STRESS-RESISTANT RESOURCES: A COMPARISON OF HARDINESS, SENSE OF COHERENCE, POTENCY, FORTITUDE, EGO-RESILIENCE, AND PROBLEM-SOLVING APPRAISAL

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MAY THE CREATOR OF HEAVEN AND EARTH BLESS THEM ALL

Abstract

This study compared the fortigenic constructs of the Sense of Coherence, Fortitude, Potency, Hardiness, Problem-Solving, and Ego-Resilience in terms of three aspects: (i) Psychometric properties of instruments that are used to measure them (ii) Their effects on the relationship between stress and psychological health (iii) To determine the extent to which these constructs have some common underlying dimensions.

The sample comprised one-hundred and twenty five male and female undergraduate Psychology students enrolled at the University of the Western Cape. Data were collected by using the following self-report questionnaires: the CES-Depression Scale , the Short happiness Affect Research Protocol, the Problem-Solving Inventory, the Potency Scale, the Fortitude Questionnaire, the ER89 Questionnaire, the Personal Views Survey, the Orientation to Life Questionnaire, the VOEG, and the Life Experiences Survey.

The results showed that all the instruments used in this study were found to have coefficient alphas of above .80. The multiple regression analyses revealed that potency, sense of coherence, and problem-solving demonstrated a significant health-sustaining role on physical symptoms, happiness, and depression. The multivariate analysis showed that when examined together these fortigenic constructs differentiated significantly between the stress-resistant and distressed groups as measured against the backdrop of physical symptoms, depression, and happiness.

The moderated multiple regression analyses indicated that fortitude, potency, problem-solving, and sense of coherence had direct effect on the physical symptoms, depression, and happiness. The principal factor analysis showed that the sense of coherence, potency, ego-resilience, problem-solving, hardiness, and fortitude loaded on one factor.

TABLE OF CONTENTS

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: RESULTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 Background

It is widely recognised in the stress and health research field that the undesirable health consequences of stressors depend to a larger extent on the individual's ability to cope with these stressors. There is a plethora of constructs for such coping behaviours, and a corresponding number of measuring instruments to operationalize these constructs. However, the relationships among these instruments or the underlying concepts have not received much attention(Olff, Brosschot, & Godaert, 1993).

The cognitive appraisal process mediates psychologically between the individual and the environment in any stressful encounter. That is, the person evaluates whether the encounter is damaging or potentially damaging on the basis of his or her understanding of the power of the encounter to produce harm and the resources he or she has available to neutralize, manage, or tolerate the harm. " *When a situation has been appraised as stressful, individuals have to do something to master the situation*

and/or to control their emotional reactions to the situation"(Stroebe & Stroebe, 1987, p.89).

In addition, Stroebe and Stroebe(1987) state that the extent to which the situation is experienced as stressful as well as the individual's success in mastering the situation will depend on his or her coping resources.

Cohen(in Stone, Cohen and Adler, 1980) identifies two types of appraisal, namely, a primary appraisal which is an evaluation of the significance of an event for one's well-being (stressful, benign, positive, or irrelevant) and a secondary appraisal which is an evaluation of coping resources and options. Identifying the role of these components can inform the development of preventative interventions for profoundly stressed individuals.

The literature suggests several stress-resistance resources/'psychosocial modifiers of stress'(Sarafino, 1990) such as the Sense of Coherence(SOC), Hardiness, Potency, Fortitude, Problem-Solving, and Ego-Resilience. There are numerous related constructs that serve to modify stress, e.g. Sense of Control(Hobfoll & Lerman, 1988), Personal Competence(Campbell, Converse, Miller, & Stokes, 1960; Husaini, Neff, Newbrough, & Moore, 1982), Stamina(Colereick, 1985),etc. According to Kobasa, Maddi and Kahn(1982), some evidence supports the buffering effect

of each of these resistance resources but studies have not been done to evaluate them together.

Of particular interest are possible interactions among the sense of coherence, hardiness, potency, fortitude, ego-resilience, and problem-solving. On social support and hardiness, Kobasa, et al.(1982) suggest an interaction that would suggest that social supports are most effective in preserving health when hardiness is high. They further suggest that perhaps hardiness influences the extent of and manner in which social supports are utilized in the management of stressful events, e.g. when confronted with such events, hardy persons may seek out contact with others and with social institutions that could decrease the stressfulness of the events.

At this stage, it is necessary to state the assumption that says that stressors are omnipresent, nonetheless, some people manage to survive and remain healthy. Health is, in this case, positively defined by the World Health Organization(WHO, 1964) as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. However, the question that arises is, where do some people get the psychological strength to be able to be resistant to stress? The present study will attempt to shed some light on this question.

The present study works from the premise of the transactional theory of stress(Folkman, 1984; Lazarus & Folkman, 1984). This theory is embedded within fortigenesis(from Latin *fortis=strength, genesis=origins*) which refers to the origins of psychological strength/health in general. The fortigenic paradigm emphasises the positive aspects of health/well-ness.

1.2 Aim of study

The primary aim of this study is, therefore, to compare the constructs of the sense of coherence, fortitude, potency, hardiness, problem-solving, and ego-resilience in terms of the psychometric properties of instruments that are used to measure them; their effects on the relationship between stress and psychological health and also to determine whether these constructs have some common underlying dimensions.

In addition, outcome variables will also be measured and the psychometric properties of instruments that are used to measure them will be determined. These are Depression (measured by the Centre for Epidemiological Studies-Depression Scale, CES-D: Radloff, 1977) Happiness (measured by the Short Happiness and Affect Research Protocol, SHARP: Stones, Kozma, Hirdes, Gold,

Arbuckle, & Kolopack, 1995) and Physical Symptomomatology (measured by the Vragenlist Onderzoek Ervaren Gezondheid, VOEG: Dirken, 1967). The VOEG was originally written in Dutch and was translated into English by Johnson(1998), with assistance from the German Department at the University of the Western Cape, to mean the "Inventory of Subjective Health".

1.3 Overview of thesis

This study compares stress-resistant constructs in terms of various aspects(see aim of study). The literature review and the transactional theory of stress that guide this study are presented in chapter 2. The methodology is presented in chapter 3. Chapter 4 covers the results of the study. The final chapter (chapter 5) presents the discussion, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Good health is as much a state of mind as a condition of the body(Thoresen & Eagleston, 1985). Although significant relationships between stress and physical and psychological health have been well-documented, the strength of these relationships is at most moderate(Banks & Gannon, 1988).

The following review of the literature will look at the stress resistance constructs of the sense of coherence (SOC), hardiness, potency, fortitude, ego-resilience, and problem-solving in terms of their definitions, dispositions that comprise them and the possible relationships amongst them.

Toward the end of this chapter, a closer look will be taken at the transactional theory of stress which is the underpinning theory of this study. This theory is firmly fixed within the fortigenic paradigm which focusses on people who , despite the omnipresence of stressful life events, do not succumb to illness.

2.2 The concepts of 'Stress', Stressful Life Events/Stressors, and Coping

Research into the determinants of perceived quality of life has led to the developmental of empirical models which relate social background, personality, major life-events, coping responses and domain satisfactions to one another and to both well-being and ill-being indices(Hart, 1994). Broadly speaking, this can be viewed as a stress research, and as Pretorius(1997) suggests, in any study of stress it is important to briefly visit the concept itself. This is necessary because of the nonspecific and indiscriminate use of the concept(Blake, 1988).

Stress is one of the most widely used and misused concepts in theoretical literature and empirical research(Cooper & Marshal, 1980), with considerable attention being focussed on the negative outcomes of job stress, on the one hand(La Rocco & Jones, 1978) and the identification of specific stressors and stress reaction on the other hand(Brenner, Sordom, & Wallius, 1985).

The concept of stress as a number of researchers point out continues to be defined in several fundamentally different ways. Tung and Koch(cited in Cooper & Marshal, 1980) define stress as any characteristic of the environment which poses a threat to the

individual - either excessive demands or insufficient supplies to meet his/her needs. Put differently, stress also refers to a misfit between the individual and environmental demands(Cox -cited in Dewe, 1991). In other words, stress has been seen by some authors as an environmental stimulus(Tausig, 1986). Other authors conceptualised stress as the organism's response to external stimuli(Selye, 1976).

There is a repletion of different definitions and conceptualisations of stress. These different definitions and conceptualisations of the concept of stress apparently lead to the confusion of what stress really is. Several authors do not seem to agree on one conceptualisation and definition of this concept.

This apparent confusion surrounding the concept of stress may partly be attributed to the various ways in which this concept has been defined(Pretorius, 1997) as both the independent and the dependent variable (Sutherland & Cooper, 1990). This is compounded by the broad application of the stress concept to medical, behavioral and social science research (Sutherland & Cooper, 1990). This, according to Pretorius(1997), can be classified into two distinct perspectives, namely, a biological perspective(based on research in the areas of physiology and endocrinology) and a psychosocial perspective(which emphasises the interaction of

stressful agents and the human system of appraisal and evaluation).

In researching stress, these disciplines adopted either a stimulus-based(stress as the independent variable) or response-based(stress as dependent variable) model as a guideline (Sutherland & Cooper, 1990). " *The stimulus-based approach views stress as a disruptive environmental agent, whereas the response-based model views stress in response to these agents. Response may be at the physiological, psychological and/or behavioral level*"(Sutherland and Cooper, 1990, p.3).

At the physiological level, response may be in the form of shrinkage of the thymus gland, enlargement of the adrenal gland, and ulceration in the gastrointestinal tract(Selye, 1976). At the psychosocial level, response may be in the form of evaluation and appraisal(i.e. an appraisal of harm/loss, threat or challenge) of an event(Selye, 1976).

As mentioned earlier on, stress continues to be conceptualised in various ways, depending on each discipline. As such, "*the use of the word 'stressor' to indicate the environmental harmful stimuli and 'stress state' to indicate the consequences of such stimuli, has gone a long way in clarifying the semantic difficulty surrounding the concept of stress*" (Pretorius, 1997, p.9). In simple terms, stressors have been conceptualised as the external

factors that disrupt an individual's equilibrium and make stressful demands on the individual(Meyer & Salmon, 1988).

There are six possible classes of stressors, according to MacGrath(cited in Cooper & Marshal, 1980). They are task-based stressors; stressors intrinsic to the behaviour setting; stressors arising from the physical environment; stressors arising from social environment; and the stressors within the person system.

Because stressful life events(which can be appraised in either positive or negative terms and operate differently in determining a person's level of psychological well-being,(Hart, 1994) are omnipresent, it is generally inherent in humans to try and manage or cope with these stressors. Coping styles may be defined as consistently applied types of conscious adaptive response to stressful events or any major loss(Kohn, Hay, & Legere, 1994).

Several studies have explored the moderating effects of coping style on the adverse impact of 'everyday hassles or mundane stressors'(Kohn, et al., 1994) such as time pressure, work, school problems, financial difficulties, etc., as well as major life stressors which involve the experience of such significant events as death of a loved one(Flett, Blanksteen, Hicken, & Watson, 1995).

Victims who suffer from uncontrollable life events and invest high coping efforts are more likely to receive support, in contrast to those who experience controllable events and do not cope well(Schwarzer, 1992). In addition, the availability of advice to guide one in dealing with challenging or stressful situation may also enhance self-efficacy by facilitating the ability to cope with the situation(Wenzel, 1993).

Many years of systematic study have generated quite a considerable wealth of evidence on factors which contribute to stress/stressors. Studies of stress and coping are hardy perennials in the psychological literature(Altmaier, 1995), and despite numerous efforts to examine coping strategies, our understanding of the stress-coping process remains incomplete (Edwards cited in O'Driscoll & Cooper, 1994).

Nevertheless, the importance of understanding coping mechanisms has been underlined by several investigators, who suggest that coping behaviour can minimize the impact of stress and make less it's negative consequences. Dewe, et al.(cited in O'Driscoll & Cooper, 1994) describe coping as cognitions and behaviours adopted by the individual following the recognition of a stressful encounter, that are in some way designed to deal with that encounter or it's consequences. The effects of chronic stress

can be phenominal if not timeously diagnosed and taken care of.

2.3 Stress and physical health

Psychosocial stressors affect virtually all physical disorders to one degree or another(Harre, 1997). Cohen(in Stone, Cohen, & Adler, 1980) postulates an appraisal hypothesis which suggests that stressful experiences may affect the individual's appraisals of bodily symptoms and the means of coping with them. This hypothesis states that individuals may become more worried about physical symptoms during times of stress and they may also be less able to ignore minor symptoms.

An individual reacts in different stages to a stressful encounter, depending on the severity and duration of that stressful encounter. Jenkins(in Barret, 1979) has noted the marked differences in an organism's reactions to a noxious situation at the stages of alarm, resistance, and exhaustion. It is stated that the stage of alarm is characterised by acute rises in anxiety and fear if the stressor is a threat, or by rises in sorrow and depression if the stressor is a loss. The organism moves on to the stage of resistance if the stressor is acute and continuous. In this stage, a variety of defence mechanisms are employed.

Jenkins(in Barret, 1979) mentions that if a person's perceptual defences, ego defences, and problem-solving behaviours are adequate to overcome or escape the noxious situation, no psychiatric symptomatology of a continuing nature will develop. However, in circumstances where noxious stimuli are so strong as to overwhelm defence mechanisms or are so prolonged as to outlast the energy available for defensive activity, a pathological end-state results.

As part of a general concern about the impact of stressors on the health and well-being of individuals, substantial energy has been devoted in recent decades to increasing our knowledge about stress encountered in human life. Stress is costly and as Cox(1978) states, it's cost is experienced in terms of it's effect on the well-being. Cohen(1988) says that various illness indicators have been used in studies linking psychological factors, such as stress to disease. These include individual's reports of physical symptoms or illness, number of visits to a physician, documenting cases of physical illness in individuals who self-select to seek medical treatment, and documenting cases of physical illness in all members of a population.

The literature shows a correlation between depression and physical symptoms(e.g., Holmbeck & Wandrei, 1993). Pretorius (1997) documented several studies that have shown relationship between

life event stress and physical symptomatology, e.g., stress and sudden cardiac death, stress and pregnancy and birth complications, stress and anorexia nervosa, etc. Real life stress which is chronic has been documented as harmful and deteriorating the diabetes control by protracting and synergising action of counterregulatory hormones(especially catecholamines and cortisol)(Steingrube, Kemmer, & Bisping - in Schmidt, Schwenkmezyer, Weinman, & Maes, 1990).

The impact of life stress on the health of an individual is well documented in the literature. Cox(1978) states that there is much more evidence to suggest that the apparent lethality of a high fat diet in Western society is interdependent on the effects of stress. As Cox(1978) observes, one acts as a predisposing or catalytic factor for another.

