thought to be an essential coping resource. Successful coping promotes expectations of self-efficacy, which lead to more vigorous and persistent efforts to master new tasks (Bandura, 1989).

2.4.3.1 Definition

Self-efficacy is defined as the belief in one's ability to perform a task or more specifically, to execute a specified behaviour successfully (Bandura, 1977). Self-efficacy beliefs are therefore determined primarily by "inactive mastery", which depends on both perceived and actual prior task performance. Bandura (1986) defined perceived self-efficacy as people's judgements of their capabilities to organise and execute courses of action.

According to Campbell and Pritchard (1976) self-efficacy is similar to expectancy, which represent beliefs about the relationship between effort and performance. Self-efficacy, however, appears to be more general in nature, since it could involve either effort or ability, whereas expectancy focuses exclusively on the relationship between effort and performance.

2.4.3.2 Dimensions

Self-efficacy expectations have three dimension namely magnitude, strength and generality.

- **Magnitude**

Magnitude refers to the level of difficulty an individual feels capable of performing, (Ayres, 1980). Magnitude of self-efficacy, in a hierarchy of behaviours, refers to the

number of "steps" of increasing difficulty or threat a person believes him/herself capable of performing (Bandura, 1986).

- **Strength**

Strength refers to the durability of an expectation in the face of disconfirming experiences (Ayres, 1980) - the effort placed on maintaining the behaviour in spite of obstacles. The strength of self-efficacy expectancy refers to the resoluteness of a person's convictions that he/she can perform a specific behaviour. Strength has been related repeatedly to persistence in the face of frustration, pain and other barriers to performance (Bandura, 1986).

- **Generality**

Generality refers to how far an efficacy expectation extends beyond a specific behavioural domain (Ayres, 1980). Generality of self-efficacy expectancy refers to the extent to which success or failure experiences influence self-efficacy expectancies in a limited, behavioural manner, or whether changes in self-efficacy expectancy extend to other similar behaviours and contexts. Generality addresses the broadness of the applicability of the belief (Bandura, 1986).

2.4.4 Learned resourcefulness

When faced with significant life-changing events or particular life difficulties, people make efforts to interpret their experiences. The attributes they make to the causes of the event and their own responsibility have important consequences for the ways they adapt to the demands of the situation and for their feeling about it (Selye, 1983).

Rosenbaum (1980) suggested that individuals might differ in the extent to which they have acquired an effective repertoire of self-control behaviour during their learning history. The concept of learned resourcefulness is used to describe an acquired repertoire of behaviours and skills, by which the person self-regulates internal responses (such as cognition, emotion and pain) that interfere with the smooth

execution of desired behaviour.

2.4.4.1 Definition

Seligman (1975) defined learned resourcefulness as a condition that comes to the fore, in cases where individuals experience harmful and distressing situations. This is aggravated when the individual feels entirely helpless, believing that nothing he/she can do will significantly alter the outcome.

2.4.4.2 Dimensions

Rosebaum conceptualized the process of learned resourcefulness to manifest in three dimensions, namely representation, evaluation and action.

- Representation

Representation refers to an individual's experience of change where no conscious effort, cognitive and/or emotional reaction is measurable (Strümpfer, 1988).

- Evaluation

This refers to the individual's evaluation of change as desirable or threatening. In case of a threat, a re-evaluation is made to ascertain whether anything can be done about it (Strümpfer, 1988).

- Action

This refers to the individual taking action (or cope) in order to minimise the negative effects of the internal or external changes. Learned resourcefulness has its main impact on the action phase (Strümpfer, 1988). In Rosebaum's (1988) model, coping with stressful events calls for attempts to self-regulation or self-control. In order to engage in self-control behaviour, one must have the necessary skills and behaviours in one's basic behavioural repertoire. Most models of self-control focus on the corrective and return to homeostasis function of the self-regulatory process (for example Kanfer &

Hangerman, 1981; Schwartz, 1984). Self-control is initiated by an environmental disruption of an ongoing automatic behaviour. The individual controls his/her behaviour in such a way as to minimize the interfering effects that this disruption has on the smooth execution of routine actions (Rosenbaum, 1988).

2.4.5 Locus of control

Locus of control - attributed to Rotter (1966) - is based on social learning theory. It is believed that the individual learns from the environment through modelling, past experience and reinforcement of certain behaviours. Internality facilitates coping with stressors. This means taking credit for acceptable outcomes, while rejecting and taking blame for unfortunate ones - which is called a defensive mode (Marais, 1997). According to Antonovsky (1991), the absence of control over outcomes - a form of self-blame - could enhance externality. Individuals who verbally give external reasons for past failures but who clearly act as if their behaviour will determine outcomes, are called "defensive externals".

Note. For the purpose of this research, people exhibiting an internal locus of control will be called internals and people exhibiting an external locus of control will be called externals.

2.4.5.1 Definition

Locus of control refers to the extent to which the individual perceives that he/she has control over a given situation (Sutherland & Cooper, 1990). Rotter's theory on locus of control discusses the role of reinforcement in the acquisition of skills and knowledge. The value of a reinforced stimulus is hypothesized to vary, depending on an individual's perception of a casual relationship between his/her behaviour and the reward (Rotter, 1966). An individual may perceive a reward as following an action but not dependent upon their actions, and may attribute the reward to luck, chance, fate or as under the control of powerful others. This belief is referred to as external locus of control (Rotter,

1966). Behaviour where the individual perceives a reward as entirely dependent upon own behaviour, or relatively permanent characteristics, is called internal locus of control (Rotter, 1966).

Collins (1974) differentiates between externals and internals on the basis of attribution. Externals attribute the cause of events to the environment, whilst internals attribute the cause of events to themselves. Broedling (1975) postulates that the internals feel in control of aspects affecting them, whilst externals feels that events are beyond personal influence. Lefcourt (1966) proposed a general principle, stating that internals experience the positive or negative aspects of life as being a consequence of their own action and falling under their own control. He also proposed that externals experience the positive or negative aspects of life as being a consequence of unrelated personal behaviour, and that this falls beyond their personal control.

Phares (1976) postulated that cognitive performance acts as the most logic difference between internals and externals. Internals acquire larger amounts and more diverse kinds of information as well as the behaviours used to attain such information. This cognitive functioning enhances the overall personal effectiveness of the internal as compared to the external. According to Anderson (1977) performance experience impacts on locus of control. Internals adjust aspirations either upwardly or downwardly pending success or failure to a greater extent than do externals. Achievement in performance differentiates internals and externals in terms of outcome behaviour.

2.4.5.2 Dimensions

There are two dimensions of locus of control, namely the internal and external.

- Internal locus of control

Internals see themselves as being in control and shape their own lives. In stressful situations internals tend to judge themselves as master of the situation and therefore they are less likely to feel stressed. Internals believe that there is a relationship

between own behaviour and the outcome of events (Rotter, 1966). Internals believe that they have control over what happens, and that decisions made and actions taken, influence personal outcomes. This belief that they play a role in determining the events that impinge on them, is viewed as a factor in the expectation of coping with a stressful situation and affecting change. Thus, they suffer less threat and fewer adverse consequences than the external oriented individuals who tend to believe in luck or fate (Sutherland & Cooper, 1990). Internals prefer to be in control and resist efforts aimed at manipulating their behaviour. They put more effort in to obtaining information because they feel in control of the reinforcement or reward that result from their subsequent behaviour (McKenna, 1987). Given that the choice of coping strategies may be an inherently social process, it should not be surprising that cultures may influence how individuals cope with stress. There is extensive literature on how cultures affect adaptation processes (Bateson, 1972; Colby, 1987; Dubos, 1965). Less attention has been paid to the more general ways in which culture can influence the use of coping strategies (Goldberger & Breznitz, 1993).

- External locus of control

Externals are more likely to feel helpless during stressful situations. They believe that there is nothing they can do to change or alter such a situation. They tend to blame factors outside of themselves. Externals see no relationship between their behaviour and the control of the stressor. They see themselves as helpless and unable to do something about the situation (Rotter, 1966). Externals appear to be less able to deal with frustration, tend to become more anxious and are less concerned with achievement. Thus, their psychological adjustment and coping ability are poorer. Externals are likely to be complaint and conforming individuals, prone to persuasion and ready to accept information (Sutherland & Cooper, 1990).

Outcome of circumstances is seen as in the hands of those with power, who are at best disinterested in the individual's welfare (Levenson, 1991). External control includes several forms of defending behaviour, such as displacement and projection (Goldberger & Breznitz, 1993).

2.4.6 Potency

An individual is threatened to the extent that his/her resources for avoiding or overcoming the harmful circumstances, are weaker than the perceived potency of the harmful stimulus (Lazarus, 1966). Ben-Sira (1989) introduced the concept of potency as a stress-buffering mechanism which will limit the homeostasis-disturbing impact on an occasional failure, in meeting a demand because of resource inadequacy.

2.4.6.1 Definition

Ben-Sira (in Strümpfer, 1990) refers to potency as a mechanism that prevents the tension, which follows occasional inadequate coping from turning into lasting stress. Potency is a person's enduring confidence in his/her own capabilities as well as confidence in and commitment to his/her social environment, which is perceived as being characterised by a basically meaningful and predictable order and by a reliable and just distribution of rewards (Ben-Sira, 1985). The crucial question to be asked is, if the resources at the disposal of a person were inadequate to meet the demands, how then will they have the power of restoring the homeostasis which they were unable to maintain in the first place (Ben-Sira, 1985)?

2.4.6.2 Dimensions

According to Ben-Sira (1985), potency functions in a primary and a secondary phase.

- **Primary stage**

This dimension is based on an individual's response to a demand upon confrontation.

- **Secondary stage**

This is a stage of restoring homeostasis if coping in the initial stage was not adequate.

The main objective of this two-stage process of coping is the notion that there has to

be a homeostasis-stabilising mechanism over and above the normal resources of the individual.

2.5 INTEGRATED SALUTOGENIC PERSONALITY PROFILE

From the above literature, the personality profile of the salutogenic person will be discussed according to the cognitive, affective, conative and interpersonal characteristics (also see Viviers, 1999).

- **Cognitive characteristics**

Most of the above constructs refer to an aspect of understanding or comprehensibility. This refers to the extent to which the individual experiences internal and external stimuli as ordered, structured and consistent. His/her perceptions make cognitive sense and he/she works towards making life understandable and tries to be flexible towards change. This also relates to control, the ability to interpret, evaluate and incorporate external stimuli in such a way that it fits into the individual's life plan. This requires cognitive flexibility relating to choices between possibilities. The individual has the ability to regulate internal responses by means of cognitive control and by making use of self regulating mechanisms. This fits into an easy way of life and stimulates self effectiveness in evaluation and action. In summary, the individual has the ability to control stimuli and to adapt that to his/her normal life functioning. Comprehension makes it possible to see the stimuli in a positive light. The individual perceives and controls the stimuli in a positive way and ensures a positive outcome.