In line with the aforementioned possible sequelae of stress and their harmful effects on the well-being of an individual, the literature suggests several psychosocial modifiers/ and or moderators of stress, e.g., hardiness, potency, sense of coherence, fortitude, ego-resilience, and problem-solving appraisal. It is to these stress-moderators/buffers that the present study now turns.

2.4 The Fortigenic Paradigm

As this study is comparing the fortigenic constructs, it is important to briefly visit the paradigm itself(i.e. the fortigenic paradigm).

One of the striking recent trends in psychology has been the growing connection between the fields of psychology and health. There have been efforts recently to provide theoretical analyses that enhance the 'heuristic value of the well-ness literature' (Seeman, 1989). Stress theorists have postulated that numerous social and personal factors may influence the impact of stress (Dohrenweld & Dohrenweld, 1981).

Much health and psychological-strength research has investigated variables that may act as buffers/moderators between stressors/stressful life events and health. Moderator variables are characteristics of persons or their environment that make them more or less vulnerable to the negative effects of stressful events(Allred & Smith, 1989). Banks and Gannon(1988) call these moderator variables personality styles(e.g. hardiness, sense of coherence, potency, ego-resilience, and fortitude).

The present study is embedded within the paradigm of 'fortigenesis'(Strumpfer, 1995) which refers broadly to the origins

of psychological strength. The paradigm of fortigenesis is relatively new and attempts to broaden the paradigm of salutogenesis(Antonovsky, 1987) which refers to the origins of health. Strumpfer(1995) advocates for a broader explanatory construct(fortigenesis) in order to deal with the interaction between the generalised resistance resources, the sense of coherence and many areas of human experience, and at other endpoints than health only. Strumpfer(1995),therefore, argues that the construct of fortigenesis is more embracing and more holistic than the construct of salutogenesis.

With this construct(fortigenesis), Strumpfer(1990) is moving away from the traditional psychology that has been functioning mainly in the paradigm of pathogenesis(i.e. looking at "what can go wrong" instead of "what can go right" - Basic Behavioural Science Task Force, 1996).

Antonovsky and Bernstein(in Milgram, 1986) make three important proposals with regard to studies that are embedded within the paradigm that looks at the positive aspect of health. The first proposal states that studies should be designed to test hypotheses explaining successful, i.e. healthy outcomes. Secondly, in data analysis and discussion, thought should be given to the deviant case, i.e. the always substantial number of people who, even when

the pathogenic hypothesis is supported, do well even though they are in the high stressor category. Thirdly, researchers' thinking should be open to the possibility that stressors may have salutary consequences.

The following section looks at the constructs that can act as buffers/moderators(fortigenic constructs) between the stressful life event and the individual.

2.4.1 The Fortigenic Constructs

2.4.1.1 Hardiness

Hardiness is defined by the Concise Oxford Dictionary(1991) as the capacity of enduring difficult conditions. Kobasa(1979) used the concept hardiness to describe those people who went through stressful life events and did not succumb to illness. Roth, Wiebe, Fillingim, and Shay(1989) mention that hardiness consists of a combination of adaptive personal traits including a sense of commitment, a sense of challenge and opportunity in facing difficult situations and a feeling of control over one's circumstances.

The commitment disposition is expressed as a tendency to

involve oneself in(rather than experience alienation from) whatever one is doing or encounters committed person's relationships to themselves and to the environment involve actions and approach rather than passivity and avoidance.

The control disposition is expressed as a tendency to feel and act as if one is influential(rather than helpless) in the face of the varied contingencies of life. In studies of both blue-collar and psychosocial professionals, moderating effects of control on the relationship between stressors and psychosomatic complaints were found(Sonnentag, Brodbeck, Heinbokel, & Stolte , 1994).

The challenge disposition is expressed as the belief that change rather than stability is normal in life and that the anticipation of changes are interesting incentives to growth rather than threats to security.

Roth, Wiebe, Fillingim, and Shay(1989) reported that the analyses of the individual hardiness components suggested that the commitment component was probably the most important in terms of an independent association with health. They further reported that challenge was found to be virtually unrelated to any measure, including the other two hardiness components. They found the lack of findings for challenge to be consistent with results from previous research, as they reported. Therefore, results of

challenge as it is presently reported, offers significantly little health benefit.

In general, there is an extensive evidence suggesting that hardiness is positively related to physical and mental health and that it mitigates negative health outcomes of stress(Kobasa, Maddi, & Zola, 1983). Hardy individuals have a general sense of purpose, meaning and commitment(Funk & Houston, 1987).

Kobasa(1979) compared two groups of middle and upper level executives who had comparably high degrees of stressful life events. The study employed personality as a conditioner of the effects of stressful life events on illness onset. It was proposed that persons who experience high degrees of stress without falling ill have a personality structure that differentiates them from persons who became sick under stress. The study found that executives with high stress and low illness show more hardiness, than those executives with high stress and high illness.

In addition, Brannon and Feist(1992) cite Kobasa(1979) as saying that those who became ill were characterized by a locus of control, a sense of nihilism or meaninglessness of life, a feeling of powerlessness, alienation from self, and a lack of vigour or lack of active involvement in their surroundings. Therefore, based on findings by Brannon and Feist(1992) as well as Kobasa(1979), it

could be argued that hardiness may act as a buffer against the undesirable effects of stress.

In a study on hardiness and health among women with rheumatoid arthritis, Okun, Zautra and Robinson(1988) found that hardiness was correlated significantly with being employed, control and commitment were directly related to being employed, but control and commitment were inversely associated with age. They also reported that hardiness and its components were unrelated to marital status and did not covary with formal educational attainment. Schmied and Lawler,(cited in Okun, et al., 1988) reported that hardiness was positively correlated with age, education, and being married in a sample of female secretaries employed by a university. Okun, et al.(1988) state that these findings suggest that the relations between hardiness and demographic variables may vary with the composition of the sample.

Allred and Smith(1982) cite Gentry and Kobasa(1984) as arguing that the collection of personality characteristics composing hardiness mitigates the potential unhealthy effects of stress and prevent the organismic strain that often leads to illness. But, if hardy individuals perceive events as uncontrollable or as moderately controllable and undesirable, they also show psychological distress(Hull, Van Treuren, & Virnelli, 1987).

In a survey study of adult women that examined whether psychological hardiness buffers people against stressful life events through the appraisal and interpretation of life experiences, Rhodewalt and Zone(1989) found that non-hardy participants appraise a significantly higher proportion of their life experiences as undesirable than do hardy participants. Brannon and Feist(1992) as well as Rhodewalt and Zone(1989) came to similar conclusions that the characteristics of sense of commitment, positive response to challenge, and internal locus of control combine to buffer the hardy individuals from the negative effects of coping with change.

It then follows that, according to the literature reviewed, hardy persons can endure large amounts of life change and stay well. These persons are said to be 'stress-resilient'(Rodewalt & Zone, 1989). According to Dyer and McGuinness(1996) resilience means the ability to bounce back from adversity - and that it is not only the absence of less desirable outcomes in the face of adversity, but that it is also the presence of protective factors that serve to moderate the effects of adversity. (*Resilience will be discussed later on*)

However, Wiebe and McCallum(1986) maintain that for hardiness to be a useful concept when studying the impact of stress, it's

buffering effects should generalize to different population experiencing different stressors. The present study hopes to contribute in that respect.

2.4.1.2 Potency

The concept of potency has been widely used in medical research in reference to the potency of drugs, eg. anorectic potency of amylin, calcinotin gene-related peptide(Lutz, Rossi, Althaus, Del-Prete, & Scharrer, 1998), potency of anti-psychotic drugs such as haloperidol, resperidone, sertindole, clozapine(Drici, Wang, Liu, Woolsey, & Flockhart, 1998).

In the psychosocial field, potency has been conceptualised as implying "*a person's enduring confidence in his/her own capacities as well as confidence in and commitment to his/her social environment, which is perceived as being characterized by a basically meaningful and predictable order and by a reliable and just distribution of rewards*"(Ben-Sira, 1985, p.399).

This conceptualisation of potency, as posited by Ben-Sira,(1985) corresponds to the operational definitions of personality hardiness(stated previously) and sense of coherence(to be discussed later on). However, Ben-Sira(1985) reckons that at

this stage it should be noted that the concept of potency, though corresponding greatly in its definition to Antonovsky's sense of coherence and Kobasa's personality hardiness, does not pretend to have the global and pervasive nature which Antonovsky attributed to the sense of coherence.

Ben-Sira(1985) suggests that the concept of potency fulfills a delayed homeostasis-stabilizing function through its tension-bounding capacity, i.e. a capacity to prevent tension, following occasional inadequate coping, from turning into a lasting stress. In other words, potency enables a person to absorb failures without leading to an enduring disturbance of 'homeostasis'(Antonovsky, 1984).

Ben-Sira(1985) posits that one component of the concept of potency(which is the most central characteristic) is an underlying basic sense of self-confidence in one's capacity to overcome the demands of life. In operational terms, as Ben-Sira (1985) puts it, potency comprises the mechanisms of self-appreciation and mastery on the one hand and commitment to society(in contrasts to alienation) as well as a perception of society as meaningful and ordered(in contrast to anomie) on the other hand.

Potency takes into account both the person's perception of the self and society. Therefore, potency is both 'intrapersonal and

interpersonal'. " *The way a person construes an encounter (appraisal) is, in short, the psychological key to understanding coping efforts in that situation and to understanding the emotional reaction which waxes and wanes and changes in quality with the flow of events and the shifting pattern of appraisal*" (Stone, Cohen & Adler, 1980, p.219).

In a study of a sample of Israeli adults that aimed at elucidating the factors that facilitate maintaining an individual's emotional homeostasis despite occasional failures in initially coping with stressors due to resource inadequacy, Ben-Sira (1985) found that potency is associated with successful coping which is predicted by the control of resources. Ben-Sira (1985) came to the conclusion that potency appears to be predicted even more by the availability of primary social support, which as Mallinckrodt(1989) states, is an important coping resource for persons experiencing stressful life changes.

Possible relocation of communities may be assumed as a source of stress especially if those communities lack adequate resources. In research on 680 residents of Golan Heights(Israel) living under the threat of possible relocation, Lev-Wiese(1998) developed a multivariate paradigm to determine the contribution of personal resources in explaining stress. Lev-Wiesel(1998) found that potency

had a greater impact on stress than did education or psychological sense of community.

Using a semantic differential technique, Looby, Gerard, & Page(1997) examined differences in self-perception among participants from the United States and the United States Virgin Islands. The study reported significant gender and location by gender differences in the participants' ratings of the evaluative and potency scales of my ideal self. Looby, et al.(1997) reported that women from the United States and women from the United States Virgin Islands rated the potency of my ideal self lower than did men when compared within each location. This means that men in this instance have a high potency and if potency is assumed to reduce the negative impact of stress, then men would be assumed to can cope better with stress.

2.4.1.3 Sense of Coherence

Antonovsky(1987) defines the 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 environment 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. In short, the concept of sense of coherence is defined as a disposition to see the world as manageable and predictable(Gibson & Cook, 1996).

The above definition encompasses the three components of sense of coherence as posited by Antonovsky(1987) :

1. Comprehensibility - which refers to the fact that life is ordered, consistent, and makes sense(Pretorius, 1997).

2. Manageability - refers to the extent to which one perceives that resources are at one's disposal which can be used to meet the demands of the stimuli one is confronted with(Pretorius, 1997)

3. Meaningfulness - represents the motivational element which refers to the extent that one feels that life makes sense emotionally rather than cognitively(Pretorius, 1997). This emphasizes the importance of the meaning that persons give to their experience and the coping strategies that they use in order to maintain their integrity and mental health(Qouta, Sarraj, & Punamaki, 1997). This 'will to meaning' is manifested in circumstances of destitution as well as in circumstances of satisfaction (Meyer, Moore, & Viljoen, 1989).

Comprehensibility, manageability and meaningfulness are closely linked to generalized resistance resources(GRR) (Antonovsky, 1987). The GRR is defined as " *phenomenon that provide one with sets of life experiences characterized by consistency, participation in shaping outcome, and an underload-overload balance*" (Antonovsky, 1987, p.19). Antovosky (1987) maintains that such repeated life experiences build up the sense of coherence and that this sense of coherence develops over the lifespan. By implication, the sense of coherence is not an inborn disposition, rather it develops with the passage of time and life events experiences.

In a study that investigated the association between job satisfaction and various measures of both negative affectivity and positive affectivity, an undifferentiated measure of satisfaction with neutral objects, and the Sense of Coherence scale, Strumpfer, Danana, Gouws, and Viviers(1998) reported that the sense of coherence showed significant positive correlations with job satisfaction. It was shown that in terms of what the sense of coherence construct implies, it could be inferred that higher job satisfaction would tend to be present when the employee makes emotional and motivational sense of work demands as welcome challenges, worthy of engaging in and investing his or her energies

in.

Several studies have investigated the relationship between the construct of sense of coherence and other variables (e.g. religion). In a study that involved the so-called 'Coloured' farm workers(N=149) in the Western Cape Province(South Africa) Strumpfer(1997a) reported that the sample showed a relatively low sense of coherence, implying that if the sense of coherence is taken as an indication of overall health, this sample would be considered relatively low in health. According to Strumpfer(1997a) this sample was chosen because they do physically and increasingly mentally demanding work.

The above sample might be showing a low sense of coherence because of the unavailability of the generalized resistance resources. According to Strumpfer(1997b), when the person regularly experiences the availability of the generalized resistance resources, a strong sense of coherence develops and affects the overall quality of an individual's perception of stimuli.

The sense of coherence is an important predictor of perceived health, regardless of negative affectivity. This point was confirmed by Strumpfer(1997b) in a study involving 79 male first-line supervisors on wine and fruit farms in the Western Cape

Province, South Africa. The study reported a significant F ratio for the regression coefficient for the sense of coherence.

To determine if sense of coherence moderates the relationship between stress and physical symptoms, Korotkov(1993) found that as compared to respondents with a low sense of coherence, highly coherent individuals experienced less physical symptoms. The study also revealed that sex of participant was found to predict physical symptoms. Korotkov(1993) reported that women tended to be more prone to heightened symptomatology than men. This suggests that there are many variables that contribute to the differentiation of perceived health and moderation of stress amongst individuals. Sense of coherence is one of them.

Individuals who have a high sense of coherence are more resilient under differing levels of stress than individuals who are characterised to have a low sense of coherence(Korotkov & Hunnah, 1994). In short, sense of coherence is important in managing stress and remaining both physically and psychologically healthy(Bowman, 1996).

2.4.1.4 Fortitude

In an endeavour to answer the question: where does the psychological strength come from, Pretorius(1997) investigated the health sustaining and stress reducing effects of a range of individual characteristics and environmental characteristics. These are self-esteem, self-denigration, self-worth, beliefs about support from others, support from family, and family environment.

In the aforementioned study factor analyses of all the variables that distinguished between a distressed and a stress-resistant group were performed. The analyses indicated that these variables represent the following three, much broader, constructs:

1. Self-appraisals - an evaluative awareness of the self which includes both the global appraisal of the self as well as more specific appraisals such as problem-solving efficacy and mastery or competence.

2. Family-appraisals - an evaluative awareness of the family environment, for example, support from family, level of conflict, and cohesiveness in the family and family values.

3. Support-appraisals - an evaluative awareness of the support from others which includes both quantitative(i.e. perceived levels of

support) as well as qualitative(i.e. satisfaction) dimensions of support.

Following these, Pretorius(1997) proposes a theory of fortitude. Fortitude derives from positive appraisals of (1) the self and the abilities of the self, (2) the family environment, and (3) the support from others(Pretorius, 1997).

Pretorius(1997) further proposes that psychological strength or the absence thereof derives from one's construction of oneself and one's world. Pretorius(1997) is slightly ambivalent (as he states) about suggesting that the three dimensions of fortitude be viewed separately. He proposes that the three dimensions together make up fortitude. "*One could only study these dimensions separately to determine how they interact to shape fortitude*"(Pretorius, 1997). The construct of fortitude is formally defined by Pretorius(1997) as the strength to manage stress and stay well and this strength derives from an appraisal of the self, the family and support from others.

On the direct effects of fortitude on psychological well-being,(Pretorius, 1997) reported a positive relationship between fortitude and life satisfaction, positive affect and subjective well-being. In addition, the study also reported that the stress-resistant group consistently scored higher in terms of fortitude

than the stress-succumbing group. This points to the stress-resistance of the construct of fortitude.

Julius(1999) found that high fortitude was associated with less stress and less presenting problems, on the sample of students who came for counselling at the Institute for Counselling, University of the Western Cape.

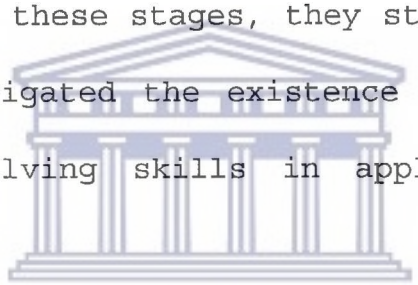
2.4.1.5 Problem-Solving Appraisal

Problem solving is an integral part of human life. Humans are continually faced with having to make decisions and solve problems/challenges. What is important is how individuals solve problems. Problem solving is of special concern for professionals such as psychologists, social workers, etc., who are interested in helping individuals solve problems that are particularly difficult and psychologically harmful. Psychological harm may not occur without the survivor appraising the experience as overwhelming and exceeding his or her capacity to cope(Qouta, Sarraj,& Punamaki, 1997). Self-appraised problem-solving ability theoretically serves a virtual function in the way in which a person processes information about the self, the environment, and problematic situations encountered in everyday life(Eliot, Sherwin, Harkins, &

Marmarosh, 1995).

Heppner and Petersen(1982) point out that most of the research on problem solving within counselling has remained at the conceptual level. According to them, the lack of such research might be the result of the dearth of instruments that measure aspects of personal problem solving.

Heppner and Petersen(1982) identify five stages of problem solving, namely, general orientation, problem definition, generation of alternatives, decision making, and evaluation. Although they identify these stages, they state that no research has empirically investigated the existence of these stages and concomitant problem-solving skills in applied problem-solving situation.



In a study that examined the cognitive correlates of different self-appraised problem-solving effectiveness, Heppner, Reeder, and Larson(1983) revealed that students who differ in their self-appraised problem-solving effectiveness also differ in their encoding about the self and use of self-regulatory systems. Self-appraised effective problem solvers rated themselves as having more positive self-concepts, more consistency in their self-perceptions, more certainty about how they viewed themselves, and as being less self-critical than self-appraised ineffective problem solvers.

In yet another study, Heppner, Hibel, Neal, Weinstein, & Rabinowitz(1982) found that students who perceived themselves in ways similar to what has been traditionally considered as effective problem solving, as compared to students whose ratings were dissimilar, also rated themselves as being more systematic in decision making and problem solving in general, report having a clear understanding of the problem and rated themselves as being less impulsive and less avoidant in the problem-solving process.

Nezu(1985) examined differences between self-perceived effective and ineffective problem-solvers along variables typically associated with psychological dysfunction and emotional distress on 213 undergraduate university students. The study found that self-appraised effective problem-solvers reported less depression, less state and trait anxiety, a more internal control orientation, less frequent problems, and less distress associated with these problems as compared to self-appraised ineffective problem-solvers.

On the moderating role of the social problem solving, Nezu (1986) indicated that both negative life stress and problem solving were significant predictors of state anxiety. Therefore, the effects of stress can be moderated by problem-solving ability (Nezu, 1986) and especially the confidence factor as a moderator

of the stress-depression and stress-hopelessness relationship (Priester & Clum, 1993).

Problem-solving appraisal has been found to significantly correlate with both the individual and the environmental factors. For instance, in a study that focussed on the interactive effects of social support and appraisal of problem-solving on the stress-depression relationship, Pretorius and Diedricks(1994) found that the problem-solving appraisal significantly correlated with the social support measures, which would suggest that the perception of oneself as an effective problem solver is related to one's available social support.

2.4.1.6 Ego-Resilience

Historically, resilience was a term used to describe a pliant or elastic quality of a substance or organ(Dyer & McGuinness, 1996). In humans, resilience is seen(Garmez & Neuchterlein, 1972) as having roots in the world of life events and circumstances. Dyer and McGuinness (1996) propose resilience to be a global term describing a process whereby people bounce back from adversity and go on with their lives. They further state that resilience is not only the absence of less desirable outcomes in the face of

adversity, it is the presence of protective factors that serve to moderate the effects of adversity. Ego-resiliency refers to the tendency to respond flexibly rather than rigidly to changing situational demands, especially frustrating and stressful encounters.(Robins, John, Caspi, Moffit, & Stouthamer-Loeber, 1996). Garmezy and Neuchterlein(cited in Cowen & Work, 1988) first used the concept of resilience to describe a small odds-defying sample, that is highly competent, ghetto-reared black children who had adjusted well notwithstanding profound stress associated with poverty, squalor, and prejudice. Resilience, therefore, represents strength or fortitude in the face of adverse circumstances(Strumpfer, July, 1998).

Dyer and McGuinness(1996) identify four critical attributes of a resilient individual, namely, rebounding and carrying on (a quality of bouncing back and going on with life after adversity, which includes qualities such as malleability and pliancy); A sense of self(an appreciation and acceptance of what transpired in one's life); Determination(the individual perseveres until the task is completed or the goal is achieved. It is a value of fortitude with conviction, tenacity with resolve, and prosocial attitude(an amiable, benign attitude which encourages attachment to others who may support the development of resilience).

Other authors(e.g., Cowen & Work, 1988) use terms such as invulnerability and invincibility to describe resilience. Block and Block(cited in Klohnen, 1996) operationally define ego-resilience as resourceful adaptation to changing circumstances and environmental contingencies, analysis of the goodness of fit between situational demands and behavioural possibility, and flexible invocation of the available repertoire of problem-solving strategies. Klohnen(1996) posits that ego-resilience was initially conceptualised in the context of personality development and is a conceptually and theoretically well-grounded construct that accounts for dynamic personalty processes.

In a study investigating prison experiences and coping styles among Palestinian men who were ex-prisoners, Qouta et al. (1997) found that the ordeal only increases one's strength and encourages resilience. They further found that imprisonment and torture revealed a kind of initiation rite, the success of which allowed a person to be a real man.

Some researchers tend to correlate the concept of ego-resilience and other variables such as intelligence, competence, etc. For instance ,Block and Kremen(1996) revealed that persons relatively high on ego-resilience tend to be more competent and comfortable in the 'fuzzier' interpersonal world. They further

found that persons defined primarily by raw Intelligence Quotient(IQ) tend to be effective in the 'clearer' world of structured work but tend also to be uneasy with affect and less able to realize satisfying human connections.

In addition to Block and Kremen's(1996) findings, Robins et al. (1996) found that adolescent boys who were resilient were intelligent, successful in school, unlikely to be delinquent, and relatively free of psychopathology. In this study, resilient adolescents were compared to what authors called 'undercontrollers' and 'overcontrollers'. Overcontrollers were found to be prone to internalizing problems. Undercontrollers showed a general pattern of academic, behavioural, and emotional problems.

In the above study, both undercontrollers and overcontrollers scored lower on the WISC-R full scale IQ than resilient adolescents. This suggests that resilience is associated with intelligence and better ways of dealing with life events.

Funder and Block(1989) assessed the delay-of-gratification behaviour of 104 14 year-Olds. Each participant chose between immediate monetary payment and larger delayed payment on 5 occasions. Results showed that those who exhibited the most delay of gratification tended to be independently described as responsible, productive, ethically consistent, and interested in

intellectual matters. The delay behaviour was also correlated positively with IQ and ego-resilience.

2.5 The transactional theory of stress

"Most modern theories of stress are transactional in nature in that they view the stress process as a continual transaction between external demands, personal resources and internal needs and values"(Pretorius, 1997, p.36). The cognitive theory of psychological stress and coping is one of them. This theory is transactional/relational in that the person and the environment are viewed as being in a dynamic, mutually reciprocal, bidirectional relationship(Folkman, Lazarus, Gruen, & DeLongis, 1986). The relational characteristic is evident in the definition of stress as a relation between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering his or her well-being(Folkman, 1984).

The transactional theory of stress takes into account two important aspects, namely, personal control and process orientation. Control must be viewed in the particular person-environment relationship in which it is embedded. On the other hand, the process orientation means that appraisals of personal

control are likely to change throughout a stressful encounter as a result of changes in the person-environment relationship.

The cognitive theory of psychological stress(as the transactional theory of stress is also known) identifies two processes, namely, the cognitive appraisal and coping as critical mediators of stressful person-environment relationships and their immediate and long-term outcomes(Folkman, et al., 1986). The appraisal is a process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being.

One of the basic tenets of the transactional theory of stress is the 'meaning' aspect of the event to the individual. This meaning aspect of the event is determined by cognitive appraisal processes.

There are two kinds of cognitive appraisals according to the transactional theory of stress. These are primary and secondary appraisals. The theory works from the premise that the person evaluates the significance/meaning of a specific transaction with respect to well-being, through primary appraisal. Moreover, the person evaluates coping resources and options through secondary appraisal. The combination of primary appraisal and secondary appraisal shapes up the meaning of the transaction between the

person and the environment.

Another basic tenet of this theory is that the person, when confronted with a life event, evaluates it as either positive or negative. Judgements that a transaction is irrelevant, benign-positive, or stressful are referred to as primary appraisals (Folkman, 1984). If the transaction is irrelevant, it means that it has no significance for well-being, and a benign-positive appraisal implies that a transaction does not tax or exceed the person's resources to deal with it. According to Folkman(1984), the personal characteristics of control and commitment are important determinants of primary appraisal.

Secondary appraisal involve the evaluation of coping resources and various options. Coping resources include the physical, social(social network and social support), as well as psychological(including beliefs that can be drawn upon to sustain hope, skills for problem-solving, self-esteem, and morale) and material resources(e.g., money). These resources are evaluated with respect to the demands that the situation places on the person. The situational appraisals of control are part of secondary appraisal.

In a nutshell, as far as the transactional theory of stress goes, the personal factors as well as the environmental factors play a crucial role in both the primary and the secondary

appraisals. During the primary appraisals, the person evaluates him/herself in terms of competence to deal with the situation, self-esteem, perceived problem-solving ability, etc. During secondary appraisals, the person evaluates him/herself together with support he or she has around him/her to deal with the situation.

2.6 Summary

This chapter presented a discussion on stress, stressful life events and means of managing stressful encounter. The fortigenic constructs of fortitude, sense of coherence, potency, personality hardiness, problem-solving appraisal, and ego-resilience were discussed as stress-buffering/moderating factors.

The transactional theory of stress and it's cognitive appraisal processes(i.e. primary appraisal and secondary appraisal) were presented as guide to understanding the individual-environment transaction.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

As mentioned earlier on in the literature review, there is some evidence that supports the buffering effect of the constructs of the sense of coherence, hardiness, potency, ego-resilience, problem-solving appraisal, and fortitude viewed separately. Research that attempts to compare them psychometrically is scarce, if anything at all, particularly in the South African context.

The comparison among these constructs was determined by surveying the student population enrolled for the undergraduate course in Psychology at the University of the Western Cape during the 1998 academic year. Generally, the quantitative questionnaires that were distributed among the participants were aimed at exploring different facets of participants' experiences on and off campus.

3.2. Aims of the study

The present study aimed to:

1. find out how well the sense of coherence, fortitude, potency, Problem-solving, ego-resilience and hardiness constructs replicated psychometrically in the South African context.
2. compare the sense of coherence, fortitude, hardiness, problem-Solving, ego-resilience and potency in terms of their effects on the relationship between stress and psychological health.
3. Examine whether fortitude, potency, ego-resilience, problem-solving, hardiness, and sense of coherence have some common underlying dimensions.

3.3 Research questions and analyses

The present study endeavours to answer the following four basic questions:

1. Do the constructs of fortitude, hardiness, potency, ego-resilience, problem-solving, and sense of coherence have a direct and /or a moderating effect on the stress-depression relationship?

This question will be answered by performing multiple regression analyses which enable the researcher to test for the independent effects of the predictor variables as well as the interaction between life events and the predictor variables.

2. Do stress-resistant individuals differ significantly from distressed individuals in terms of fortitude, hardiness, ego-resilience, potency, problem solving and sense of coherence?

This question will be answered by performing multiple regression analyses and grouping the respondents into two groups, namely, Stress-resistant and Distressed groups.

3. Do the constructs of hardiness, fortitude, sense of coherence, potency, ego-resilience and problem solving have some common underlying dimensions?

Principal factor analysis for these instruments will be performed to answer this question. The major purpose of factor analysis is to reduce the number of variables in a group of measures by taking into account the overlap(correlations) among the various measures(Aiken, 1971).

4. How well do the instruments that measure fortitude, sense of

coherence, potency, hardiness, ego-resilience and problem solving replicate psychometrically in the South African context?

To answer this question, descriptive statistics and testing for the reliabilities of these instruments will be computed.