- **Affective characteristics**

The individual experiences life as emotionally meaningful. It is acceptable for him/her as well as his/her perception of the environment's reaction, to allow conscious emotions to be expressed in a natural and spontaneous way. The individual is committed to life through his/her belief and value systems. The individual believes that there is a purpose in all of life's happenings. Emotions are experienced through cognitive control and failure is worked through instead of rationalised away.

- **Conative characteristics**

The individual manages life events in a flexible way and experiences change as a challenge. Events are perceived as being interesting. A repertoire of coping mechanisms such as self-control and effective self regulating are to his/her disposal. The individual is highly task orientated.

- **Interpersonal characteristics**

The individual is committed to be involved in effective interpersonal relationships in an interdependent way. He/she makes use of social support systems to help in times of intense stress and strain.

2.6 CHAPTER SUMMARY

Pathogenesis as old paradigm in studying stress and coping was replaced by the new salutogenic view, focussing on why people stay healthy in spite of stressful situations. Salutogenesis is defined as the study of the strength individuals exhibit in order to manage the tension and stress in their lives and not to succumb to illness. The salutogenic constructs of sense of coherence, hardiness, self-efficacy, learned resourcefulness, locus of control and potency were discussed in terms of the definition and dimensions of each. From this literature, an integrated personality profile of the salutogenic personality was presented.

Herewith the first literature aim is accomplished.

Chapter 3 will focus on international and South African research on the salutogenic constructs.

CHAPTER 3 RESEARCH ON THE SALUTOGENIC CONSTRUCTS

The aim of this chapter is to ascertain what international and South African research exist to illustrate the need for confirmatory factor analysis on the salutogenic constructs, in order to confirm the above literature and personality profile. Firstly the international and secondly the South African research will be discussed for each of the six salutogenic constructs. Lastly an integration of the research will be presented. The chapter will end with a summary.

International and South African research results increasingly prove the relationship between, on the one hand salutogenic (Strümpfer, 1990) and fortigenic functioning (Strümpfer, 1992) and on the other hand various individual and work related behavioural constructs. This can be seen as part of the challenge to explicate psychological well-being (see Wissing & Van Eeden, 1994, 1997a, 1997b) applied to individual optimal functioning as well as organisational effectiveness. Strümpfer and Wissing (1999) give a summary of such results, using mostly the widely recognised salutogenic construct (sense of coherence) and its scale developed by Antonovsky (1987). Examples of individual constructs are cognitive style, anxiety, depression, burnout, work stress, positive / negative affectivity, neuroticism, self-esteem, sex role, life satisfaction, extraversion, independence, conscientiousness, agreeableness, role behaviour, powerlessness and social support. Work related constructs include job involvement, organisational commitment, powerlessness and organisational change.

The interpretations of existing research assume that the constructs do fit the theoretical model of salutogenesis. Against this background, this research project aims at confirming the six chosen constructs within the theory. Next, more research projects will be discussed to indicate the need for confirmation.

3.1 INTERNATIONAL RESEARCH ON SALUTOGENESIS

The following international research results are seen as important in view of this research project.

3.1.1 Sense of coherence

Gale (1993) studied sense of coherence as a predictor of perceived health status and performance which adults identify as promoting health. The sample consisted of 223 adult men and women employed at six rural industrial sites. The construct was operationalised using Antonovsky's Orientation to Live Questionnaire (see chapter 4). The findings suggest that a strong sense of coherence is present in individuals who engage in healthy promoting lifestyles and perceive themselves as healthy.

Johnson (1993) investigated Antonovsky's salutogenic theory and sense of coherence was used as a predictor of perceived health status and health promoting behaviours. The random sample consisted of 228 adult men and women employed at six industrial sites. The findings revealed that there was a significant positive relationship between sense of coherence and its sub-components of comprehensibility, manageability and meaningfulness. There was also a positive relationship between these salutogenic variables and a health promoting lifestyle.

Gayle (1993) studied the relationship amongst psychological resources, care demands and cognitive stress. The selected population consisted of 784 eligible caregivers with the main responsibility for care to patients. The findings suggest a negative relationship between general resistance resources and cognitively experienced stress. The findings confirmed that there are differences in the importance of social support in mediating stress.

Milgram (1986) conducted a study in a psychiatric hospital, comparing the coping behaviour of soldiers with physical casualties and post-traumatic stress. The findings

suggest that those who returned to work coped better regardless of their initial reason for hospitalisation.

Brook (1992) examined the determinants of successful aging. The physical, psychological and social dimensions of the quality of life were studied. The subjects were 199 men with age varying from 55 to 65. The findings identified sense of coherence and physical activity as predictors of successful aging. In a follow-up study a group of 150 women with ages of 65 and older, were interviewed and asked to share information on several areas, such as their health and their orientation to life. Women with stronger sense of coherence reported themselves to be in a better health and having a better quality of life.

Antonovsky (1979) studied poverty stricken African Americans as well as Jews who escaped Nazi concentration camps. There is evidence that despite having lived through the most inconceivable inhuman experiences, some people were reasonably healthy and happy. These findings reveal that the stronger the person's sense of coherence, the more adequately he/she copes with distress.

Feigin (1992) studied the relationship between sense of coherence and the adjustment to disability of both the disabled and their spouses, and the reciprocal influence of the spouse's sense of coherence on each other's adjustment. The results strongly supported the hypothesised positive relationship between sense of coherence and adjustment to disability by both the disabled and the spouse. This indicates that sense of coherence is a personality factor that explains individual differences in coping. Furthermore sense of coherence was found to be a more important factor in influencing adjustment than the severity of disability.

3.1.2 Hardiness

Kobasa and Puccetti (1983) examined personality, social assets and perceived social support as moderators of the effects of stressful life events. The sample was drawn

from 204 business executives selected randomly from middle and upper level management. There was a 84% response rate after a follow up in three year's time. The results showed that perceived managerial support has a more positive effect on the executives than other support systems. The manager's support helps the individual to deal with problems in the work area and focussing on the problem at hand. For the individual low on hardiness, family support may foster inappropriate handling of difficult work situations. Other social support systems are necessary and they are more effective when backed up by work support.

Kobasa (1996) conducted research on staying psychological healthy under stressful situations. The subjects were 224 college students in two universities around Tokyo. The results indicated that the three components of hardiness, namely commitment, control and challenge all have adequate reliability as well as a moderate inter-correlation. The findings confirmed the relationship between hardiness and psychological stress responses.

A study on business executives provided the initial empirical support for hardiness as a stress-resistance resource. Kobasa (1979) identified middle and upper level executives with high levels of stress as indicated by their life events. They were divided into groups with high and with low illness symptoms. Hardiness and stressful life event scores proved to be powerful predictors of changes in the executive's illness over time. As predicted, the high-stress / low-illness executives showed significantly greater personality hardiness than the high stress / high-illness executives.

3.1.3 Self-efficacy

Bandura's (1977) research indicate that an individual's past experiences with success and failure in a variety of situations, result in a general set of expectations which the individual carries into new situations. Individuals with high levels of self-efficacy tend to approach challenging situations in an active and persistent way. On the other hand, those with a low level of self-efficacy are less active or tend to avoid such situations

(Goldberger & Breznitz, 1993). Bandura (1977) postulated that self-efficacy expectations might determine performance accomplishments and persistence in pursuing a task when barriers are encountered.

Linking to Hackett and Betz's (1981) research, Bandura (1977) illustrated that self-efficacy expectations play a crucial role in the career development process. Self-efficacy expectations are related to the degree of persistence and success in college majors and their career choices. To investigate the Hackett and Betz (1981) hypothesis, Lent, Brown and Larkin (1984) examined the relationship between self-efficacy beliefs and academic success / persistence among students considering science and engineering careers. Success at a task, behaviour or skill, strengthens self-efficacy expectancies for that task, behaviour or skill, whereas perceptions of failure tend to diminish self-efficacy expectancy (Maddux, 1995).

Research (Jacobs, 1998) on the stress levels of children showed that parents and caregivers play a significant role in the child's resistance to stress and that students with high self-efficacy were more effective in training.

3.1.4 Learned resourcefulness

Leval, Greenfield and Baruch (1979) comparatively studied Israeli soldiers with physical and psychological casualties. The findings showed that the health of 55% of the subjects became worse, and that 45% survived. Keren et al's (1983) follow-up study showed that surviving related to going back to work, completing military service and filling high ranking occupations and attaining more education.

Marianne et al (1999) reported on childhood experiences and the number of child psychiatric risk factors. The results showed that many adults function well despite difficult childhood experiences.

3.1.5 Locus of control

Harmful and distressing situations appear to be aggravated when the individual feels entirely helpless, believing that nothing can be done to significantly alter the outcome. Seligman (1975) called this condition learned helplessness.

The following two studies illustrate that the measurement of locus of control produces sub-dimensions. Mirels (1970) identified that the belief in mastery during the course of life and the capability to exert impact on political institutions, are factors influencing personal characteristic of internals. Collins (1974) found that externality, could be derived through the individual's belief that the world is difficult, unjust, governed and controlled by chance, and the world is politically unresponsive.

Concerning the relationship between locus of control and health related behaviours, namely exercise, obesity and smoking, the following seems to manifest (Rotter, 1966). Internals show a more favourable attitude towards exercise, succeed easier in weight reduction programmes, follow it through and find it easier to stop smoking than the externals.

Cromwell et al (1977) studied the role of control in recovery of patients. The findings revealed that internals were rated by the professional staff as being more cooperative and less depressed than externals in a intensive care unit. The internals were better of because they actively participated and had greater hope that they will survive.

3.1.6 Potency

Potency differs from the other mentioned salutogenic concepts in the sense that the central characteristic, an underlying basic sense of self-confidence in one's capacity to overcome the demands of life, is not viewed in isolation from the environment (Marries, 1997). It comprises the mechanisms of self-appreciation, on the one hand, and commitment to the society as well as perception of society as meaningful and

ordered, on the other.

Dasberg (1982) studied post-traumatic war survivors. The findings showed that a sense of belonging, feeling secure, having an identity and acceptance of the army unit as a substitute family, help to survive in difficult situations. Steiner and Newman (1982) compared 74 post-traumatic survivors to 100 elite paratroopers who did not breakdown after trauma. The findings showed that trust, self-confidence and high group morale were factors facilitating survival, despite being laid off and experiencing exhaustion.

In studying different communities to understand their strength to handle difficult situations, Anson et al (1993) investigated the importance of personal and collective resources in coping with recent life events. A sample of 230 kibbutz members were used. Collective resources embedded in the social system to which one belongs, membership in a religious kibbutz, the kibbutz being viewed as a powerful, collective-coping resource by itself, were measured. The findings showed that a combination of resources is useful in avoiding functional limitations. The collective resources tend to strengthen the individual resources.