3.4 Participants

The present study involved one-hundred and twenty-five male and female undergraduate psychology students at the University of the Western Cape. The study used university students because of empirical evidence regarding the vulnerability of this population to stress and depression.

Bonner and Rich(1988) estimate that college and university students are likely to suffer from depression and that there is evidence indicating that the number of students presenting with depression at university counselling centres is on the increase(Bishop, 1990). Unlike the traditional subjects of stress research(e.g. company executives), the college/university students are generally expected to become anxious and develop flu symptoms(Kobasa, 1982) and other symptoms towards or during examination time. Therefore one would assume that students constantly face stressors in their study life/their years at the

university, especially during examination time. They face stressors both on and off university campus, which is why this study examines students' experiences both on and off campus.

Two-hundred packages of questionnaires were administered in the undergraduate Psychology practical classes. Given the number and the length of measuring instruments in each package(ten instruments), participants were given two days to complete them. Participants either gave the completed questionnaires to their respective tutors or dropped them off at the office of the researcher at the Department of Psychology, University of the Western Cape. One-hundred and twenty five (n=125) completed questionnaires were returned. This represents a sixty-three percent(63%) return rate.

Participation in this study was voluntary. No student was forced against his/her will to participate in the study. All participants were happy to participate in this study.

A summary of the characteristics of the sample in terms of key demographic variables is presented in Table 3.1 below.

Table 3.1

Description of the characteristics of the sample

	N	%
Gender		
Male	43	34.4
Female	82	65.6
Language		
English	24	19.2
Afrikaans	13	10.4
African	88	70.4
Marital status		
Married	27	21.6
Single	98	78.4
Town		
Urban	77	61.6
Rural	48	38.4
Religion		
Christian	112	90.3
Muslim	8	6.5
Hindu	1	0.8
Traditional African	2	1.6
Status		
Full time	120	96.0
Part time	5	4.0
Mean age	24.23 years	range 18-38

(Table 3.1 cont.)

Mean family size	6

Table 3.1(above) shows the sample to be predominantly female (65.6%), African language speaking(70.4%), Single(78.4%), from a rural place(61.6%), Christian(90.3%), enrolled on a full-time basis at the university(96.0%) and with a mean age and a mean family size of 24.23 and 6 respectively.

3.5 Instrumentation

3.5.1 Measuring Stress

3.5.1.1 Life Events

Life events were measured by the Life Experiences Survey (LES: Sarason, Johnson, & Siegel, 1978). The Life Experiences Survey represents a measure of positive and negative events experienced by individuals in the general population.

The Life Experiences Survey is a 59-item questionnaire.

Respondents are asked to indicate events which they have experienced in the recent past and also to indicate the time frame(zero to six months or seven to twelve months) during which they have experienced each event. Respondents are also asked to indicate the extent to which they viewed the event as having either a positive(event related to positive aspects of well-being, Zautra & Reich, 1983) or a negative(event related to negative well-being, Zautra & Reich, 1983) impact on their life at the time the event occurred.

Ratings for the responses range from -3 (indicating extreme negative impact) to 3 (indicating extreme positive impact). The rating of 0 would indicate no impact at all. In addition respondents are asked to indicate the time frame (zero to six months or seven to twelve months) of the event.

Concerning the reliability of the LES, Sarason, et al. (1978) conducted two test-retest reliability studies. 34 respondents were involved in the first study and 58 in the second study. They reported test-retest correlations for the positive change score to be .19 and .53 and the reliability coefficients for the negative change score to be .56 and .88. Coefficients for the total change score were .63. In this case, Sarason, et al.(1978) consider the LES to be a moderately reliable instrument especially when the

negative and the total change scores are considered.

In the South African sample of university students, the LES-Negative(negative life change score which is derived by summing the negative items) was found to be correlated to depression(as measured by the CES-D)(Pretorius, 1997). The LES-Negative was also found to be significantly predicting depression. In addition, the LES-Negative was found to be a significant predictor of depression and was also able to discriminate between rural and urban students as well as between African language speakers and Afrikaans/English speakers(Pretorius, 1997).

The LES-Positive(positive life change score which is derived by summing up the positive items) does not seem to have been widely researched in the South African context.

3.5.2 Measuring Outcomes

3.5.2.1 Depression

The study used the Centre for Epidemiological Studies Depression Scale(CES-D: Radloff, 1977) to measure depression. The CES-D was designed for use in the measurement of current depressive symptomatology. The items of the scale are assumed to represent all

the major components of depressive symptomatology which include: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of appetite, sleep disturbance and psychomotor retardation. The CES-D consists of twenty items measured on a 3-point scale which ranges from "0" =rarely or none of the time, to "3" = most or all of the time.

"*The original scale was found to have very high internal consistency(.85 to .90) and test-retest reliability(.51 to .67)*" (Pretorius, 1997, p.60). Radloff(1975) established validity of the CES-D Scale by patterns of correlations with clinical ratings of depression.

Pretorius(1991a) states that the alpha coefficient obtained for the South African application of the CES-D which was based on a sample of 450 third year psychology students is .89. Koeske, Kirk, and Koeske(1993) reported an alpha level of .95 on 79 intensive care managers in the United States of America. Schonfeld(1990) reported an alpha coefficient of .92.

To validate the CES-D scale in the South African context, Pretorius(1991a) correlated a measure of life change (the Life Experiences Survey) with the 20 items of the scale as well as the total scale. Pretorius(1991a) reported that with the exception of three items of the CES-D scale as well as the total score, all

items were significantly correlated with the negative change score of the Life Experiences Survey.

In addition, Pretorius(1991b) reports the correlation of the CES-D scale with measure of life stress as .22. "*Since the literature indicates that an increase in the experience of life events is significantly related to an illness (e.g., depression) the obtained correlation serves as an indication of external validity*"(*Pretorius*, 1991b, p.62).

3.5.2.2 Happiness and Affect

The study used the Short Happiness and Affect Research Protocol(SHARP: Stones, Kozma, Hirdes, Gold, Arbuckle, & Kolopack, 1995). The SHARP is a 12-item scale. Respondents are asked to indicate either yes or no on the items. According to Stones, et al.(1995) the SHARP measures four areas, namely: positive affect, negative affect, long-term positive experiences and long-term negative experiences.

Stones, et al.(1995) reported alpha coefficients on several samples to be above .70 and test-retest reliability coefficients of above .40. The SHARP can therefore be considered a highly reliable instrument.

Regarding the validity of the SHARP, the correlations between the SHARP and other indices of happiness and measures of affectivity were computed(Stones, et al., 1995). It is stated that the SHARP also correlated with self-ratings and observer ratings as well as with positive and negative affectivity.

In a South African sample of university students, Pretorius(1997) reported a reliability of the SHARP to be .83 and the item-total correlations ranging between .35 and .65 with omission of none of the items leading to a substantial reduction in the reliability of the scale.

3.5.2.3 Physical Symptomatology

The physical symptoms were measured by the 'Vragenlist Onderzoek Ervaren Gezondheid(VOEG: Dirken, 1967). The VOEG was first developed by Dirk(1967) as a psycho-biological stress measure in industrial situations. Since then, the VOEG has been used in numerous Dutch surveys to indicate subjective health status. The present study used the English version of the VOEG as translated and used by Johnson(1998).

The VOEG is a 47-item questionnaire measured on a yes/no format. The questionnaire is a list of several symptoms or bodily

sensations. Respondents are requested to circle either a yes or no depending on whether they have experienced/not experienced that symptom in the past year.

Visser(1983) reported a reliability for the VOEG to be .86, and Johnson(1998) reported a .85 alpha coefficient with a South African sample of university students. This indicates that the VOEG is a highly reliable measure of physical symptomatology.

The construct validity of the VOEG was determined in Visser's(1983) survey among consumers of health care in Holland. Visser(1983)reported that the VOEG-index correlates significantly with feelings of powerlessness and the frequency in which several health-care provisions are used.

3.5.3 Measuring Coping

3.5.3.1 Sense of Coherence

The sense of coherence was measured by the Orientation to Life Questionnaire(Antonovsky, 1987). The Orientation to Life is a 29-item questionnaire rated on a seven-point scale with the numbers one (1) and seven (7) being the extremes. The Orientation to Life questionnaire was first field-tested in Hebrew with an Israeli

sample and has since been used by Antonovsky (1987) and others in Hebrew and English. Antonovsky(1987) asserts that the questionnaire can be used cross-culturally.

Among the Israeli national sample, New York state production workers, US psychology major undergraduates, Israeli army officers trainees, Antonovsky(1987) established the consistently high level of Cronbach's alpha which ranges from .84 to .93. Other studies in South Africa have also reported high alpha levels, e.g.,.84 in a sample of 111 white, male blue-collar workers(Anstey, 1989), .81 in a sample of 116 Black Management Forum(Sikobi, 1991), .83 in a sample of 106 Anglican Priests (Strumpfer & Bands, 1996), .87 in 88 Insurance Company administration employees(Strumpfer, Gouws, & Viviers, 1998), and .91 in 197 public servants(Strumpfer, Segaloe, Moloto, & Page, 1992). These alpha levels point to the internal consistency and reliability of the Orientation to Life Questionnaire.

Validity of the questionnaire has been established by the differences on mean scores among samples that were expected to differ. This is called the 'the known groups technique' (Antonovsky, 1987). Dana and others(in Antonovsky, 1987) administered the 29-item Sense of Coherence scale to a sample of 179 psychology undergraduates and found a correlation of .72

between the Sense of Coherence scale and Rumbaut's twenty-two item Sense of Coherence scale.

3.5.3.2 Potency

The potency scale(POT: Ben-Sira, 1985) was used to measure potency. This scale consists of 19 items which combine modified indicators of 'self-confidence, mastery, alienation, and anomie' (Ben-Sira, 1985). Alienation and anomie measure commitment to society and meaningfulness and orderliness of society. The potency scale is rated on a seven-point scale with one(1) indicating that the respondent very much agrees with the statement and seven(7) indicating that the respondent very much disagrees with the statement. In other words, statements ask for the extent of the respondent's agreement.

The strength of the relationship among items was identified by means of correlation coefficients. Ben-Sira(1985) established a correlation coefficient between coping and potency to be 0.40, between potency and homeostasis to be 0.43, and between potency and health to be 0.40.

The Potency Scale was also found to correlate significantly with other personality measures such as the Minnesota Multiphasic

Personality Inventory(MMPI-2)(Lilienfield, 1999). All these point to the reliability and validity of the Potency Scale.

3.5.3.3 Hardiness

Hardiness was measured by a hardiness short form scale called the Personal Views Survey(Kobasa, 1979). The Personal Views Survey is a fifty-item questionnaire which works on a 4-point scale ranging from zero (0) to three (3). Respondents were asked to indicate how they felt about each item by circling a number from zero (0) to three (3). A zero indicated that the respondent felt that the item was not at all true while three (3) indicated that the respondent felt that the item was completely true. The Personal Views Survey provides separate estimates for commitment, control, and challenge. " *Composite hardiness scores are produced by adding raw scores for the three dimensions" (Funk, 1992, p.336).* Out of fifty items of the hardiness scale, 39 are negatively keyed while 11 are positively keyed, meaning that a high score is indicative of low hardiness.

Funk(1992) reported alphas as being greater than .70 on all the dimensions of hardiness(i.e. commitment, control, and challenge).

Correlations between the three dimensions of hardiness, as reported by Funk(1992) are as follows:

Correlation between commitment and control is .78; between commitment and challenge is .49; and between control and challenge is .50.

In order that the correlations involving the global hardiness and the above dimensions would be comparable, Hull, Ronald, Van Treuren, and Virnelli(1987) used listwise deletion of cases with missing data. It was established that hardiness significantly predicted depression and the subscale of commitment was found to be the better predictor of optimism. Challenge was found to be unrelated to optimism. With the exception of Commitment, Control and Challenge were not related to private self-consciousness (the tendency to reflect about one's private self)(Hull, et al. 1987).

3.5.3.4 Fortitude

The Fortitude Questionnaire(FORQ: Pretorius, 1997) was used to measure the theoretical construct of fortitude. The Fortitude Questionnaire is a 20-item instrument that measures fortitude on a four-point scale ranging from (1)'does not apply' to (4)'applies very strongly'. The three domains of fortitude are represented as

follows by the 20 items: self-appraisals -7 items; Family-appraisals -7 items; and Support-appraisals -6 items.

The FORQ was normed on 484 undergraduate psychology students at the University of the Western Cape, South Africa.

Pretorius(1997) reports that the item-total correlations of the various fortitude subscales ranged between 0.38 and 0.77 and that all the items contributed significantly to the total reliability. The alpha for the three subscales ranged between 0.74 and 0.82. Pretorius(1997) further reports the reliability of the total fortitude scale to be 0.85. Julius(1999) reported a reliability for the FORQ to be .88 with a sample of university students. Therefore, the Fortitude Questionnaire can be considered a highly reliable instrument.

Initial estimates of the validity of the Fortitude Questionnaire were established through factor analytic procedures as well as the relationship of fortitude to measures of well-being and to those instruments that constituted the item pool for the Fortitude Questionnaire(Pretorius, 1997).

Pretorius(1997) established that both exploratory and confirmatory factor analyses supported the hypothesized three-factor structure of fortitude with correlation between the subscales and the total scale ranging between 0.72 and 0.84. This

indicates that the three subscales contribute significantly to the measurement of fortitude.

The predictive validity established that correlation between fortitude and other measures of psychological well-being ,e.g. the Satisfaction with Life Scale and the Affect Research Protocol range between -0.27 and 0.52. This indicates the strong and consistent relationship between fortitude and measures of psychological well-being and distress.

Pretorius(1997) reports a factorial validity with correlation between the subscales and the total scale ranging between 0.72 and 0.84, indicating that all these subscales contribute significantly to the measure of fortitude. Therefore, the Fortitude Questionnaire can be regarded as a highly reliable and valid measure of the construct of fortitude.

3.5.3.5 Problem-Solving Appraisal

The problem-solving appraisal was measured by the Problem Solving Inventory(PSI: Heppner & Petersen, 1982). The PSI is a 35-item questionnaire measuring problem solving on a six-point scale ranging from 1 to 6. 1 indicates that the respondent strongly agrees with the statement while 6 indicates that the respondent

strongly disagrees. Items of the PSI ask respondents on how they would normally react to personal difficulties and problems in their day to day life. The PSI measures an individual's global self appraisal of his or her problem-solving ability rather than the individual's actual ability(Dixon, Heppner, & Rudd, 1994).

There are three components of the Problem Solving Inventory, namely, approach-avoidance style(general tendency to approach or avoid different problem-solving activities), problem-solving confidence (belief and trust in one's problem-solving abilities) and personal control(the belief that one is in control of one's emotions and behaviours while solving problems). Higher scores indicate low perceptions of problem-solving confidence, tendency to avoid different problem-solving activities, and inadequate strategies in the control of one's behaviour.

Heppner and Petersen(1982) reported an alpha of .90 for the total Problem Solving Inventory Scale. This was done with a sample of 150 undergraduate psychology students. They also reported internal consistency for each component to be .85 (Problem-solving confidence), .84 (approach-avoidance style) and .72 (personal control). Pretorius(1992) reported alpha level of .80 with the South African university students. Bourgeois, Sabourin and Wright(1990) reported a reliability of .80 with 63 French-speaking

married couples from the Quebec Province in Canada, while Dixon, Heppner and Anderson(1995) reported a test-retest coefficient alphas ranging from .83 to .89.

The PSI has been found to be a valid measure of the problem solving. Heppner and Petersen(1982) established estimates of concurrent and construct validity of the PSI through several means. For instance, scores on the three factors/dimensions and the total PSI were correlated with the Level of Problem Solving Skills Estimate Form and students' perceived satisfaction/dissatisfaction with their problem solving skills. It was found that all correlations were statistically significant.

Heppner and Petersen(1982) also computed validity coefficients by correlating the scores on the three dimensions and the total PSI with scores on the Rotter I-E scale. Correlations were statistically significant.

3.5.3.6 Ego-Resilience

The Ego-Resiliency scale(ER89: Block & Kremen, 1996) was used to measure ego-resilience. The ER89 is a 14-item questionnaire measured on a 4-point Likert scale ranging from (1) does not apply to (4) applies very strongly.

With regard the psychometric properties of the Ego-Resiliency scale, previous study reported an alpha coefficient of .76(Block, & Kremen, 1996), indicating a high reliability for this instrument.

Block and Kremen(1996) established the validity of the Ego-Resiliency scale in a longitudinal study involving 106 participants at age 18 and 104 participants at age 23. Participants who were sampled at age 23 were the same persons who participated at age 18. The study had a five year interval period. At the end of the study, Block and Kremen (1996) reported a correlation of the ER89 scores as .51 for the female sample and .39 for the male sample, uncorrected for attenuation. The authors state that these cross-time correlations are statistically highly significant, when adjusted for the attenuation effect, they become .67 and .51 respectively.

3.6 Procedure

Permission to carry out the study was sought from the office of the Head of the Department of Psychology - University of the Western Cape. Questionnaires carried a covering letter that clearly stated the purpose of the study and also information about who the researcher was, was provided in the tutorial classes. The

purpose of the study was also explained verbally to the Head of the Department of Psychology as well as to the participants.

Questionnaires were distributed in the undergraduate psychology practical classes. Data were collected during the month of September 1998.

3.7. Data analysis

The study used:

1.descriptive statistics and reliability analyses to establish whether sense of coherence, fortitude, potency, ego- resilience, problem-solving, and hardiness replicated psychometrically.

2.Regression analyses to compare sense of coherence, fortitude, hardiness, ego-resilience, problem-solving and potency in terms of their effects on the relationship between stress and psychological health.

3.Factor analysis to determine some common underlying dimensions among the above constructs.

(See chapter 3.3)

3.8. Ethical statement

The purpose of the study, as mentioned earlier, was explained to everyone concerned. The researcher respected the rights of the participants to withdraw their participation when they felt like doing so. The researcher carried out the study with respect and concern for the dignity and welfare of the participants and with cognizance of the professional standards governing the conduct of research with humans(principle 9 of the ethical principles of psychologists, American Psychologist, 1990).

Every participant remained anonymous and this aspect was clearly emphasized in the covering letter. To ensure this, participants were asked not to write their names or any form of identification anywhere on the questionnaire. Every questionnaire was therefore treated anonymously.

3.9. The significance of the study

There is a dearth of the South African literature on the stress-buffering/moderating effects of the sense of coherence, fortitude, potency, hardiness, problem-solving and ego-resilience. Because most of the measuring instruments for these constructs have

not been widely used in South Africa, it was hoped that testing for their reliabilities within the South African context would contribute the South African wellness literature.

CHAPTER FOUR

RESULTS

4.1 Introduction

First, this chapter will present results in terms of descriptive statistics, means, and standard deviations of scales. Second, results will be presented in terms of the multiple/moderated multiple regression analyses. Third, principal factor analysis will be presented.

4.2 Means and standard deviations of scales

The descriptive statistics for the CES-D, SHARP, FORQ, PSI, POT, ER89, Personal Views Survey, Orientation to Life Questionnaire, VOEG, and LES are indicated below.

Table 4.1 Means and standard deviations of scales

Scale	Mean	Standard Deviation

(Table 4.1 cont.)

CES-D	22.59	10.77
SHARP	.66	3.37
FORQ	58.57	11.66
PSI	91.84	19.73
POT	74.96	15.25
ER89	40.94	7.56
HARDINESS	1.76	.36
SOC	131.22	28.63
VOEG	16.60	9.65
LES(NEG.)	18.23	28.44

Table 4.1 indicates that the present sample gave a variable range of responses in the following scales: CES-D, FORQ, PSI, POT, SOC, VOEG, and LES-Negative. This is indicated by the high standard deviation in the table. It is also indicated that the respondents had a high sense of coherence, high potency, and high problem-solving. Respondents seem to have higher sense of coherence as compared to other variables. On average, respondents reported around 18 negative events. These reported events are relatively few

given a total of 59 events that respondents had to respond to.

4.3 Reliability analyses of measuring instruments

4.3.1 Reliabilities of the Center for Epidemiological Studies-Depression Scale

The internal-consistency estimates of reliability (Cronbach-alpha) for the Depression Scale are shown in Table 4.2.

Table 4.2

Reliability of the CES-Depression Scale

scale items	Item-total r	Alpha if item deleted
Bothered	.43	.88
Effort	.34	.88
Good as others	.28	.88
Troubled	.36	.88
Sad	.67	.87
Fearful	.58	.87
Lonely	.60	.87
Crying spells	.49	.87
Talked less	.54	.87
Restless sleep	.61	.87

(Table 4.2 cont.)

Enjoyed life	.46	.88
Blues	.56	.87
Failure	.57	.87
Happy	.47	.88
Couldn't get going	.43	.88
Hopeful	.26	.88
People unfriendly	.48	.88
Poor appetite	.35	.88
Depressed	.68	.87
People disliked me	.54	.87
Total Scale		.88

The item-total correlation for the Depression scale ranged between .26 and .68. This indicated strong and consistent relationships between the various items of the Depression Scale. The reliability for the total Depression Scale was .88. Previous studies reported reliabilities of .84 to .90(Radloff, 1977), .89 (Pretorius, 1997), .89(Pretorius, 1991b), .95(Koeske, Kirk & Koeske, 1993) and .92(Schonfeld, 1990). The criterion of .70 is recommended by statisticians. Therefore, the Depression Scale as used in this study can be considered very satisfactory in terms of both the previous as well as current reliability findings.

All the individual items of the Depression scale contributed equally well to the internal consistency of the scale. Omission of

none of the items would significantly increase the reliability of the scale.

4.3.2 Reliabilities of the Short Happiness and Affect Research/Protocol (SHARP)

Reliability of the SHARP is shown in table 4.3.

Table 4.3

Reliability estimates for the Short Happiness and Affect Research/Protocol.

Scale items	Item-total r	Alpha if item deleted
High spirits	.67	.81
Content with life	.36	.81
Depressed	.50	.80
Flustered	.55	.80
Bitter	.52	.80
Generally satisfied	.54	.80
Happy	.40	.81
Fairly well satisfied	.48	.80
Things getting worse	.48	.80
Bothered	.38	.81
Life is hard	.49	.80
Satisfied with life	.56	.80
Total Scale		.82

The total-item correlation for the Short Happiness and Affect Protocol ranged between .36 and .67 with the reliability for the total Short Happiness and Affect Research/Protocol being .82. Stones, Kozma, Hirdes, Gold, Arbuckle, & Kolopack,(1995) reported internal consistency coefficients that are above 0.74 and test-retest reliability coefficients of above 0.41. Given all the above reliability reports of the SHARP, it can be considered a highly reliable instrument for measuring happiness.

4.3.3 Reliabilities of the Fortitude Questionnaire

The internal-consistency estimates of reliability for the Fortitude Questionnaire are reported in table 4.4 below.

Table 4.4

Reliabilities of the Fortitude Questionnaire

Scale items	Item-total r	Alpha if item deleted
Sure of self	.49	.91
Positive attitude	.63	.90
No trouble	.46	.91
Trust my ability	.58	.91

(Table 4.4 cont.)

satisfied with self	.68	.90
5+ people to rely on	.45	.91
Satisfied with comfort	.61	.90
New and different things	.59	.90
Weigh consequences	.54	.91
Satisfied with help	.58	.90
Someone around	.43	.91
Plenty of time & attention	.60	.90
Friends support	.51	.91
Rely on family	.57	.91
Sharing relationship	.66	.90
Family members helpful	.67	.90
Tell personal problems	.59	.90
Carefully planned activities	.65	.90
Friends have good advice	.45	.91
I am no good	.30	.91
Total Scale		.91

As reported in table 4.4, the Fortitude Questionnaire appears to have a very satisfactory reliability. It's total reliability is .91 and it exceeds the criterion reliability of .70. This is comparable to the previously reported reliability of .85 (Pretorius, 1997), .88(Julius, 1999). The item-total correlation of the Fortitude Scale ranged between .30 and .68.

Pretorius(1997) reported the item-total correlations to be

between .38 and .77. Therefore this indicated a high level of internal consistency of the Fortitude Scale.

4.3.4 Reliabilities of the Problem Solving Inventory

The reliability of the Problem Solving Inventory is reported in table 4.5 below.

Table 4.5

Reliability of the Problem Solving Inventory

Scale items	Item-total r	Alpha if item deleted
Do not examine	.41	.81
Do not develop strategy	.37	.82
Uneasy about my ability	.39	.81
Do not analyse the wrong	.38	.82
Effective mechanisms	.36	.82
Compare actual outcome	.35	.82
Many possible ways	.28	.82
Examine feelings	.30	.82
Do not define vague ideas	-.13	.83
Ability to solve problems	.36	.82
Problems too complex	.30	.82
Happy with decisions	.45	.81
Do first thing I can	.19	.82

(Table 4.5 cont.)

Do not deal with problem	.55	.81
Do not consider alternatives	.54	.81
Think about problem	.37	.82
Go with first idea	.46	.81
Weigh consequences of alternatives	.28	.82
Make plans work	.42	.82
Predict overall result	.38	.82
Not many alternatives	.48	.81
Think of past problems	.19	.82
Can solve most problems	.43	.82
I have confidence	.54	.81
Groping or wandering	.35	.82
Regret snap judgements	.41	.81
Trust my ability	.60	.81
Systematic method for comparison	.43	.81
Do not combine ideas	-.35	.84
Do not examine external things	-.44	.84
Consider the information	.46	.81
Get charged up emotionally	.28	.82
Expected outcome matches actual	.39	.82
Unsure of situation handling	.12	.82
First find out what the problem is	.45	.81
Total Scale		.82

The reliability of the Problem Solving Inventory appears to be very satisfactory. The item-total correlations ranged between -.13 and .60. All the reliabilities are above the criterion of .70.

Pretorius(1997) reported reliability of the total PSI to be .84. Heppner(1988) cited reliabilities for the PSI to be above .70. Therefore the PSI can be considered a highly reliable instrument because it has a high internal consistency and all the items contribute significantly to the problem-solving appraisal.

4.3.5 Reliabilities of the Potency Scale

The reliability of the Potency Scale is reported in table 4.6 below.

Table 4.6. Reliability of the Potency Scale

Scale items	Item-total r	Alpha if item deleted
Little control	.56	.81
Feeling being pushed around	.59	.81
Can do about anything	.23	.83
Helpless dealing with problems	.57	.81
Future depends on me	-.00	.84
No way I can solve problems	.46	.82
Feeling useless at times	.55	.81

(Table 4.6 cont.)

I am a failure	.59	.81
Able to do things like others	.23	.83
Let tomorrow take care of itself	.36	.82
Average man getting worse	.41	.82
Hardly fair bringing children	.36	.82
Party membership important	.34	.82
Right connections more important	.37	.82
Community leaders indifferent	.33	.82
Little can be accomplished	.28	.82
Life goals receding	.54	.81
Life is futile	.44	.82
Can not count on closest persons	.45	.82
Total Scale		.83

The reliability of the total Potency Scale of .83 seems to be satisfactory. The item-total correlations(ranging from -.00 to .59) also seem to be satisfactory.

However, Ben-Sira(1985) reported a correlation coefficient between coping and potency to be 0.40, between potency and homeostasis to be 0.43 and between potency and health to be 0.40.

4.3.6 Reliabilities of the Ego-Resiliency Scale

The reliability of the Ego Resiliency is reported in table 4.7.

Table 4.7

Reliability of the Ego Resiliency Scale

Scale items	Item-total r	Alpha if item deleted
Generous with friends	.46	.85
Recover from being startled	.53	.84
Enjoy new situations	.39	.85
Succeed in making impressions	.64	.83
Enjoy trying new foods	.39	.85
Regarded as energetic	.54	.84
Different paths to familiar places	.58	.84
More curious than most people	.62	.84
Most people I meet are likeable	.40	.85
Think carefully before acting	.43	.85
Like doing new and different things	.64	.84
Daily life full of interesting things	.49	.84
I am a pretty strong personality	.42	.84
Get over anger reasonably quickly	.44	.85
Total Scale		.85

In table 4.7 the alphas of the individual items ranged from .83 to .85, and the omission of no item would significantly increase the reliability of the scale. The item total correlations ranged from .39 to .64 indicating a strong and consistent relationships between the various items of the scale. This compares favourably with previously reported alpha coefficients of .88 and .81(Klohnen, 1996) and .76(Block & Kremen, 1996). The Ego-Resiliency Scale can therefore be regarded as a highly reliable instrument.

4.3.7 Reliabilities of the Personal Views Survey

The reliability of the Personal Views Survey is shown in table 4.8 below.

Table 4.8. Reliability of the Personal Views Survey

Scale items	Item-total r	Alpha if item deleted
Often eager to take up life	.23	.87
Like variety	.28	.87
Superiors listen to what I say	.16	.87

(Table 4.8 cont.)