Levin (1992) studied the religious influences on morbidity and health. He identified religious dimensions such as religious commitments, ethnic identity, involvement and fellowship, worship and prayer, theoretical beliefs, faith, spiritual, mystical experiences and obedience as important factors contributing to survival. The findings placed emphasis on social relationships, supportive networks, friends, family, hope, forgiveness, contentment, optimism, positive expectation and divine blessing. In time, the above factors result in lower disease risks, enhanced well being, stress buffering, coping, adaptation and supernatural intersection.

Conger et al (1999) investigated couple resilience to economic pressure. The findings provide an understanding of how marriages change in response to the social context in which they exists. It was found that the interaction with spouses are some of the factors promoting resilience in marriage.

Lindstrom (1992) studied the ways in which children handle divorce. It was clear that the existence and making use of a social support system consisting of siblings, relatives, neighbours, teachers and health professionals, provide control and mastery of the situation.

Sethi and Schuler (1983) reviewed three studies of the role of social support groups in adapting to difficult situations in organizations. Over 3000 subjects were used in these studies, from different occupational categories and countries. The findings revealed that the type of supportive behaviour such as the availability of the supporter and the willingness to listen and to help, serve as strong adaptive mechanisms.

Agho et al (1993) studied the determinants of job satisfaction. The results showed that the characteristics of satisfied employees are freedom to make job related decisions, sharing of the belief that working is an important part of life, the experience of being rewarded for contributions, having the opportunity for mobility within the organisation, working for supportive supervisors and making contributions to the organisational work processes. The findings suggests that work satisfaction depends on the various personality dimensions factors that individuals bring to the organization rather than the job characteristics.

3.2 SOUTH AFRICAN RESEARCH ON SALUTOGENESIS

Most of South African research on salutogenesis started in the 1980's, initiated by the work of Strümpfer (1990). Subsequently Strümpfer (1997) has conducted and reported on extensive research within the South African context. The following research results are seen as important in view of this research project.

3.2.1 Sense of coherence

Strümpfer (1989) compared a diverse group of South African white business executives with American and Dutch groups with respect to job demands, role-related conflicts and

social support. The findings revealed that South Africans experience higher workload, greater responsibility and less role ambiguity.

Strümpfer (1994) examined sense of coherence, negative affectivity and general health in farm supervisors - 79 male first line supervisors on wine and fruit farms in the Western Cape. The findings confirmed the importance and validity of sense of coherence in predicting perceived health, regardless of negative affectivity.

White (1982) investigated the physical working environment of underground workers in South African gold mines, which are described as extremely hostile and much more stressful than that of surface workers. The dependent variables included a measure of job-related tension, a manifest anxiety scale and data on frequency of illness. No differences were found in stress levels between underground and surface workers, indicating the role of general resistance resources in any type of working environment.

Marais (1997) examined change management and the extent to which individuals cope with organisational change. The findings indicate a strong relationship between the strength of the manager's salutogenic personality and the ability to cope with change.

Kossuth (1998) conducted research on team building and salutogenic orientations contextualised in a performance model. The findings indicate that salutogenic functioning plays a substantial role in team effectiveness and work performance.

Rabichund (1999) conducted research on the role of sense of coherence in group relations training. The findings revealed that the sense of coherence is a pervasive disposition in determining the way in which one appraises and copes with group relations training conducted from the Tavistock approach. High sense of coherence facilitates coping with ambiguity and making sense out of psycho-dynamic team work.

3.2.2 Hardiness

Sergay (1990) conducted research on the moderator effects of hardiness and social support on the person-environment interface, on a sample of 277 employees on different organisational levels. The findings revealed that hardiness and supervisor support have a significant effects on psychological distress and organisational commitment. Hardiness had a significant effect on propensity to leave and supervisor support exerted a significant direct effect on propensity to leave.

3.2.3 Self-efficacy

Erwee (1992) studied the organisational variables influencing female advancement in South Africa. Variables included aspects of the organisation structure such as power hierarchy, composition of levels in companies and reward structures. The findings suggest that self-efficacy facilitates taking personal responsibility to identify inadequate practices as well as co-operation in professional networks to stimulate change.

Allmann (1993) found that fewer than one in five South African black managers will escape performance-impairing stress-related disorders. The sample consisted of 1300 managers in big corporations which are known for their progressive thinking and advancements. The findings confirmed the hypothesis that not only are causes of stress different for managers from different population groups, but also that black managers experience these stresses more frequently and more severe than their white counterparts.

3.2.4 Learned resourcefulness

Marais (1997) included learned resourcefulness in his battery, measuring coping with change behaviour amongst 39 managers. The results indicated that this construct contributed towards explaining ineffective versus effective coping. The results obtained by Viviers and Cilliers (1999) also indicated that this construct explains coping

behaviour effectively.

3.2.5 Locus of control

Bothma and Scheepers (1997) studied the role of locus of control and achievement motivation in the work performance of black managers, using a sample of 102 males in supervisory and senior positions in a diversified and geographically dispersed chemical company. The results showed that locus of control is a better predictor of work performance than achievement motivation, implying that locus of control could be used successfully as a selection instrument in the recruitment of black managers.

Bekker and Crous (1998) reviewed the concept of empowerment as used in South African organisations. The finding was that locus of control is the key contributing construct to empowerment.

3.2.6 Potency

Marais (1997) included potency in his battery. Again, this construct contributed towards explaining the difference between ineffective and effective coping with change behaviour.

3.3 INTEGRATION

The above literature review gives strong evidence for the hypothesis that salutogenic functioning facilitates individual coping with the demands of life and its inherent stress, in his/her private as well as organisational life.

3.4 CHAPTER SUMMARY

Existing international and South African research findings were presented for each of the six salutogenic constructs, confirming the salutogenic hypothesis about coping with

life and stress.

Herewith the second literature aim is accomplished.

In chapter 4 the empirical study will be presented.

CHAPTER 4 EMPIRICAL STUDY

The aim of this chapter is to outline the empirical study. Firstly the population and sample is discussed. Then the measuring instruments are discussed and the choice for each justified. Hereafter the data gathering and processing is given. The chapter ends with the formulation of the hypothesis and the chapter summary.

4.1 POPULATION AND SAMPLE

This research project is conducted at the University of South Africa in Pretoria, employing a total of 3,397 academic and administrative staff members.

The administration section (N=2116, 62%) serves as the population in this study. The variety in terms of job content amongst administrative staff, as well as the experience of stress throughout the academic year, served as consideration for the study of coping with stress. A random sample of 180 was selected, representing all the administrative departments proportionately. Of these, 100 actually completed the measuring instruments, forming the final sample (N=100).

4.2 MEASURING INSTRUMENTS

The six salutogenic instruments as well as the biographical questionnaire will be discussed in terms of the aim and rationale, administration, interpretation, validity, reliability and the justification for its inclusion in this study.

4.2.1 Sense of coherence

The Orientation to Life Questionnaire (Antonovsky, 1987) was used to measure sense of coherence.

- Aim and rationale

The aim of this questionnaire is to measure the sense of coherence in a total score as well as for the three dimensions, namely comprehensibility (seeing the world as structured and predictable), manageability (believing that the individual has adequate personal and social resources to meet environmental demands and circumstances) and meaningfulness (feeling that it is worthwhile to try to cope actively within stressful circumstances). A high total score represents a strong sense of coherence. High scores in the three dimensions are seen as supportive to the total score and indicates a high level of behaviour according to the above descriptions.

- **Administration**

The respondent is required to respond to each of 29, seven point items on the questionnaire. Thirteen items are formulated in the negative and have to be reversed. All the items are added to form the total score. Eleven items measure comprehensibility, ten manageability and eight meaningfulness.

- **Interpretation**

A high score indicates a high level of sense of coherence as well as a high level of functioning on the three dimensions. Such an individual will experience life and its challenges as comprehensible, will be able to manage the demands of coping with them and will be able to find the coping emotionally meaningful. A low score indicates that the respondent does not experience these characteristics.

- **Validity**

Antonovsky (1993) referred to the face and content validity by having each item in the instrument scrutinised by three of his colleagues, familiar with the theory. They evaluated each item to refer clearly to one and only one of the SOC dimensions. Construct validity varies between 0,38 and 0,72 (Antonovsky, 1993).

- **Reliability**

Antonovsky (1993) lists evidence from studies conducted in 20 countries for the reliability of this scale. In 26 studies using the 29 item scale, the Cronbach Alpha

measure of internal consistency ranged from 0,82 to 0,95. The relatively few test-retest correlational studies, show considerable stability, for example 0,54 over a 2-year period among retirees.

- **Justification for inclusion**

As both valid and reliable, the questionnaire is universally accepted as measurement instrument for sense of coherence. It is also culturally non-specific and ideal for cross cultural measurement and research (Randy Ren-Hu, 1992). It is based upon a very solid theoretical framework which has been empirically tested within the stress-coping-health process worldwide (see discussion in chapter 2) and is seen as the core concept in the salutogenic model (Antonovsky, 1987).

4.2.2 Hardiness

The Personal Views Survey (Kobasa, 1979) was used to measure hardiness. This instrument was developed from an extensive and longitudinal study by Kobasa (Maddi, Kobasa & Hoover: 1979).

- **Aim and rational**

The aim of the survey is to assess the individual's resistance to illness caused by stressful events. A high score will indicate the respondent's commitment, control and challenge and a low score a lack of these characteristics.

- **Administration**

The Personal Views Survey consists of 50 items. Each question posed has 3 possible answers ranging from 0 to 3. 0 represents not true at all and 3 represents completely true. Respondents are asked to give only one answer per question. All the items are added to form the total score for hardiness.

- **Interpretation**

The respondent with a high score on hardiness will experience his/her everyday

interactions with the world around him/her, consistently with a sense of commitment, control and challenge. People high on hardiness show the expected emphasis on transformational coping when dealing with stressful events. The respondent with a low score, will exhibit a lack of these characteristics.

- **Validity**

According to Kobasa (1982) the survey shows a significant internal validity of 0,85 for commitment, 0,70 for control and 0,71 for challenge.

- **Reliability**

Kobasa (1982) reports a significant correlation of 0,85 for commitment, 0,68 for control and 0,70 for challenge, which indicates reliability. Statistical and factor analysis confirmed the three dimensions of commitment, control and challenge in clear and distinct factors.

- **Justification for inclusion**

As both valid and reliable, the survey is accepted in literature as the best measure for the hardiness concept. It is based on a sound theoretical framework as discussed by Kobasa and her colleagues (see chapter 2). The instrument is used extensively in organisations to assess coping behaviour, health, morale and effectiveness of employees (Maddi & Kobasa, 1984).