Planning ahead avoids problems	-.04	.87
Can change what happens tomorrow	.21	.87
Uncomfortable about schedule changes	.34	.87
Efforts will accomplish nothing	.43	.87
Difficult about getting excited	.55	.86
Tried and true ways the best	.36	.87
Impossible changing partner's mind	.38	.87
Most workers manipulated by bosses	.51	.86
New laws not to be made	.27	.87
freedom of choice lost in marriage	.47	.87
Never reach your goals	.46	.87
Seldom changing mind can be relied on	.29	.87
Things meant to happen	.42	.87
Only the bosses profit	.48	.87
Do not like confused conversations	.23	.87
Things never turn right anyway	.40	.87
My own fantasies exciting	.37	.87
Won't answer questions until clear	.07	.87
Can make plans work	-.07	.87
Looking forward to my work	.06	.87
Stepping aside does not bother me	.00	.87
Know when to ask for help	-.01	.87
Exciting learning something about self	.02	.87
Enjoy unpredictable people	-.05	.87
Hard to change a friend's mind	.28	.86
Though of freedom makes you unhappy	.52	.86
Bothered by unexpected interruptions	.47	.86
Little to do making things right	.51	.86
Makes no difference trying my best	.52	.86
I respect rules	.06	.87

(Table 4.8 cont.)

Not to think about problems	.54	.86
Most athletes born good at sports	.19	.87
Don't like things to be uncertain	.20	.87
Those doing best to get financial support	.30	.87
Most my life wasted by meaningless things	.54	.86
Don't know my own mind most times	.47	.87
No use for factless theories	.35	.87
Ordinary work boring	.32	.87
People angry at me for no reason	.33	.87
Changes in routine bother me	.53	.86
Hard to believe people	.50	.86
Not much to do stopping someone	.48	.86
Mostly, life not exciting for me	.64	.86
Individuality to impress others	.47	.87
Unjustified reprimand at work	.43	.87
Make sure someone cares when old	.15	.87
Politicians run our lives	.23	.87
Total Scale		.87

According to table 4.8, the reliability for the total Personal Views survey is .87. It's item-total correlation ranged from -.04 to .64. Funk(1992) reported alphas of the Personal Views Survey as being greater than .70 on all three components of hardiness. Therefore, the Personal Views Survey can be considered a highly reliable instrument for measuring hardiness.

4.3.8 Reliabilities of the Orientation to Life Questionnaire

The reliability of the Orientation to Life Questionnaire is reported in table 4.9 below.

Table 4.9

Reliability of the Orientation to Life Questionnaire

Scale items	Item-total r	Alpha if item deleted
People not understanding you	.37	.88
Something surely not get done	.28	.88
How well do you know people around	.27	.88
Not caring about things around	.30	.88
Surprised by people's behaviour	.42	.88
People disappointed you	.51	.88
Life full of interest/routine	.46	.88
No clear/ very clear life goals	.51	.88
Feeling of unfair treatment	.42	.88
Past ten years life full of change	.35	.88
Things fascinating/boring in future	.32	.88
Unfamiliar situation don't know what to do	.55	.88
Describing how you see life	.41	.88
How good it is to be alive	.56	.88
Choice of solution in a problem	.45	.88

(Table 4.9 cont.)

Doing things you do every day	.41	.88
Life in future full of changes	.39	.88
Something unpleasant happened in past	.42	.88
Having mixed up feelings and ideas	.60	.88
Doing what gives you good feeling	.38	.88
Feelings inside that you don't like	.39	.88
Anticipation of lie in future	.44	.88
People to count on in future	.32	.88
Not know what is about to happen	.67	.87
Many people feeling like sad sacks	.22	.89
Overestimated/underestimated things	.54	.88
Thinking of difficulties in life	.31	.88
Feeling meaningless in daily life	.52	.88
Not sure about keeping under control	.58	.88
Total Scale		.88

Antonovsky(1987) reported alpha levels of the Orientation to Life Questionnaire which ranged from .84 to .93. Other studies reported reliabilities for this scale to be .84(Anstey, 1989), .83(Strumpfer & Bands, 1996), and .91(Strumpfer, 1992). The present study reported an alpha level of .88 on the total Orientation to Life Questionnaire. These alpha levels point to the reliability of the Orientation to Life Questionnaire.

4.3.9 Reliabilities of the VOEG

The reliability of the VOEG is reported in table 4.10 below

Table 4.10. Reliability of the VOEG

Scale items	Item-total r	Alpha if item deleted
Suffer from coughs	.39	.91
Suffer from chest pains	.51	.91
Experience cold fingers	.55	.91
Less of appetite than normal	.28	.91
Experience bloated feeling	.45	.91
Become short of breath quickly	.33	.91
Sweet or unpleasant taste in mouth	.47	.91
Experience teary eyes	.63	.91
Suffer from ringing ears	.26	.91
Feeling fit as of late	-.07	.92
Clearing throat often	.24	.91
Nose often blocked	.34	.91
Suffer hanger pangs	.40	.91
Suffocating feeling in chest	.37	.91
Pain in bones or muscles	.50	.91
Bowl movements regular	.17	.91
Suffer from feeling of tiredness	.58	.91
Sometimes sweat heavily	.44	.91

(Table 4.10 cont.)

Suffer from itching	.31	.91
Suffer headaches	.56	.91
Experience dizziness	.50	.91
Suffer from abdominal discomfort	.39	.91
Feel dull or sleepy	.65	.91
Numbness or tingling in limbs	.48	.91
Often become excited	.48	.91
Thing of self as too thin	.24	.91
Thinking of self as too fat	.25	.91
Feel listless	.41	.91
Making little accidents	.53	.91
Alcohol effects setting in quicker	.22	.91
Easily stirred emotionally	.39	.91
Tired after a strenuous day	.64	.91
Suffer from trembling	.34	.91
Falling asleep quickly when tired	.35	.91
Suffer heart palpitations	.38	.91
Becoming excessively thirsty	.54	.91
Pain in upper abdominal area	.50	.91
Pain in or around eyes	.45	.91
Suffer from sneezing	.34	.91
Fall asleep immediately and well	.31	.91
Weak or painful feet	.17	.91
Suffer from pimples	.35	.91
Often becoming nervous	.49	.91
Insufficient rest after sleep	.63	.91
Experience runny stomach	.46	.91
Sometimes suffer backpain	.43	.91
Sometimes suffer from sleeplessness	.37	.91
Total scale		.91

Table 4.10. shows that the reliability for the total VOEG scale is .91. It's item-total correlations ranged from -.07 to .65 indicating internal consistency of the scale. Previous studies reported alpha levels of .86(Visser, 1983) and .85 (Johnson, 1998)

4.4 Summary of the reliabilities of measuring instruments

All the instruments that were used in this study had alpha coefficients of above .80(meaning that they are all above the criterion of .70). These alpha coefficients compare favourably to the previously reported ones. Each instrument's item-total correlations indicated strong and consistent relationships between the various items in those scales.

Therefore, all instruments can be considered highly reliable because of their alphas being above the criterion of .70 and most items contributing equally well to the internal consistency of the scales. Analyses also showed that omission of none of the items in each scale would significantly increase the reliability of that particular scale.

4.5 Multiple regression analyses

4.5.1 Introduction

As mentioned earlier on, some individuals succumb to stress and fall ill while others survive and remain healthy in similar stressful life events. The pertinent question is why this difference in response to similar life event/s? What variables distinguish stress-resistant individuals from distressed ones? In this case, stress-resistant individuals were determined on the basis of the sum of the negative items of the Life Experiences Survey(measuring positive and negative life events) and the score of the Center for Epidemiological Studies Depression Scale (measuring depression).

In answering the question - Whence the strength? multiple regression analyses were computed to compare fortitude, problem-solving, potency, ego-resilience, hardiness, and sense of coherence in terms of their effects on the relationship between stress and physical symptoms, stress and happiness as well as stress and depression.

Respondents were then classified into Stress-resistant and Distressed groups. The median of stress scores(median = 6) was used

as a cutoff-point to identify high stress levels. In the case of depression, the median of 23 was used as a cutoff-point. The distressed group, therefore consisted of individuals who scored high on life events and high on depression. The stress-resistant group consisted of those individuals who scored high on life events, but low on depression.

In this study, the stress-resistant and distressed groups were compared in terms of the outcome variables of happiness, physical symptoms, and depression. The distressed group, therefore, comprised of individuals whose scores were high on stress and high on depression; high on stress and low on happiness; as well as high on depression and high on physical symptoms. The results revealed the following median scores: Depression(median=23); Happiness(median=1); and Physical Symptoms(median=17).

On the other hand, stress-resistant group comprised of individuals who scored high on stress and low on depression, high on stress and high on happiness as well as high on depression and low on physical symptoms.

The study used both the multivariate(Hotelling's T^2) and the univariate(t-tests) statistical procedures to determine which variables differentiated between the Stress-resistant and Distressed groups. Hotelling's T^2 provides a test of the

differences between the two groups in terms of the outcome measures simultaneously(Pretorius, 1995). This is done by combining all the outcome measures into a single value. The results of the multiple regression analyses are reported in tables 4.11, 4.12, and 4.13 below.

Table 4.11. Comparison of Stress-Resistant(n=25) and Distressed (n=41) groups in terms of Depression

Variable	Stress-resistant		Distressed		t
	m	SD	m	SD	
Fortitude	60.76	9.18	56.00	9.35	1.96
PSI	85.93	17.36	98.84	16.50	-2.97*
Potency	81.08	11.92	68.72	12.69	3.97*
Ego Resilience	41.15	7.69	40.48	7.11	0.35
Hardiness	1.89	0.29	1.62	0.36	0.46
SOC	144.26	25.88	115.36	19.41	4.78
	Hotelling				32.28

***p < 0.05**

The multivariate analysis(Hotelling's T^2) indicates that when examined together the variables differentiated significantly (Hotelling's T^2 = 32.28,df=6,59,p <0.05) between the stress-resistant and distressed groups.

According to the univariate analyses(t-tests) in table 5.1., the Stress-resistant group scored significantly higher on Potency only . They(Stress-Resistant group) scored significantly lower on Problem Solving Inventory only. It must be borne in mind that the Problem-Solving Inventory is scored in such a way that low scores indicate perceptions of effective problem-solving ability. This, therefore, suggests that Potency and Problem-Solving Appraisal differentiate significantly between stress-resistant and distressed groups.

Table 4.12 Comparison of Stress-Resistant(n=19) and Distressed (n=41) groups in terms of Physical Symptoms

	Stress-resistant		Distressed		
Variable					
	m	SD	m	SD	t

(Table 4.12 cont.)

Fortitude	59.90	9.11	58.43	9.69	0.56
PSI	84.30	19.91	93.82	16.56	-2.01*
Potency	81.55	13.94	74.00	12.86	2.13*
Ego resilience	40.75	9.21	40.96	6.59	-0.10
Hardiness	1.84	0.32	1.76	0.35	0.94
SOC	149.10	26.12	125.64	24.91	3.44*
		Hotelling			17.43

***p < 0.05**

The multivariate analysis indicates that the variables together differentiated significantly(Hotelling's T^2=17.43,df=6,59, p<0.05) between stress-resistant and distressed groups.

Table 4.12 shows that Stress-resistant group scored significantly higher on Potency and Sense of Coherence. However, they scored significantly lower on the Problem Solving Inventory. This suggests the health-sustaining effects of these variables.

Table 4.13 Comparison of Stress-Resistant(n=35) and Distressed (n=31) groups in terms of Happiness.

Variable	Stress-resistant		Distressed		t
	m	SD	m	SD	
Fortitude	59.91	9.94	57.59	8.85	0.95
PSI	85.37	18.53	97.33	15.39	-2.80*
Potency	80.31	14.17	71.67	11.32	2.69*
Ego Resilience	42.43	7.35	39.10	7.21	1.84
Hardiness	1.89	0.33	1.66	0.31	2.86
SOC	147.62	24.61	116.37	20.06	5.52*
		Hotelling			38.10

***p < 0.05**

The multivariate analysis indicates that when examined together the variables differentiated significantly(Hotelling's T^2 = 38.10,df=6,59,p < 0.05) between stress-resistant and distressed groups.

Table 4.13 indicates that the Stress-resistant group scored significantly higher on Potency and Sense of Coherence. On the other hand, the Stress-resistant group scored significantly lower on Problem Solving Inventory, suggesting the sustaining role of these constructs on the happiness affect.

4.6 Moderated multiple regression analyses

The study used the moderated multiple regression analyses to test for the direct effects of the predictor variables on the stress-depression relationship, stress-physical symptoms relationship and stress-happiness relationship. In the first step, the predictor variable, and the negative events are put into the regression equation and in the second step the interactive/moderating effect(the product of the variable and negative events) is examined by entering the interaction term into the equation. The existence of moderating effects is indicated by a significant interaction term.

The results of the moderated multiple regression analyses for these relationships are reported in tables 4.14, 4.15 and 4.16.

Table 4.14 Moderated multiple regression analyses for Physical Symptoms

Predictor[a]	df	f	Cum R^2	Beta
Negative Events	2	9.50		.26
Fortitude	2	12.96*	.17	-.31
A x B[b]	3	.28	.17	.42
Negative events	2	11.42		.29
PSI	2	10.50*	.16	.27
A x B	3	1.04	.17	.55
Negative Events	2	9.7		.26
Potency	2	10.91*	.16	-.28
A x B	3	.03	.16	.08
Negative Events	2	9.93		.28
Ego resilience	2	2.46	.10	-.14
A x B	3	2.58	.12	1.05
Negative Events	2	9.29		.27

(Table 4.14 cont.)

Hardiness	2	1.13	.09	-.10
A x B	3	.00	.09	.02
Negative Events	2	11.09		.27
SOC	2	27.59*	.26	-.42
A x B	3	1.04	.27	-.39

[a] *a dashed line represents different steps in the hierarchy*

[b] *A x B represents the product of the two predictors entered in the regression equation in the first step.*

**P < 0.05*

According to table 4.14, only four predictor variables showed significant direct effect on the physical symptomatology. These were fortitude, potency, problem-solving and sense of coherence. This suggests that all these variables have a health-sustaining effect on the physical symptomatology. Hardiness and ego-resilience did not demonstrate any direct effects on the physical symptoms. There were no significant interaction effects for all the variables. In other words, these variables did not demonstrate

stress-moderating effects.

Table 4.15

Moderated multiple regression analyses for Depression

Predictor[a]	df	f	Cum R^2	Beta
Negative Events	2	3.10		.15
Fortitude	2	25.42*	.20	-.42
A x B[b]	3	.05	.20	.17
Negative Events	2	2.37		.13
PSI	2	27.58*	.20	.43
A x B	3	.80	.21	.47
Negative Events	2	1.44		.09
Potency	2	55.10*	.33	-.56
A x B	3	.21	.33	.19
Negative Events	2	1.54		.11
Ego resilience	2	8.32*	.08	-.25
A x B	3	4.49	.12	1.39

(Table 4.15 cont.)

Negative Events	2	.29		.04
Hardiness	2	40.13*	.27	-.51
A x B	3	.05	.27	.08
Negative events	2	2.23		.10
SOC	2	84.66*	.43	-.64
A x B	3	.01	.43	-.04

[a] ***a dashed line represents different steps in the hierarchy***

[b] ***A x B represents the product of the two predictors entered in the regression equation in the first step***

****p < 0.05***

Table 4.15 shows that all the variables significantly had direct effects on depression. All these variables can be considered as health-sustaining. They contribute to the well-being of an individual. Only ego-resilience demonstrated a significant moderating effect on depression. All other variables did not show a significant moderating effect/stress-reducing role.

Table 4.16

Moderated multiple regression analyses for Happiness

Predictor[a]	df	f	Cum R^2	Beta
Negative Events	2	.08		-.02
Fortitude	2	26.82*	.19	.43
A x B[b]	3	3.47	.21	-1.42
Negative Events	2	.02		-.01
PSI	2	32.34*	.21	-.46
A x B	3	.12	.22	-.18
Negative Events	2	.12		.57
Potency	2	56.08*	.32	.57
A x B	3	3.51	.34	-.76
Negative Events	2	.04		.02
Ego resilience	2	14.93*	.11	.33
A x B	3	3.96	.14	-1.29
Negative Events	2	1.22		.09
Hardiness	2	49.88*	.30	.55

(Table 4.16 cont.)

A x B	3	1.18	.30	-.39
Negative Events	2	.05		.02
SOC	2	86.56*	.43	.65
A x B	3	.02	.43	-.05

[a] a dashed line represents different steps in the hierarchy

[b] A x B represents the product of the two predictors entered in the regression equation in the first step.

****P < 0.05***

In table 4.16, all the variables demonstrated significant direct effects on happiness. This indicates a health-sustaining role for all these variables. Only ego-resilience showed a significant stress moderating effect.

4.7 Summary of moderated/multiple regression

According to the results of multiple regression analyses, the Stress-resistant group as compared to a Distressed group scored

significantly higher on potency and sense of coherence as measured against the backdrop of physical symptoms, happiness and depression. They(Stress-resistant group) scored significantly lower on the Problem Solving Inventory.

The multivariate analysis indicated that when examined together the variables differentiated significantly($p < 0.05$) between the stress-resistant and distressed groups in terms of the physical symptoms, depression, and happiness.

The moderated multiple regression analyses were also performed. Results showed that all but two predictor variables showed a significant direct effect on the physical symptoms, depression and happiness. The two variables were hardiness and ego-resilience. All other variables appeared to have a health-sustaining effect.

With the exception of depression and happiness predicted on the basis of ego-resilience, all variables showed no significant interaction/moderating effects.

4.8 Factor analysis

4.8.1 Introduction

To determine the overlap among the stress-resistant constructs and also to determine the extent to which these constructs have some common underlying dimensions, factor analysis was computed. In other words, factor analysis was computed to establish whether these could be reduced to a smaller number of more meaningful dimensions.

Factor analysis for the Fortitude, Problem Solving Inventory, Potency, Ego-resilience, Hardiness and Sense of Coherence is presented in table 4.17.

Table 4.17 Factor loadings for the Fortitude, Problem-Solving Inventory, Ego-Resilience, Hardiness, Potency, and Sense of Coherence

	component
	1

(Table 4.17 cont.)

Fortitude	.77
Problem Solving Inventory	-.82
Potency	.87
Ego-resilience	.71
Hardiness	.68
Sense of Coherence	.86

a. 1 component extracted

Table 4.17 indicates that all the analysed variables loaded on one factor, suggesting that these variables tend to clump together.

CHAPTER FIVE

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1. Discussion

5.1.1 On the conceptualisation of the stress-resistant constructs

In the literature review of this study much attention has been placed on the stress-resistant constructs of fortitude, hardiness, potency, sense of coherence, problem-solving appraisal, and ego-resilience. These constructs have been found to overlap in terms of their definitions and or components that make the up. Although most of these constructs are made up of two or three components each(e.g. sense of coherence is comprised of three components, namely: comprehensibility, manageability and meaningfulness) the study focussed, in the data analysis section, on each construct in it's totality(global construct).

Chapter two did, however, look at components that make up each construct. The idea was to examine these constructs so that they can be better understood. It is noteworthy that analyses of data were done on the total construct and not on the components of the

construct.

The concept of stress was also briefly visited because this study is in a way about stress, stressors and ways of coping with or managing stress. The literature review revealed that the concept of stress continues to be defined and conceptualised in several fundamentally different ways. Here, stress was conceptualised as any characteristic of the environment which poses a threat to the individual - either excessive demands or insufficient supplies to meet his/her needs(Tung & Koch, cited in Cooper & Marshal, 1980). It was also mentioned that dealing with stress forms part of the person-environment transaction which occurs when an individual perceives a situation as stressful. At this point, the transactional theory of stress was invoked as a guide to this thesis and this thesis is embedded within the fortigenic paradigm which broadly refers to the origins of psychological strength. Fortigenesis focusses mainly on the positive aspect of health and defines health in terms of the presence of a positive attribute and not merely the absence of it.

The review of the literature on the stress-resistant/fortigenic constructs revealed a measure of similarity between different stress-resistant constructs, e.g. the definition of potency corresponds to the operational definitions of hardiness

and sense of coherence(see chapter 2). Moreover, their components do overlap with those of fortitude because they all look at the appraisal of resources. Resilience has been viewed as representing strength or fortitude in the face of adverse circumstances. Dyer and McGuinness(1996) describe resilience as a value of fortitude with conviction, tenacity with resolve. Block and Block(cited in Klohnen, 1996) describe resilience, inter alia, as a flexible invocation of the available repertoire of problem-solving strategies. On the other hand, hardy individuals are viewed as stress-resilient(Rodewalt & Zone, 1989), and having a high sense of coherence(Korotkov & Hunnah, 1994).

Antonovsky(1987) acknowledges that there is much more agreement between Kobasa and himself since the latter is measuring the person's ability to view change, the unexpected and the unpredictable as opportunities and turn them into something coherent. This points to the overlap among these constructs. The differences that exist among these constructs(in terms of the way in which they are conceptualised) remains, to some extent, negligible and subtle. To circumvent this subtleties, the literature suggests an investigation into the relationships between these constructs.

This study attempted to investigate these constructs and

compare them in terms of their effects on the relationship between stress and psychological health. The study also tested for the psychometric properties of the instruments that were used to measure these constructs to determine whether these constructs replicated psychometrically.

The discussion of the psychometric properties of these instruments is presented below.

5.1.2 On the reliabilities of measuring instruments.

All measuring instruments that were used in this study were self-report measures. A self-report measure is recommended by most psychological researchers as a rigorous tool for measuring individuals' perceptions about themselves. Unlike any other assessment tool, the self-report measure provides exclusive information by reflecting information via the person experiencing the phenomenon herself/himself(Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974).

The measuring instruments that have been used in this study have not been widely researched in the South African context. Therefore, the primary aim of using these instruments was to test

for their psychometric properties as used in South Africa.

All the measuring instruments had reliability coefficients of above .80. These are favourably comparable to reliability coefficients reported in previous studies, e.g. the Personal Views Survey= above .70(Funk, 1992),ER89=.88(Klohnen, 1996), PSI=.70(Pretorius, 1997), FORQ=.88(Julius, 1999), CES-D=.89(Pretorius, 1991b, 1997), VOEG=.86(Johnson, 1998), and Orientation to Life Questionnaire=.91(Strumpfer, 1992). This indicates that all the measuring instruments used in this study are highly reliable given the criterion of .70. The instruments also appeared to replicate psychometrically, answering the question on the replicability of these constructs(see chapter 3 on research questions).

The item-total correlations for each instruments appeared to be satisfactory. In other words, almost all the individual items in each instrument appeared to be contributing equally well to the internal consistency of the scales.

In all the scales, omission of none of the items would substantially increase the reliability of the scale. With the high(above .80) alpha coefficients reported in this study for each instrument and with alpha coefficients of previous studies being favourably comparable to the present study, the results of this

study can therefore be considered as highly reliable.

The present sample reported relatively few negative life events(mean=18.27, s=28.44) as calculated against the backdrop of the total life events in the LES(total=59). Moreover, this sample appeared to be significantly higher on sense of coherence(mean=131.22, s=28.63) as compared to other stress-resistant constructs. In addition, the present study seems to have reported higher sense of coherence score as compared to previous studies(e.g. mean=62.77, Fritz, 1989; mean=62.77, Strumpfer & Fritz, 1989). The previous studies' relatively low score could be attributed to the fact that these studies used the 13-item Sense of Coherence scale.

All but one stress-resistant construct(i.e. hardiness) appear to be satisfactorily high. This sample also appeared to be high on depression(mean=22.59, s=10.71), which is comparable to the previously reported one(e.g. mean=19.04, s=11.89, Pretorius, 1997).

5.1.3 On the direct and or moderating effects of the predictor variables.

It has been stated elsewhere in this study that despite the omnipresence of stressors some people do not succumb but rather

survive and remain healthy. Pretorius(1997) states that individual and environmental variables that enable us to stay healthy despite the presence of stress are said to have a stress-reducing and stress-resistant function. Pretorius(1997) further writes that the stress-resistant function would be operationalised as the identification of variables that enable us to maintain low levels of depression despite high levels of stress.

The primary aim of this study was to do an investigation into the direct effects as well as the moderating effects of the stress-resistant variables.

The multiple regression and the moderated multiple regression analyses revealed that a stress-resistant group as compared to the distressed group scored significantly higher on potency and sense of coherence as measured against the backdrop of physical symptoms, happiness and depression(see summary of multiple regression analyses). On the other hand, Stress-resistant group scored significantly lower on the Problem-Solving Inventory(low score on the Problem-Solving Inventory indicates perceptions of effective problem-solving ability). This, therefore, indicates the stress-reducing role of these variables. These results replicate previous findings regarding the stress-reducing roles of the sense of coherence(e.g. Korotkov, 1993; Korotkov & Hunnah, 1974),

potency(e.g Lev-Wiesel, 1998), and problem-solving(e.g Nezu, 1986).

The moderated multiple regression analyses revealed that all but two predictor variables showed a significant direct effect on the outcome variables. Variables that had a significant direct effect were potency, fortitude, problem solving and sense of coherence. This indicated a health sustaining effect of these variables. The results also revealed that only ego-resilience showed a significant interaction/moderating effect as measured against the backdrop of outcome variables of happiness and depression.

Finally, the multivariate analysis showed that all the variables together differentiated significantly between the stress-resistant and distressed groups in terms of happiness, depression, and physical symptoms.

5.1.4 On the factor analysis

The factor loadings for sense of coherence, potency, fortitude, hardiness, problem-solving appraisal and ego-resilience showed that all the variables which were subjected to this analysis loaded on one factor. This suggests that these instruments do overlap.

At this stage it must be noted that the sample was skewed in as far as the demographic variables are concerned. The sample was 65% female, 70% African language speaking(in the South African context), 70% single, 61% from the urban places, and 90% Christian. Participants were not compartmentalised into these demographic variables when data were analysed. This was deliberately done given the unbalanced nature of this sample with regards the demographic variables (e.g. 90% Christian already makes the data biassed against other religious groupings). Therefore the data were analysed globally. In a nutshell, the researcher notes that the data were biassed toward females who were African language speaking, single, urban and had Christianity as their religion.

5.2 Conclusion and recommendations

The present study was guided by the theory of fortigenesis which refers broadly to the origins of psychological strength in the face of stressors. Attempt has been made to test for the direct as well as the moderating effects of variables such as fortitude, sense of coherence, potency, hardiness, problem-solving appraisal and ego-resilience on stress-depression relationship(see chapter 5). It appears that all research questions of the present study

were answered positively by the findings. However, the findings of the present study do not pretend to be conclusive, in anyhow.

As most, if not all, of the measuring instruments used in this study are not, as yet, widely researched in South Africa, the researcher would rather recommend that it would be beneficial for the South African stress-resistance literature if these instruments could be subjected to various tests(e.g. reliability computations and validity computations).

In addition, future research would yield interesting findings if the data could be analysed in terms of male-female divide, urban-rural divide, religious beliefs, etc. For instance, women and men have been found to differ in how they perceive stressful life events(Benishek, & Lopez, 1997). Okun, et al.(1988) found that hardiness was positively correlated with age, education, and being married in a sample of female secretaries employed by a university and noted that the relations between hardiness and demographic variables may vary with the composition of the sample. Korotkov(1993)found women to be more prone to heightened symptomatology than men.

Another interesting field of research would be to analyse data, with regards the aforementioned constructs, in terms of their dimensions and determine which dimensions would be stronger than

others in moderating the impact of stress in individuals.

5.3. Limitations of the study

This study was done only on the university sample. The sample was not representative of the whole population. Therefore, the results cannot be generalised to other sectors of the South African population.

Another limitation of this study is that there were ten (N=10) measuring instruments that were used to collect data at once. The instruments ranged between 12 and 59 items in length. Participants took a fairly long time to complete the questionnaires. It is highly possible that fatigue and perhaps loss of interest(due to the length of the instruments) might have had a negative bearing on the accuracy of data collection. This concern also cropped up in my discussion with other people who helped with the collection of data.

SUMMARY

The primary aim of the study was to compare the fortigenic constructs of the Sense of Coherence, Fortitude, Potency, Hardiness, Problem-Solving, and Ego-Resilience in terms of the psychometric properties of instruments that are used to measure them; their effects on the relationship between stress and psychological health and also to determine the extent to which these constructs have some common underlying dimensions.

These constructs were compared within the fortigenic paradigm which conceptualises health(both physical and psychological) in terms of the presence/existence of a positive aspect and not merely the absence of it.

Most of the measuring instruments that were used in this study have not been as widely used in South Africa as elsewhere. It follows then that testing for their reliabilities within the South African context was a necessity. It was hoped that results of these reliability tests as well as the stress-buffering/moderating effects of these constructs would contribute to the South African wellness literature.

In the present study, 125 male and female undergraduate psychology students enrolled at the University of the Western Cape

were sampled. The study involved participants from: both rural and urban backgrounds, different religious persuasions, and different linguistic backgrounds.

The sample completed the following instruments; the Potency Scale, the Life Experiences Survey, the Problem-solving Inventory, the Personal Views Survey, the Fortitude Questionnaire, the Ego-Resiliency Questionnaire, the Short Happiness and Affect Research Protocol, the Center for Epidemiological studies Depression Scale, the Vragenlist Onderzoek Ervaren Gezondheid, and the Orientation to Life Questionnaire.