4.2.3 Self-efficacy

Bandura's (1977) Self-efficacy scale was used to measure this construct.

- **Aim and rationale**

The aim of the scale is to measure self-efficacy defined as the belief in one's ability to perform a task. A high score on the scale indicates the respondent's belief in this where as a low score indicates the absence of the belief.

- **Administration**

The self-efficacy scale consists of 27 items based on respondent's attitude to and feelings they might have about a variety of tasks. He/she is asked to indicate the extent to which he/she agrees/disagrees with each of the 27 statements on a scale of 1 to 7. A score of 1 represent strongly agree and a score of 7 represent strongly disagree. All items are added to form the total score.

- **Interpretation**

The total score indicates self-efficacy. According to Bandura (1989) the stronger the sense of self-efficacy, the bolder the behaviour of the individual will be. Hackett and Betz (1981) found that subjects in the success condition increased their self-efficacy and level ratings with regard to the experimental task. Subjects in the failure condition decreased these same ratings. These findings are consistent with the results reported by Hackett and Campbell (1984). In addition, these findings provide support for Bandura's (1977) contentions that performance accomplishments are an influential source of efficacy information.

- **Validity**

Studies have provided evidence of validity of this scale (Bandura, 1977) and that self-efficacy is a valid predictor of performance. Research suggest that self-efficacy beliefs may be reciprocally related to performance, meaning they may be both a cause and effect of performance (Bandura 1982; Feltz, 1982).

- **Reliability**

Kossuth (1997) reports Cronbach alpha reliability coefficients of 0,71 and 0,86 indicating proof for the instrument's reliability.

- **Justification for inclusion**

As both valid and reliable, the instrument is used extensively in research worldwide. Its underlying theory has effectively been generalised to many domains such as that of psychotherapy, the educational field, racial behaviour as well as the industrial field

(Gist, 1987). Self-efficacy has been found to be a better predictor of performance than valence-instrumentality-expectancy theory (Pats & Bailing, 1981). Locke and Henne (1986) claim that goal setting and self-efficacy theories compliment each other. Goal setting stresses the directional (goal) component, while self-efficacy stresses the self-confidence component.

4.2.4 Learned resourcefulness

The Self-control schedule developed by Rosenbaum (1980) was used to measure learned resourcefulness.

- **Aim and rationale**

The aim of the instrument is to measure learned resourcefulness defined as the degree of control the individual uses to cope with distressing situations (see discussion in chapter 2). A high score will indicate the degree of this strength and a low score the absence thereof.

- **Administration**

This is a self report instrument, measuring behaviour on a six-point scale. Scores range from +3 representing very characteristic to -3 representing very uncharacteristic. All items are added to obtain a total score for learned resourcefulness.

- **Interpretation**

A high score will indicate the individual's tendencies to apply self-control (self management) methods to the solution of behavioural problems. More specifically it indicates the use of cognition to cope with emotional and psychological responses, the application of problem solving strategies such as planning and problem definition, the ability to delay immediate gratification and the general belief in one's ability to regulate internal events.

- **Validity**

Rosenbaum (1980) reported that the instrument show low but statistically significant correlation with locus of control - Rotter's (1966) scale as well as self-esteem - Fitz's and Bachman / O'Mally's inventory (Michelson, 1985). Studies using the instrument show a wide range of scores indicating that there are large individual differences in learned resourcefulness in homogenous populations.

- **Reliability**

Rosenbaum and Palmon (1984) report that the reliability of the instrument was established in a number of studies involving more than 600 subjects. Test-retest reliability after four weeks indicated that the instrument is fairly stable over time ($r=0,96$).

- **Justification for inclusion**

Building on the mentioned validity and reliability data, the instrument shows considerable status in the field of health psychology (Rosenbaum, 1990). It is based on a sound theoretical base which is accepted broadly in psychology as a whole.

4.2.5 Locus of Control

The Rotter (1966) scale was used to measure locus of control.

- **Aim and rationale**

The aim of the locus of control instrument is to measure the extent to which the individual has an internal (the experience of having control over a given situation) versus an external (the experience to not have control over a given situation) locus of control. A high score will indicate internal locus of control and a low score external locus of control.

- **Administration**

The scale consists of 29 items. Respondents are asked to choose one of the two alternatives, each representing an internal versus an external sense of personal

control. The items are added to form the total score.

- **Interpretation**

According to Rotter (1966) individuals who firmly believe that they can control their own destiny, score high on internal locus of control and are more alert to those aspects of the environment that provide useful information for future behaviour. The opposite applies to external locus of control.

- **Validity**

Significant evidence of the instrument's construct validity is given by Rotter (1966), as well as Phares (1976) and Lefcourt (1966).

- **Reliability**

Evidence of the instrument's reliability, giving moderate to high correlation coefficients ranging between 0,49 to 0,83, are given by Lefcourt (1966), Phares (1976) and Rotter (1966).

- **Justification for inclusion**

According to Antonovsky (1991), locus of control is probably the most cited construct in psychology - with an exceptionally strong theoretical base and which lead to this original instrument's use and psychometric qualities.

4.2.6 Potency

The Potency scale developed by Ben-Sira (1985) was used to measure potency.

- **Aim and rationale**

The aim of the potency scale is to measure self-appreciation, mastery and commitment to society. A high score will indicate a high level of appreciation, mastery and commitment and a low score the absence thereof.

- **Administration**

The Potency scale consists of 2 sections. Section 1 has 19 items and measures self-confidence, commitment to society and meaningfulness. Section 2 consist of a list of 15 disease or conditions possibly diagnosed by a physician pertaining to the health of the respondents. The items in section 1 are added to establish the total score. The information in section 2 is used qualitatively - this section was not utilised in this research project.

- **Interpretation**

A high score on this instrument indicates the respondent's enduring confidence in his/her own capabilities as well as confidence in and commitment to his/her social environment. A low score will indicate the absence of these behavioural characteristics.

- **Validity**

Ben-Sira (1985) reported on the low validity of the instrument and suggested that further longitudinal studies are required to verify the inferences of the potency scale.

- **Reliability**

Ben-Sira (1985) reported a correlation of 0,40 between potency and coping, and 0,43 between potency and homeostasis, which proofs the instrument to be moderately reliable.

- **Justification for inclusion**

In spite of the lack of significant psychometric qualities, the instrument is used extensively in assessing coping behaviour in many different scenario's such as the introduction of change in organisations (see Kossuth, 1998).

4.2.7 Biographical information

Age, gender, race, qualification and work experience, department and job category were measured in a Biographical questionnaire (see Appendix A).

4.3 DATA GATHERING

A covering letter, containing permission from the head of the Personnel Division for the execution of the research project, was written. The six salutogenic instruments as well as the biographical questionnaire, each with its answer sheet, were bounded in a booklet. A copy of the letter and the booklet were put in 180 envelopes and hand delivered to the offices of each of the chosen individuals in the sample.

The letter explained the nature of the research and thanked the individual for his/her participation. The individual was asked to complete the questions and send the booklet back to the researcher in a supplied self-addressed envelope. The contact numbers of the researcher were supplied in case the individual needs to talk to her or confirm the instructions. Within two weeks 100 completed booklets were returned and checked for completeness. In spite of various requests, the other 80 did not comply and it was decided that a sample of 100 will suffice for purposes of this research project.

4.4 DATA PROCESSING

The processing of the data of the present study revolved round the following stages.

1. Biographical data. Frequency tables, pie-charts and histograms are presented to obtain a description of the sample and population.
2. The reliability analysis of the measuring instruments were done.
3. Scoring and scaling of the various instruments. Scaling of individual items and the total score on the instrument were done in order to obtain comparable numeric scores on the various instruments.
4. Comparison of the mean score of sub-groups. The Analysis of Variance Strategy was used.
5. Pearson product moment correlations was done, implying the analysis of the relationships between salutogenesis constructs.
6. Exploratory factor analysis was done.

7. Confirmatory factor analysis was done.
8. The selection was made of an applicable level of statistical significance in order to consider the results against the possibility of chance.

4.4.1 Biographical data

Calculations for seven biographical variables were done, namely age, gender, race, qualification, work experience, department and job category. (These results are reported in chapter 5.)

4.4.2 Reliability analysis of the measuring instruments

For a large part, the present study assumes that the selected instruments are valid and reliable. It behoves the research community however, to continuously verify the validity and reliability of instruments. The sample size of the present research is too small to justify an investigation of the factorial validity of the instruments used, but is sufficient for the estimation of the so-called Cronbach Alpha coefficient (Lemke & Wiersma, 1976) as an index of the internal consistency reliability of a instrument. The Cronbach alpha's have therefore been computed for each instrument used in the present study (and will be reported in chapter 5). If the item analysis statistics which are part of such analyses, indicate that an item is very low or negatively correlated with the total instrument score, such items were left out. Such revisions to the items of an instrument, if there are any, will be pointed out.

4.4.3 Scoring and scaling of the measuring instruments

Each of the instruments are computed by taking the sum or mean of the items scores which represents that scale. To facilitate the comparison of the total scores of various scales however, it was decided to create scale scores for each respondent in the sample as follows.

- All items were scaled such that a high score on the scale indicate positive aspects of salutogenesis, so that one might expect all scales to correlate positively with each other. This, for example, implied that items of the locus of control instrument, was scaled such that a high score indicate internal locus of control.
- Each total scale score was calculated as the mean of the items comprising that scale.
- To ease the comparison of the scale scores of the various constructs, all scales were transformed to a scale ranging from 0 to 100 using the formula. For example, if the response item scores in an instrument is on a scale ranging from 1-4, then the mean scale score will also range from 1 to 4, which is then transformed to range from 0 to 100 as follows. Transformed score =((Scale score - 1) x 100).

4.4.4 Comparison of groups by means of Analysis of Variance

Although not the main aim of this study, sub-samples, such as for example non-white and white administrative employees, will be compared with regard to their mean scores on the various instruments. In other words, the question being asked is, how do the groups differ with regards to their salutogenic functioning?

As the various instruments are considered to be measured on continuous scales and scores assumed to be normally distributed in the population, one-way analysis of variance F-tests (Hays, 1976; Kerlinger, 1986; Winer, 1971) was computed to determine whether differences between the groups regarding their mean test scores (the dependent variables) are statistical significant. The various groups which were compared in this way and which are thus the independent variables, are the following.

1. White and non-white administrative workers
2. Groups with different levels of qualification
3. Non-white males, non-white females, white males and white females

The statistical procedure "PROC GLM" of the statistical software system SAS (Stevens, 1992) was used to perform these one-way analysis of variances. This procedure was also requested to compute the so-called post-hoc Schèffe test (Stevens, 1992) which is used to indicate which specific two groups are different as far as mean scores are concerned. This was necessary in the case of statistical significant F-results as well as where more than two groups were being compared, because such F-results only indicate differences between the groups in general without indicating which pairs of group means are different.

4.4.5 Pearson product moment correlations

Often two variables are both continuous, such as for example the two scales comprehension and locus of control. The appropriate statistic to compute is Pearson's product moment correlation (Winer, 1971). This statistic varies from -1 (a perfect negative linear relationship) through zero (no linear relationship) to +1 (a perfect positive linear relationship). Suppose the correlation is negative between two scales, it means that the higher the scores on one scale, the lower the scores tend to be on the other scale. If the correlation is positive, then the higher the scores on one variable, the higher the scores on the other variable tend to be. In this study Pearson product moment correlations were computed between variables such as the measuring instruments, age and work experience.

4.4.6 Exploratory Factor Analysis

A statistical technique excellent for exploring the underlying structure of a set of constructs, is factor analysis (Kerlinger, 1986). Those variables which share the same dimension, should correlate highly with one another (relative to their correlations to other variables) and factor analysis uses this fact to uncover factors or dimensions.

Factor analysis is described by Kerlinger (1986:569) as serving "the cause of scientific parsimony. It reduces the multiplicity of tests or measures to greater simplicity. It tells

us, in effect, what tests or belong together - which ones virtually measure the same thing, in other words, and how much they do so. It thus reduces the number of variables with which the scientist must cope. It also helps the scientist locate and identify unities or fundamental properties underlying tests and measures".

In the present study exploratory factor analyses were performed on the salutogenesis constructs as a first step towards a confirmatory factor analysis. The factor analysis program PROC FACTOR of the statistical software package SAS (Stevens, 1992) was used, specifically Principle Factor Analysis (Morrison, 1967; Mulaik, 1972).

The steps in the factor analysis were as follows.

1. The computation of a matrix of correlations between the salutogenesis constructs.
2. Taking a decision regarding the number of factors (dimensions) that should be extracted. Here the eigenvalues associated with each possible factor were plotted and Cattell's so-called "scree test" (Glass & Stanley, 1970) was performed. This involved studying the slope of the plotted eigenvalues. Cattell suggested that factors are extracted that account for the majority of the variability in the original data. An inspection of the eigenvalues usually reveals that the initial drop in the eigenvalues of the first one or two consecutive factors (factors 1 and 2 for instance) is large, but grows less and less as more factors are considered. When the drop in eigenvalue appears to have become insignificant, one should note the number of the factor where this happens. This then gives a clue as to the number of factors to be extracted. Another criterion which can be useful and was considered, is the so-called Kaiser-Guttman criterion (Stevens, 1992) According to this criterion, all factors with eigenvalues larger than 1,0 should be extracted.
3. In practise, the researcher often has to obtain several factor solutions (for example a two-factor, a three-factor solution) and study them for theoretical meaningfulness. Often the researcher has to accept that factor solution which makes most theoretical sense. In the present study it was decided to extract a single, a

two-factor, and a three-factor solution. It was noted that only three factors have eigenvalues larger than 1,0 so that in adherence to the so-called Kaiser-Guttman criterion (Stevens, 1992), a three-factor solution would be indicated, while the rationale for a single factor and two-factor solution followed from the plot of eigenvalues.

4. The Principle Axis (Mulaik, 1972) factor solutions performed on the salutogenesis constructs are rotated obliquely according to the promax criterion (Cureton & Mulaik, 1975) to obtain interpretable solutions. The promax oblique rotation results in two factor solution matrices, namely a "structure" and a factor pattern solution matrix. The values in these factor solution matrices are called factor loadings and give the regression of the items on the factors in the case of the factor structure, and the correlations between original items and derived factors in the case of the factor pattern. In the present study only the factor structure matrices are reported as these are sufficient for the purposes of interpreting the factors. These regression coefficients will also be referred to as factor loadings. By studying all those salutogenesis constructs which have high loadings on a particular factor, and asking one self what the "common" nature of these constructs are, one attempts to follow the "theoretical nature" of the factor. The idea is to give such a factor a theoretical name that describes it as a dimension or factor. In this study it was decided to consider all factor loadings \geq or $>$ 0,25 as significant. This cut-off point of 0,25 is to a large extent arbitrary and possibly too lenient as most researchers appear to use 0,30 as the cut-off. In the present study, the exploratory factor analyses are simply a first step to model building and finally confirmatory factor analysis.

4.4.7 Confirmatory factor analysis

It was suspected that the exploratory factor analysis results would assist the researcher in preposing a factor model for the salutogenesis constructs used in the present study. A confirmatory factor analysis was then performed to test this model using the program Amos of the SPSS, which "implement the general approach to data analysis known as structural modelling, analysis of covariance structures, or causal modelling" (Amos User's Guide Version 3.6, C1997). The Amos gives a Chi-square test of fit of the model

so that the researcher can judge how well a model fits or even if one model fits better than another model.

4.4.8 Level of statistical significance

In this study it was decided to consider all factor loadings \geq or $>$ 0,25 as significant. This cut-off point of 0,25 is to a large extent arbitrary and possibly too lenient as most researchers appear to use 0,30 as the cut-off.

4.5 FORMULATION OF THE HYPOTHESES

The hypotheses is formulated as, the above operationalisation of the salutogenic constructs, confirms the theoretical model on salutogenic functioning discussed in the literature (in chapter 2).

4.6 CHAPTER SUMMARY

This chapter identified the population and described the sample. Thereafter the chosen measuring instruments were discussed and it's inclusion justified. The data gathering was discussed as well as the data processing, explaining the eight relevant steps. The chapter concluded with the formulation of the hypothesis.

In chapter 5, the results of the empirical study will be reported and interpreted.

CHAPTER 5 RESULTS

The aim of this chapter is to report and interpret the results. First the biographical data will be reported, then the reliability analysis of the measuring instruments will be reported and interpreted, followed by the correlations. Lastly the exploratory and confirmatory factor analysis will be presented. The chapter ends with an integration of the results and a chapter summary.

5.1 BIOGRAPHICAL DATA

The biographical data will be presented for age, gender, race, qualification, work experience, department and job category.

Figure 5.1 illustrates the age distribution of respondents.

Figure 5.1 *Age distribution of respondents*

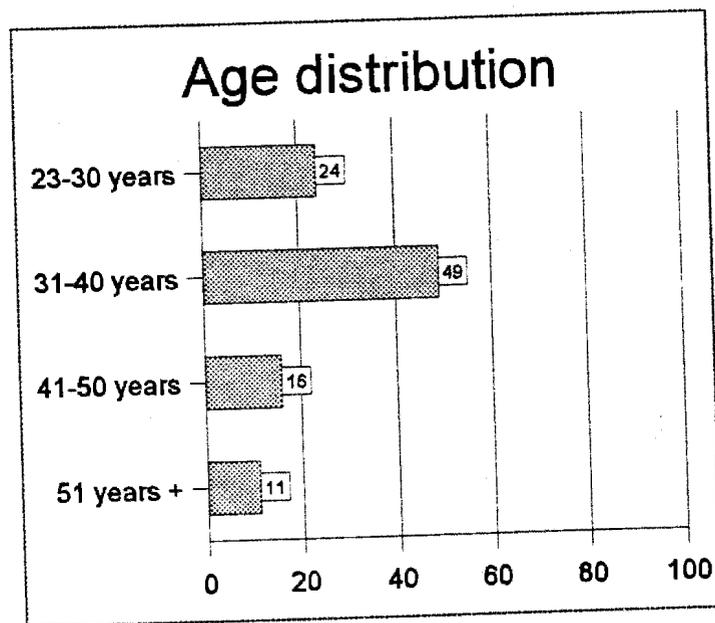


Figure 5.1 indicates that 49% of the sample are between 31 and 40 years of age with 24% younger, that is between 23 and 30 years of age.

Figure 5.2 illustrates the gender distribution of respondents.

Figure 5.2 *Gender distribution of respondents*

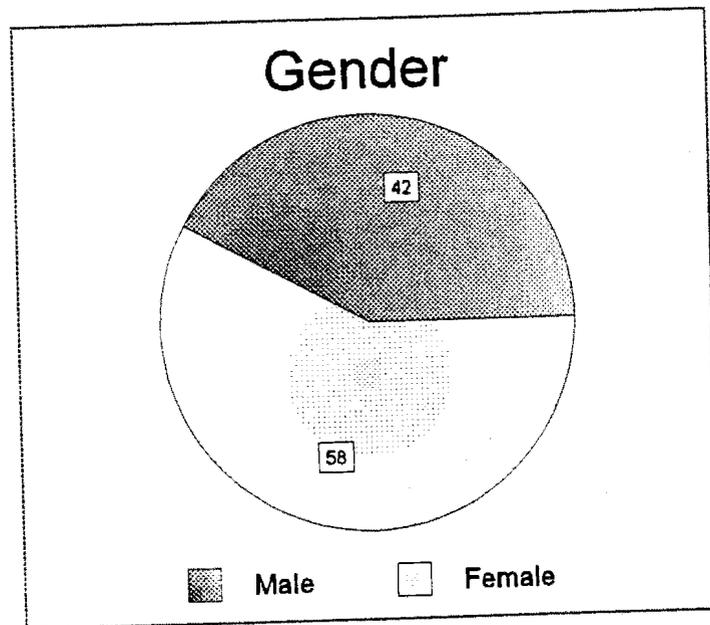


Figure 5.2 indicates that 58% of the sample is male and 42% female.

Figure 5.3 illustrates the race distribution of respondents.

Figure 5.3 *Race distribution of respondents*

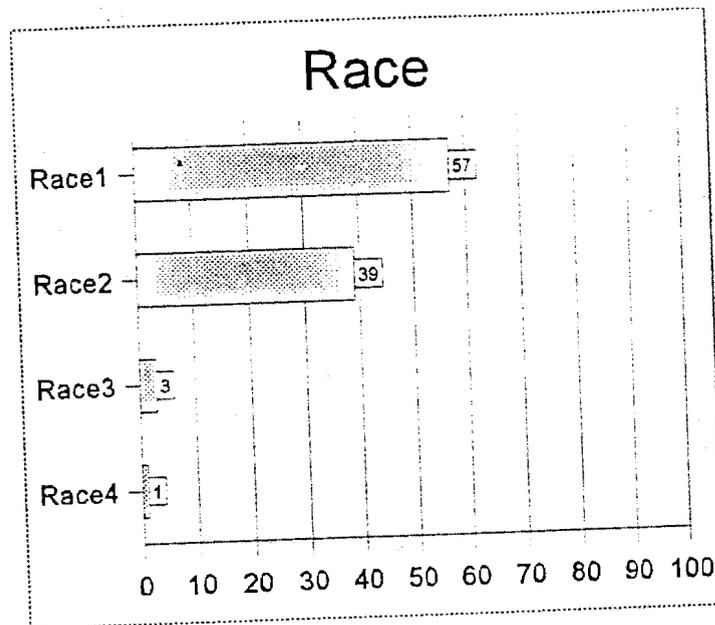
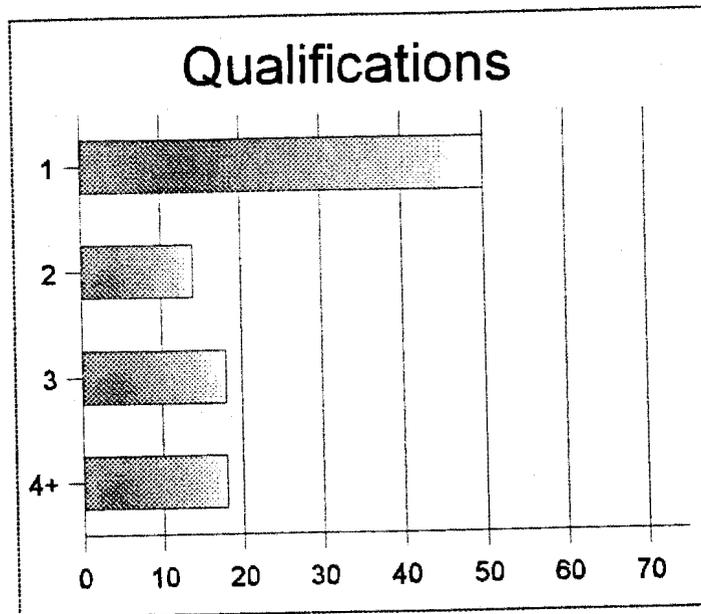


Figure 5.3 indicates that 57% of the sample are white, 39% are black employees.

Figure 5.4 illustrates the qualification distribution of respondents.

Figure 5.4 *Qualification distribution of respondents*



-
1. Grade 12
 2. Matric + (certificate / diploma)
 3. Bachelor's degree
 4. Honours / master's / Doctorate degree
-

Figure 5.4 indicates that 50% of the sample has a matric and/or equivalent certificate of diploma.

Figure 5.5 illustrates the work experience distribution of respondents.

Figure 5.5 *Work experience distribution of respondents*

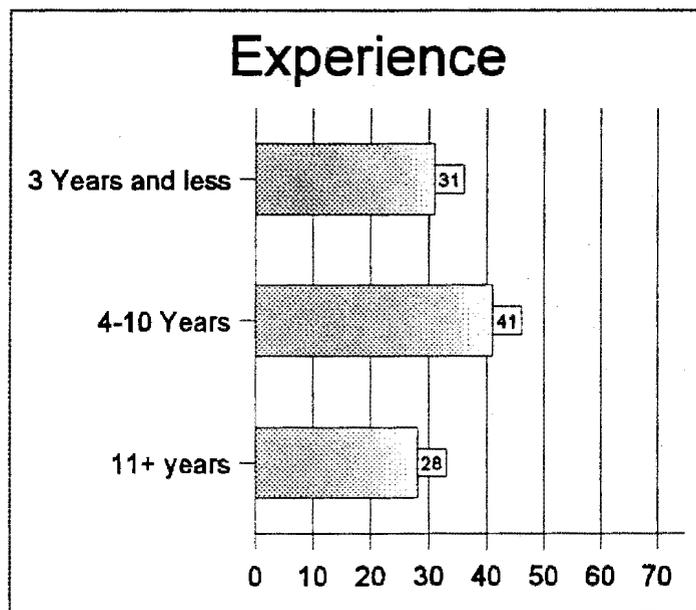


Figure 5.5 indicates that 41% of the sample has between 4 and 10 year work experience and 31% between 0 and 3 years experience.

Table 5.1 illustrates the departmental distribution of respondents.

Table 5.1 *Departmental distribution of respondents*

DEPARTMENT		FREQUENCY	PERCENTAGE
1		1	1
2	Post-graduate affairs	8	8
3		1	1
4	Examination	8	8
5		1	1
6		2	2
7	Typing pool	9	9
8	Building administration	10	10
9		1	1
10		3	3
11		4	4
12		4	4
13		1	1
14		2	2
15	Personnel	10	10
16		1	1
17		4	4
18		1	1
19		5	5
20		5	5
21		3	3
22		2	2
23		1	1
24		3	3
25		1	1
26		3	3
27		1	1
28		2	2
29		1	1
30		1	1
31		1	1

Although administrative departments are represented proportionately in the sample, table 5.1 indicates that most respondents come from the departments of building administration, personnel, the typing pool, post-graduate student affairs and examination.

Table 5.2 illustrates the job category distribution of respondents.

Table 5.2 *Job category distribution of respondents*

JOB CATEGORY	FREQUENCY	PERCENTAGE
1-6 Rectorate	17	17
7 Middle management	18	18
8 Line management	14	14
9 Supervisory level	16	16
10 Administration officer	23	23
11+ Administration worker	12	12

Table 5.2 indicates an even distribution between the different job categories.

5.2 RELIABILITY ANALYSIS OF THE MEASURING INSTRUMENTS

The results from the item analyses on the measurement of each of the salutogenesis constructs show that the following items correlate negatively with the total scale score, and were thus omitted for purposes of the data processing.

- The measurement of sense of coherence, specifically competence (on the Orientation to Life questionnaire), item 1.
- The measurement for hardiness, specifically control (the Personal Views survey), item 22.
- The measurement for hardiness, specifically challenge (the Personal Views survey), items 2 and 24.

Table 5.3 reports the Cronbach alpha coefficients which were computed for the various measurement scales.

Table 5.3 *Cronbach Alpha's as indices of internal consistency reliability of the salutogenesis measure instruments*

SALUTOGENIC CONSTRUCT	SAMPLE SIZE	CRONBACH ALPHA
Sense of coherence - comprehension	97	0,71
Sense of coherence - manageability	98	0,69
Sense of coherence - meaningfulness	99	0,73
Hardiness - commitment	94	0,74
Hardiness - control	89	0,74
Hardiness - challenge	91	0,70
Self-efficacy	97	0,71
Learned resourcefulness	94	0,71
Locus of control	85	0,59
Potency 1	91	0,79
Potency 2	96	0,92

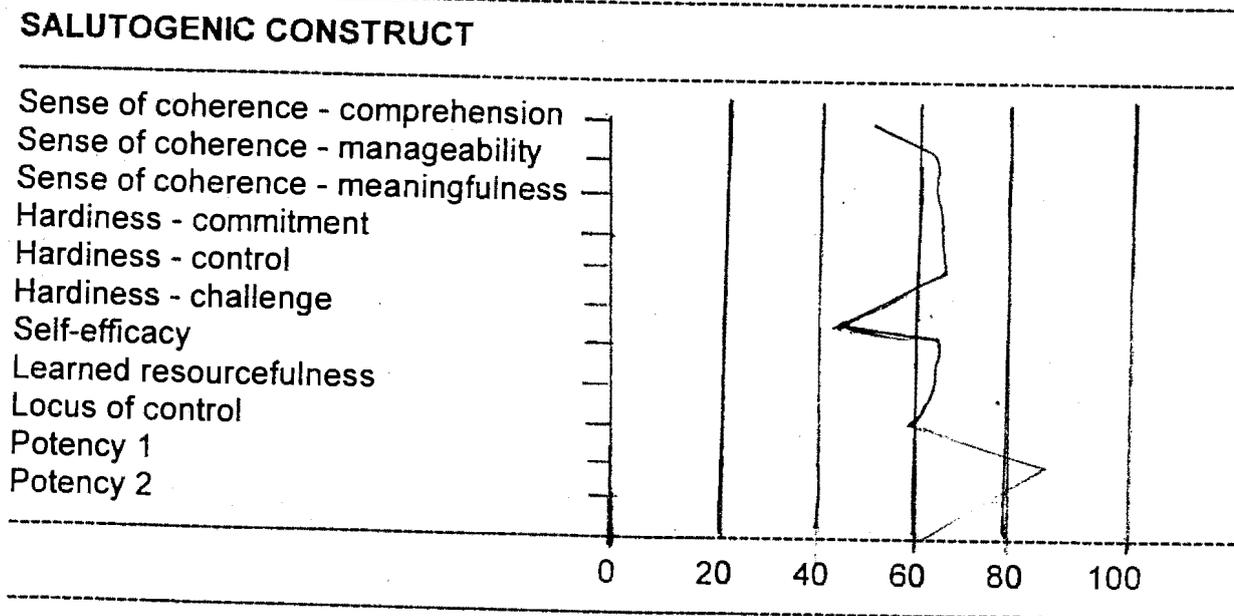
From Table 5.3³ it appears that the internal consistency of each of the scales are satisfactory high, with the possible exception of locus of control. This data corresponds

with research on the reliability of these measuring instruments as reported by Kossuth (1998), Marais (1997) and Viviers (1999). The low reliability of the Rotter scale corresponds with data as reported by Kossuth (1998).

5.3 SCORING AND SCALING OF THE MEASURING INSTRUMENTS

As explained in the section on data processing (4.4), all the scales above consisted of the total or mean score on all the items which define an instrument. After the total instrument score was mathematically re-scaled to measure from 0 (low on salutogenic functioning) to 100 (high on salutogenic functioning), the mean scores can be reported. Figure 5.6 gives an overview of the total sample's mean score on the measuring instruments.

Figure 5.6 *Mean of the total group*



From figure 5.6 it appears that the group functions average to high on all the salutogenic constructs, with the hardiness sub-scale challenge, relatively lower than the other scales and potency II (the latter part of the instrument dealing with physical symptoms) relatively higher. The low challenge sub-scale may indicate that the employees in the sample is viewing change as disruptive of their security and thus

threatening which could manifest in a defeatist attitude, rather than facing the change in a positive way. The high potency II score could indicate the manifestation of more than usual psycho-physiological illnesses indicating higher than average levels of stress being somatised and which may even manifest in high levels of absenteeism and sick leave because of stress.

5.4 COMPARISON OF GROUPS BY MEANS OF ANALYSIS OF VARIANCE

The analysis of variance is presented for the biographical data grouped as gender / race, qualification and age / work experience.

5.4.1 Gender and race

Table 5.4 contains the p-values for gender and race.

Table 5.4 *p-values for gender and race*

SALUTOGENIC CONSTRUCT	BLACK		WHITE		p-VALUE
	MALE N=32	FEMALE N= 29	MALE N=13	FEMALE N=26	
SOC - compreh	68,10	71,46	62,17	70,19	0,4518
SOC - manage	62,83	63,07	64,10	59,95	0,8189
SOC - meaning	50,45	50,13	55,00	49,80	0,8107
Hard - commit	67,49	61,48	67,59	66,58	0,4007
Hard - control	68,04	63,06	71,63	65,40	0,2404
Hard - challenge	42,14	42,00	53,45	45,10	0,0701
Self-efficacy	67,16	68,36	67,71	67,90	0,9851
Learned resour	69,48	66,19	62,88	66,34	0,2993
Locus of control	56,03	59,34	51,85	53,61	0,3454
Potency 1	62,93	60,09	62,01	58,21	0,7001
Potency 2	83,57	81,43	85,64	94,61	0,1858

p-value of one way analysis of variance F-test

From table 5.4 it appears that the groups do not differ regarding their mean levels on

the salutogenesis instruments. The only scale with regard to which there appears to be some difference ($p=0,0701$) is the hardiness subscale of challenge, with white males scoring on average the highest, followed by white females, black males and black females the lowest. This could be interpreted that the experiencing of change as positive, stimulating and challenging is stronger amongst white males and that black females (in comparason) experience change as disruptive, creating instability, not contributing to self-development and creating discomfort and insecurity.

5.4.2 Qualification

Table 5.5 contains the p-values for qualification.

Table 5.5 *p-values for qualification*

SALUTOGENIC CONSTRUCT	QUALIFICATION				p-VALUE
	1 N=50	2 N=14	3 N=18	4 N=26	
SOC - compreh	67,33	74,36	64,69	73,49	0,2821
SOC - manage	61,63	68,69	59,74	61,85	0,3733
SOC - meaning	52,56	51,54	45,05	50,92	0,4400
Hard - commit	64,01	65,75	62,34	71,71	0,2544
Hard - control	64,86	69,13	66,40	67,61	0,7394
Hard - challenge	42,60	47,34	42,35	48,81	0,3237
Self-efficacy	65,77	67,02	69,86	72,01	0,2403
Learned resour	65,96	68,35	69,62	64,87	0,4948
Locus of control	58,29	52,79	55,07	52,60	0,4140
Potency 1	59,96	63,67	56,82	64,17	0,4411
Potency 2	81,18	89,04	89,41	94,07	0,2009

p-value of one way analysis of variance F-test

From table 5.5, it seems that none of the qualification categories differ significantly from each other. This indicates that the qualification of the administrative employee does not have a bearing on his/her salutogenic functioning - qualification per se does not enable the worker to cope more or less with the demands of the job. On the other hand, it could

be reasoned that because work demands are in line with the required qualifications of the job, the employee, eliminating qualification as a factor in salutogenic functioning.

5.4.3 Age and work experience

Table 5.6 contains the correlations between age and experience.

Table 5.6 *Correlations between age and experience (N=100)*

SALUTOGENIC CONSTRUCT	AGE		EXPERIENCE	
	r	P	r	P
SOC - compreh	0,02	0,838	0,70	0,465
SOC - manage	0,10	0,312	0,08	0,398
SOC - meaning	0,02	0,838	0,07	0,465
Hard - commit	0,20	0,045	0,27	0,005
Hard - control	0,22	0,027	0,22	0,027
Hard - challenge	0,00	0,967	0,21	0,028
Self-efficacy	0,05	0,578	0,00	0,959
Learned resour	0,09	0,372	0,01	0,897
Locus of control	0,10	0,317	0,09	0,359
Potency 1	0,20	0,040	0,20	0,040
Potency 2	0,00	0,957	0,12	0,217

Table 5.6 shows that both age and experience are correlated with the construct commitment and potency I and that age is positively and significantly correlated with control and challenge. This means that the older the employee gets, the more he/she shows signs of hardiness - a resilience, self-reliance, zest and commitment for living, experiencing the self and the environment as interesting, worthwhile, challenging and satisfying (in stead of boring and meaningless) and feeling actively in control and capable of influencing the course of events (in stead of a victim). The more experience the employee has, the more he/she will experience commitment, involvement and confidence in his/her own capabilities and social environment. This confirms the general assumption that older and more experienced employees are more capable workers, but interestingly, they also offer the organisation stronger coping mechanisms

in view of the demands of change and stress.

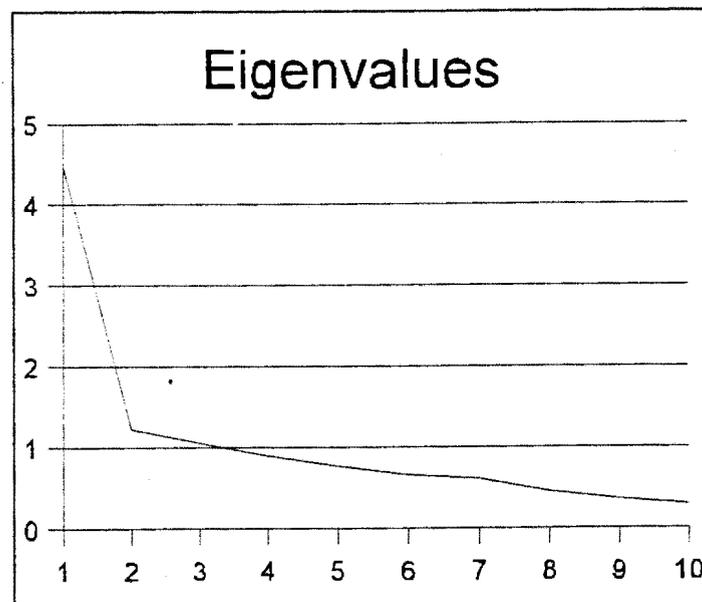
5.5 PEARSON PRODUCT MOMENT CORRELATIONS

The correlations are given as appendix B. This indicates high inter correlations between all the salutogenesis constructs.

5.6 EXPLORATORY FACTOR ANALYSIS RESULTS

Figure 5.7 contains the eigenvalues associated with every possible factor that can theoretically be extracted.

Figure 5.7 *Eigenvalues of all factors*



The information in figure 5.7 can be interpreted as follows.

- The graph levels off at factor number 2. According to Catell's scree test a two-factor solution should be obtained.
- Three-factors have an eigenvalue greater than 1.0 which indicated that a 3-factor solution might also be worth while looking at.

Table 5.7 contains the two factor promax rotated solution for the salutogenesis constructs.

Table 5.7 *Two factor promax-rotated solution for Salutogenesis constructs (Standardized regression coefficients) (N=100)*

SALUTOGENIC	FACTOR 1	FACTOR 2
Hard - control	86 (1)	. (2)
Hard - commit	69	.
Learned resour	55	.
Hard - challenge	43	.
Potency 2	41	.
Self-efficacy	40	.
SOC - meaning	33	29
Locus of control	.	.
SOC - manage	.	89
SOC - compreh	.	83
Potency 1	29	52

(1) Printed values are multiplied by 100 and rounded off to the nearest integer

(2) Values less than 25 omitted to ease interpretation

An inspection of the two-factor solutions in table 5.7 reveals the following information.

- Factor 1 appears to be a hardiness, self-efficacy and the psycho-physiological aspects of potency factor.
- Factor 2 appears to be a sense of coherence and the potency (confidence in own capabilities) factor.

Table 5.8 contains the three factor promax rotated solution for the salutogenesis constructs.

Table 5.8 *Three factor promax-rotated solution for salutogenesis constructs (Standardized regression coefficient) (N=100)*

SALUTOGENIC	FACTOR 1	FACTOR 2	FACTOR 3
SOC - manage	90(1)	. (2)	.
SOC - compreh	83	.	.
Potency 1	52	29	.
SOC - meaning	28	25	.
Hard - control	.	81	.
Hard - commit	.	73	.
Hard - challenge	.	49	.
Potency 2	.	39	.
Learned resour	.	.	99
Self-efficacy	.	.	28
Locus of control	.	.	.

(1) Printed values are multiplied by 100 and rounded of to the nearest integer

(2) Values less than 25 omitted to ease interpretation

An inspection of the three-factor solutions in table 5.8 reveals the following information.

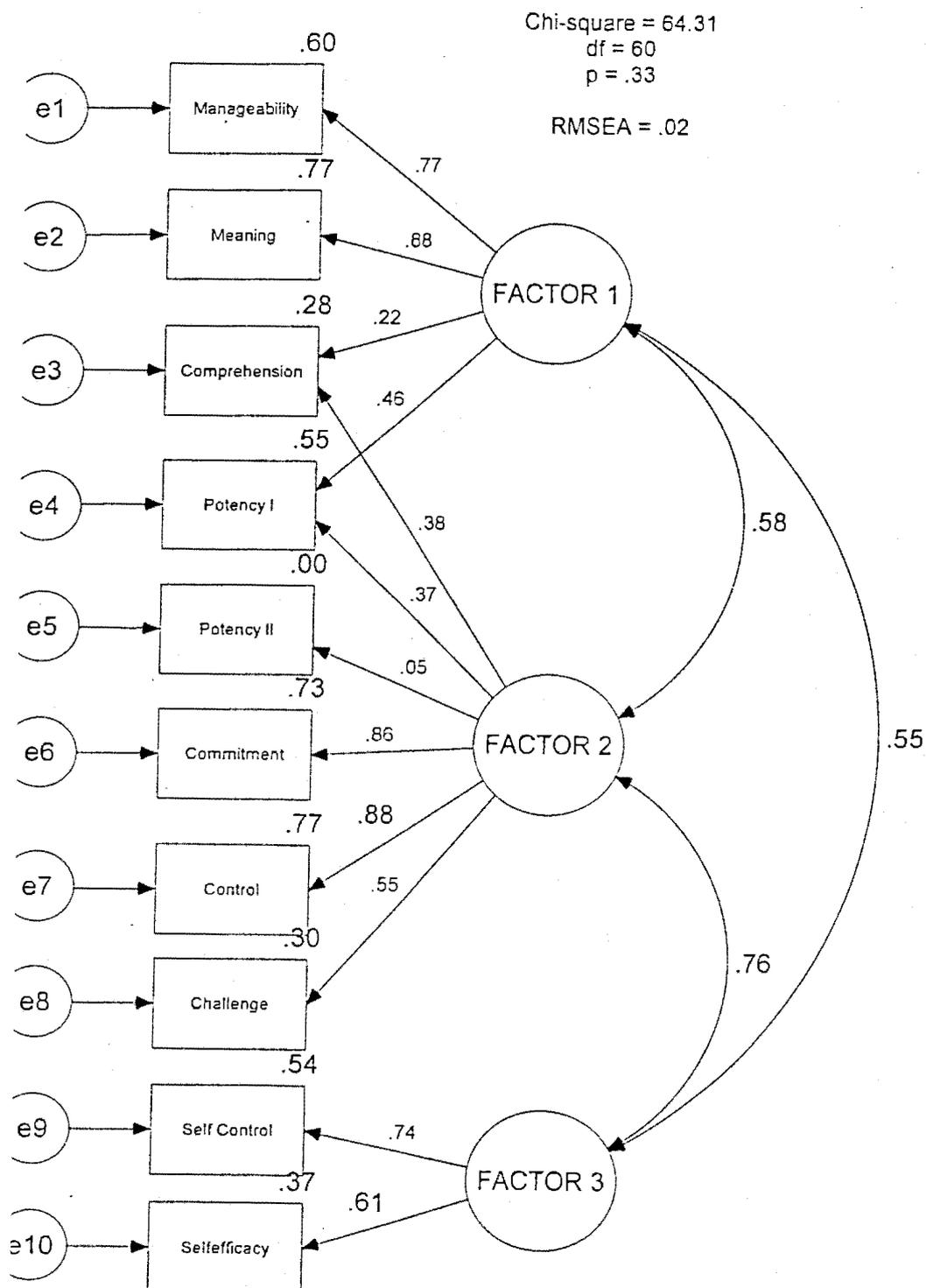
- Factor 1 appears to be mostly a sense of coherence factor.
- Factor 2 appears to reflect hardiness.
- Factor 3 appears to consist of self-control and self-efficacy.
- Locus of control does not show a significant connection with any of the three factors and should possibly be considered to be a construct independent of salutogenesis.

It was decided to test the hypothesis that salutogenesis has a three-factor underlying factorial structure as suggested by the exploratory 3-factor solution in table 5.5 above. Locus-of-control is excluded in this model. The results of the three-factor confirmatory factor analysis are given below.

5.7 CONFIRMATORY FACTOR ANALYSIS

Figure 5.8 below gives a graphical representation of the model tested and also gives the value of Chi-square test statistic (Chi-square = 64,308; $p = 0,328$).

Figure 5.8 *Chi-square statistics*



Judging from figure 5.8 the null-hypothesis, namely that the model fits the data, can not be rejected. Therefore the above three-factor model (represented in figure 5.8), is seen as giving a good picture of the underlying causal structure of the general salutogenesis construct. It must be noted that the three factors in the model are themselves highly inter-correlated, which is to be expected since they all relate to the construct salutogenesis as sub-dimensions.

5.8 INTEGRATION OF RESULTS

Firstly the biographical data was reported. The sample typically consists of an administrative employee of between 31 and 40 years of age, male (58%) / female (42%), white (57%) / black (39%), with a grade 12 qualification, with between 4 and 10 year work experience, representative of all administrative departments and job categories.

The reliability analysis indicated that all the scales ranged from highly reliable to moderately reliable with the measurement of locus of control as the lowest.

The scoring and scaling of the measuring instruments indicated that the sample functions average to high on all the salutogenic constructs.

The compared organisational groupings indicated the following.

- Salutogenic functioning is not influenced by gender, race or qualification.
- The older and more experienced the employee becomes, the higher he/she measures on hardiness and potency. This individual will be more committed to experience work as satisfying, having control over fate, seeing his/her work life as challenging and having confidence in own capabilities to cope with change and stress. This indicates that the employee adapts to working conditions. It could also be reasoned however, that the older worker had the opportunity to move out of the job if the demands did not suit him/her. A sort of selective

mechanism might thus be at work which can explain the found correlations.

The correlations indicated a high inter correlation between all the salutogenesis constructs. These findings correspond with the South African research conducted by Kossuth (1998), Marais (1997), and Viviers and Cilliers (1999). Although these studies each only measured three salutogenic constructs, both found high inter-correlations.

The exploratory and confirmatory factor analysis indicated the following.

- Locus of control (as measured in this research by the Rotter Internal / External locus of control scale) probably does not form part of a general salutogenesis construct. This finding is reflected in Kossuth's (1998) results - although his research indicated a Lisrel correlation of 0,57 on the same Rotter scale (compared to 0,75 on sens of coherence), it was still significant in terms of his study.
- A two-factor structure consists of 1. hardiness / self-efficacy / (psycho-physiological aspects of) potency and 2. sense of coherence / potency.
- A three-factor structure appears to interlay the salutogenesis constructs. The three factors are sense of coherence, hardiness and a combination of self-efficacy and self-control. The three factors themselves are highly inter-correlated.
- Exploratory factor analysis revealed significant correlations to form a three-factor model for the general salutogenesis construct. The confirmatory factor analysis indicated a good fit, indicating the support for the theoretical salutogenic model.

5.9 CHAPTER SUMMARY

This chapter presented the reporting and interpretation of the results. Firstly the biographical data was presented, then the reliability data on the measuring instruments, the scoring and scaling on the measuring instruments, the comparison of groups by

means of analysis of variance, the Pearson product correlation and finally exploratory and confirmatory factor analysis. Hereafter the results were integrated.

Herewith the third, the empirical aim of the research is accomplished.

In chapter 6, the conclusions, limitations and recommendations will be discussed.

CHAPTER 6 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

The aim of this chapter is to present the conclusions and limitations, and to formulate recommendations in terms of solving the set problem.

6.1 CONCLUSIONS

The first literature aim of this research was to conceptualise salutogenesis, determine its constructs and to present a personality profile of the salutogenic person. This was accomplished in chapter 2. The information proves that the six chosen salutogenic constructs have a lot in common in order to formulate an integrated personality profile. The cognitive understanding, affective meaningfulness, conative manageability and interpersonal trust on support systems, forms the theoretical basis for the testing of the theoretical model.

The second literature aim of this research was to ascertain what international and South African research exist to illustrate the need for confirmatory factor analysis on the salutogenic constructs (presented in chapter 3). A lot of information is available proving the strength of the hypothesis that coping with stress and life's demands, is easier if the individual has a strong sense of coherence, hardiness, self-efficacy, learned resourcefulness, locus of control and potency.

The empirical aim was to perform confirmatory factor analysis on the six salutogenic constructs to ascertain whether its measurement confirms the above literature and personality profile. The results indicate the following.

- Locus of control (as measured in this research by the Rotter Internal / External locus of control scale) does not form part of a general salutogenesis construct.
- A three-factor structure appears to interlay the salutogenesis constructs. The three factors are sense of coherence, hardiness and a combination of self-

efficacy and potency.

- The measurement of the salutogenic constructs (except for locus of control) confirm the literature on salutogenesis and the personality profile of the salutogenic functioning individual.
- The results confirm a good fit between the conceptualisation on the one hand and the operationalisation on the other hand, within the salutogenesis paradigm.

The last aim was to formulate recommendations from this result for the future understanding of individual's and organisation's coping with change behaviour. This will be done in 6.3.

6.2 LIMITATIONS OF THE RESEARCH

The effectiveness of the research was influenced by the following aspects.

- A different measuring instrument for the construct locus of control could have given more positive supporting evidence about the role of this construct in the salutogenesis paradigm.
- The use of a larger sample could have given more information in terms of differences between biographical variables.
- The use of more than one organisation could also have given more representative information in terms of the biographical variables.

6.3 RECOMMENDATIONS

The following recommendations are formulated to solve the problem discussed in chapter 1.

- **Theoretical aspects**
Researchers and students interested in the salutogenesis paradigm should take

note of the results indicating the strengths of this model explaining coping behaviour.

- **Psychometric aspects**

1. It is suggested that an alternative instrument for the measurement of the construct locus of control be incorporated into future batteries. The Locus of Control Questionnaire by Schepers (1995) is suggested for this purpose.

2. It is suggested that research is done to also understand the relationship between these six salutogenic constructs and other constructs of psychological well-being, such as self-actualisation, emotional intelligence and resilience.

- **Organisational aspects**

1. It is suggested that the University of South Africa take cognisance of the results and incorporate the findings in its organisational development strategy as well as training and development planning.

2. In general organisations are encouraged to implement salutogenic thinking in understanding the phenomena and symptoms of distress and illness in the organisation on the one hand, and coping with enduring stress and overcoming the difficulties in change management.

Herewith the forth and last aim of the research is accomplished.

6.4 CHAPTER SUMMARY

This chapter presented the conclusions, by discussing the literature and empirical aims. The limitations were formulated referring to literature and practical issues. The recommendations were presented with reference to theoretical, psychometric and organisational aspects.

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APPENDIX A BIOGRAPHICAL QUESTIONNAIRE

PLEASE SUPPLY THE FOLLOWING INFORMATION. THIS WILL BE REGARDED AS CONFIDENTIAL AND WILL UNDER NO CIRCUMSTANCES BE REVEALED TO YOUR EMPLOYER

1. Name and surname
2. Age years
3. Gender: Male Female
4. Population group:

 1. African 2. White 3. Coloured 4. Indian / Asian
5. Highest educational qualification / Name of Institution / Year obtained

 / /
6. Number of years working experience at UNISA: years
7. Department
8. Job grade / Rank

APPENDIX B CORRELATIONS

Appendix B: Correlations between Salutogenesis Constructs

	1	2	3	4	5	6	7	8	9	10	11
COMPETENCE (1)	1.00 0.000										
MANAGEABILITY (2)	0.46 0.000	1.00 0.000									
MEANING (3)	0.33 0.000	0.67 0.000	1.00 0.000								
COMMITMENT (4)	0.44 0.000	0.40 0.000	0.47 0.000	1.00 0.000							
CONTROL (5)	0.43 0.000	0.38 0.000	0.38 0.000	0.75 0.000	1.00 0.000						
CHALLENGE (6)	0.30 0.001	0.31 0.001	0.32 0.001	0.45 0.000	0.47 0.000	1.00 0.000					
POTENCY I (7)	0.29 0.003	0.50 0.000	0.60 0.000	0.58 0.000	0.53 0.000	0.41 0.000	1.00 0.000				
POTENCY II (8)	0.17 0.075	-0.00 0.961	0.06 0.499	0.24 0.014	0.26 0.007	0.19 0.052	0.09 0.338	1.00 0.000			
SELF CONTROL (9)	0.37 0.000	0.25 0.010	0.37 0.000	0.45 0.000	0.52 0.000	0.24 0.013	0.36 0.000	0.21 0.031	1.00 0.000		
SELF-EFFICAC (10)	0.18 0.060	0.24 0.013	0.31 0.001	0.33 0.000	0.43 0.000	0.31 0.001	0.34 0.000	0.05 0.578	0.44 0.000	1.00 0.000	
LOCUS OF CONTROL (11)	0.18 0.058	0.17 0.084	0.14 0.160	0.21 0.029	0.22 0.023	0.13 0.180	0.12 0.208	-0.06 0.505	0.24 0.013	0.15 0.116	1.00 0.000

1 Printed values are multiplied by 100 and rounded to the nearest integer

2 Values less than 25 omitted to ease interpretation