All the instruments used in this study were found to have coefficient alphas of above .80, indicating that these instruments are highly reliable. These reliability levels are comparable with those reported in the previous studies.

The results of the multiple regression analyses revealed that potency, sense of coherence, and problem-solving demonstrated a significant health-sustaining role on physical symptoms, happiness, and depression. The results of the multivariate analysis showed that when examined together these fortigenic constructs differentiated significantly between the stress-resistant and distressed groups as measured against the backdrop of physical symptoms, depression, and happiness.

The moderated multiple regression analyses indicated that fortitude, potency, problem-solving, and sense of coherence had direct effect on the physical symptoms, depression, and happiness. With the exception of ego-resilience as used to predict depression and happiness, all variables(i.e. fortitude, potency, hardiness, problem-solving, and sense of coherence) showed no significant interaction effect.

Results of the principal factor analysis showed that the sense of coherence, potency, ego-resilience, problem-solving, hardiness, and fortitude loaded on one factor, indicating an overlap among these constructs.

In conclusion, the present study does not pretend to be conclusive. It is recommended that similar studies be undertaken and data analysed in terms of gender, religious persuasions, age, as well as in terms of the dimensions that make up the constructs.

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APPENDIX

INSTRUMENTS USED IN THE STUDY

1. INSTRUMENTS USED IN THE STUDY

A number of questionnaires are enclosed in this booklet. These questionnaires are aimed at exploring different facets of your experiences on and off campus.

These questionnaires are completely anonymous and we would like to urge you to complete them as honestly and as earnestly as possible.

The reliable use of these questionnaires are being investigated and in order to obtain reliable information we request you to complete the questionnaire at your own pace and as correctly as possible.
Remember that you responses cannot be traced back to you so that you should answer as honestly as possible. Dishonest responses or responses that do not reflect your view make the questionnaire useless.

Your cooperation is greatly appreciated.

BACKGROUND INFORMATION

Fill in your response on the dotted line:

1. Your sex .....
2. Your age .....
3. Size of your family.....
4. Your home language.....
5. Are you married?.....
6. Would you describe your home town as rural or urban?.....
7. Your religion.....
8. Are you studying full-time or part-time? .....

1.1 AFFECTIVE SCALE

For each of the following items please indicate how often you have felt this way during the last week.

3. Most or all of the time (5-7 days a week)
2. Occasionally or a moderate amount of time (3-4 days a week)
1. Some or a little of the time (1-2 days a week)
0. Rarely or none of the time (less than once a week)

1.	I was bothered by things that usually don't bother me	3	2	1	0
2.	I felt that everything I did was an effort	3	2	1	0
3.	I felt I was just as good as other people	3	2	1	0
4.	I had trouble keeping my mind on what I was doing	3	2	1	0
5.	I felt sad	3	2	1	0
6.	I felt fearful	3	2	1	0
7.	I felt lonely	3	2	1	0
8.	I had crying spells	3	2	1	0
9.	I talked less than usual	3	2	1	0
10.	My sleep was restless	3	2	1	0
11.	I enjoyed life	3	2	1	0
12.	I felt that I could not shake off the blues even with the help of my family/friends	3	2	1	0
13.	I thought my life had been a failure	3	2	1	0
14.	I was happy	3	2	1	0
15.	I could not get "going"	3	2	1	0
16.	I felt hopeful about the future	3	2	1	0
17.	People were unfriendly	3	2	1	0
18.	I did not feel like eating: my appetite was poor	3	2	1	0
19.	I felt depressed	3	2	1	0
20.	I felt that people disliked me	3	2	1	0

1.2 THE SHARP

These questions are about how things have been going for you lately.
Please answer yes or no to the following, by making a X over Y for yes and N for no.

During the past month have you felt...

1.	In high spirits?	Y	N
2.	Particularly content with your life?	Y	N
3.	Depressed or very unhappy?	Y	N
4.	Flustered as you didn't know what was expected of you?	Y	N
5.	Bitter about the way your life has turned out?	Y	N
6.	Generally satisfied with how your life has turned out?	Y	N

The next questions have to do with general life experiences.

7.	I am just as happy now as I was when I was younger	Y	N
8.	As I look back on my life, I am fairly well satisfied	Y	N
9.	Things are getting worse as I get older	Y	N
10.	Little things bother me more this year	Y	N
11.	Life is hard for me most of the time	Y	N
12.	I am satisfied with my life today	Y	N

I-3 PROBLEM SOLVING INVENTORY

This section asks how you normally react to personal difficulties and problems in your day to day life. We are not talking about math or science problems, but rather about personal problems such as feeling depressed, getting along with friends, choosing a vocation, or deciding whether to get a divorce. Please respond to the items as honestly as possible so as to most accurately portray how you handle such personal problems.

Please read each statement and indicate the extent to which you agree or disagree with the statement using the following alternatives:

To indicate your agreement:	***To indicate your disagreement:***
1 means STRONGLY AGREE	***4 means SLIGHTLY DISAGREE***
2 means MODERATELY AGREE	***5 means MODERATELY DISAGREE***
3 means SLIGHTLY AGREE	***6 means STRONGLY DISAGREE***

Mark your responses to the left of the statement
EXAMPLE _____ I like apricots: The 1 indicates strong agreement with the item.

_____1. When a solution to a problem was unsuccessful, I do not examine why it did not work
_____2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so that I can define exactly what the problem is.
_____3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.
_____4. After I have solved a problem, I do not analyze what went right and what went wrong.
_____5. I am usually able to think up creative and effective alternatives to solve a problem.
_____6. After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.
_____7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.
_____8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.
_____9. When I am confused with a problem, I do not try to define vague ideas or feelings into concrete or specific terms.
_____10. I have the ability to solve most problems even though initially no solution is immediately apparent.
_____11. Many problems I face are too complex for me to solve.
_____12. I make decisions and am happy with them later.
_____13. When confronted with a problem, I tend to do the first thing that I can think of to solve it.
_____14. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.
_____15. When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.
_____16. When confronted with a problem, I stop and think about it before deciding on a next step.
_____17. I generally go with the first idea that comes to mind.
_____18. When making a decision, I weigh the consequences of each alternative and compare them against each other.
_____19. When I make plans to solve a problem, I am almost certain that I can make them work.
_____20. I try to predict the overall result of carrying out a particualr course of action.
_____21. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.
_____22. In trying to solve a problem, one strategy I often use is to think of past problems that have been similar.
_____23. Given enough time and effort, I believe I can solve most problems that confront me.
_____24. When faced with a novel situation, I have confidence that I can handle problems that may arise.

____25. Even though I work on a problem, sometimes I feel like I am groping or wandering, and am not getting down to the real issue.
____26. I make snap judgements and later regret them.
____27. I trust my ability to solve new and difficult problems.
____28. I have a systematic method for comparing alternatives and making decisions.
____29. When I try to think of ways of handling a problem, I do not try to combine ideas together.
____30. When confronted with a problem, I do not usually examine what sort of external things in my environment may be contributing to my problem.
____31. When I am confronted by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.
____32. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problem.
____33. After making a decision, the outcome I expected usually matches the actual outcome.
____34. When confronted with a problem, I am unsure of whether I can handle the situation.
____35. When I become aware of a problem, one of the first things I do is to try to find out exactly what the problem is.

1.4 THE POT SCALE

Please read each of the following statement and indicate the extent to which you agree or disagree with the statement using the following alternatives:

To indicate your agreement:	***To indicate your disagreement:***
1 means STRONGLY AGREE	***4 means SLIGHTLY DISAGREE***
2 means MODERATELY AGREE	***5 means MODERATELY DISAGREE***
3 means SLIGHTLY AGREE	***6 means STRONGLY DISAGREE***

Write the number corresponding to your level of agreement or disagreement in the space in front of the item.

____1. I have little control over things that happen.
____2. I feel that I am being pushed around in life.
____3. I can do about anything I set my mind to.
____4. I often feel helpless in dealing with the problems of life.
____5. What happens to me in the future mostly depends upon me.
____6. There is really no way I can solve some of the problems I have.
____7. I certainly feel useless at times.
____8. All in all I am inclined to feel that I am a failure.
____9. I am able to do things as well as most other people.
____10. Nowadays a person has to live pretty much for today and let tomorrow take care of itself.
____11. In spite of what some people say the lot of the average man is getting worse and not better.
____12. It is hardly fair to bring children into the world with the way things look for the future.
____13. Party membership is more important than talent for achieving something in this society.
____14. Having the right connections is more important than talent for achieving something.
____15. Community leaders are indifferent to one's needs.
____16. Little can be accomplished in this society which is basically unpredictable and lacking order.
____17. Life goals are receding rather than being realized.
____18. Life is futile.
____19. Nowadays one cannot count even on closest personal associations for support.

15 The FORQ

Please indicate the extent to which the following statements applies to you and/or your situation.
Use the following scale ***1 = does not apply*** ***3 = applies a lot***
2 = applies slightly ***4 = applies very strongly***

Mark your responses to the left of the statement
EXAMPLE _1_ I like apricots: The 1 indicates that the statement does not apply to you.

_____1. I always feel pretty sure of myself
_____2. I take a positive attitude towards myself
_____3. I have no trouble making up my mind
_____4. I trust my ability to solve new and difficult problems.
_____5. On the whole I am satisfied with myself
_____6. In general, there are more than 5 people that I could really count on to be dependable when I need help.
_____7. I am very satisfied with the comfort and support that I get from others.
_____8. Learning about new and different things is very important in our family.
_____9. When making a decision, I weigh the consequences of each alternative and compare them against each other.
____10. I am very satisfied with the help and support that I get from those that I count on.
____11. I know that someone will always be around if I need assistance.
____12. There is plenty of time and attention for everyone in our family.
____13. My friends give me the moral support I need.
____14. I rely on my family for emotional support.
____15. I have a deep sharing relationship with a number of members of my family.
____16. Members of my family are good at helping me solve problems.
____17. In my family we tell each other about our personal problems.
____18. Activities in our family are pretty carefully planned.
____19. Friends often have good advice to give.
____20. At times I think I am no good at all.

16 ER89 QUESTIONNAIRE

Respond to the following statements using the scale:

1 = does not apply
2 = applies slightly, if at all
3 = applies somewhat
4 = applies very strongly

Make a X over the number of your choice.

1.	I am generous with my friends	1	2	3	4
2.	I quickly get over and recover from being startled	1	2	3	4
3.	I enjoy dealing with new and unusual situations	1	2	3	4
4.	I usually succeed in making a favourable impression on people	1	2	3	4
5.	I enjoy trying new foods I have never tasted before	1	2	3	4
6.	I am regarded as a very energetic person	1	2	3	4
7.	I like to take different paths to familiar places	1	2	3	4
8.	I am more curious than most people	1	2	3	4
9.	Most of the people I meet are likeable	1	2	3	4
10.	I usually think carefully about something before acting	1	2	3	4
11.	I like to do new and different things	1	2	3	4
12.	My daily life is full of things that keep me interested	1	2	3	4
13.	I would be willing to describe myself as a pretty "strong" personality	1	2	3	4
14.	I get over my anger at someone reasonably quickly	1	2	3	4

1.7 PERSONAL VIEWS SURVEY

Below are some items that you may agree or disagree with. Please indicate how you feel about each one by making a cross (X) over a number from 0 to 3 in the space provided. A *zero* indicates that you feel the item is not at all true; circling a *three* means that you feel the item is completely true.

As you will see, many of the items are worded very strongly. This is to help you decide the *extent* to which you agree or disagree.

Please read all the items carefully. Be sure to answer all on the basis of the way you feel now. Don't spend too much time on any item.

0 = Not at all true
1 = A little true
2 = Quite a bit true
3 = Completely true

1.	I often wake up eager to take up my life where it left off the day before	0	1	2	3
2.	I like a lot of variety in my work	0	1	2	3
3.	Most of the time, my bosses or superiors will listen to what I have to say	0	1	2	3
4.	Planning ahead can help avoid most future problems	0	1	2	3
5.	I usually feel that I can change what might happen tomorrow, by what I do today	0	1	2	3
6.	I feel uncomfortable if I have to make any changes in my everyday schedule	0	1	2	3
7.	No matter how hard I try, my efforts will accomplish nothing	0	1	2	3
8.	I find it difficult to imagine getting excited about working	0	1	2	3
9.	No matter what you do, the "tried and true" ways are always the best	0	1	2	3
10.	I feel that it's almost impossible to change my spouse's/partner's mind about something	0	1	2	3
11.	Most people who work for a living are just manipulated by their bosses	0	1	2	3
12.	New laws shouldn't be made if they hurt a person's income	0	1	2	3
13.	When you marry and have children you have lost your freedom of choice	0	1	2	3
14.	No matter how hard you work, you never really seem to reach your goals	0	1	2	3
15.	A person whose mind seldom changes can usually be depended on to have reliable judgement	0	1	2	3
16.	I believe most of what happens in life is just meant to happen	0	1	2	3
17.	It doesn't matter if you work at your job, since only the bosses profit by it anyway	0	1	2	3
18.	I don't like conversations when other are confused about what they mean to say	0	1	2	3
19.	Most of the time it just doesn't pay to try hard, since things never turn out right anyway	0	1	2	3
20.	The most exciting thing for me is my own fantasies	0	1	2	3
21.	I won't answer a person's questions until I am very clear as to what he/she is asking	0	1	2	3
22.	When I make plans I'm certain I can make them work	0	1	2	3
23.	I really look forward to my work	0	1	2	3
24.	It doesn't bother me to step aside for a while from something I'm involved in, if I'm asked to do something else	0	1	2	3
25.	When I am at work performing a difficult task I know when I need to ask for help	0	1	2	3

0 = Not at all true
1 = A little true
2 = Quite a bit true
3 = Completely true

26.	It's exciting for me to learn something about myself	0	1	2	3
27.	I enjoy being with people who are unpredictable	0	1	2	3
28.	I find it's usually very hard to change a friend's mind about something	0	1	2	3
29.	Thinking of yourself as a free person just makes you feel frustrated and unhappy	0	1	2	3
30.	It bothers me when something unexpected interrupts my daily routine	0	1	2	3
31.	When I make a mistake, there's very little I can do to make things right again	0	1	2	3
32.	I feel no need to try my best at work, since it makes no difference anyway	0	1	2	3
33.	I respect rules because they guide me	0	1	2	3
34.	One of the best ways to handle most problems is just not to think about them	0	1	2	3
35.	I believe that most athletes are just born good at sports	0	1	2	3
36.	I don't like things to be uncertain or unpredictable	0	1	2	3
37.	People who do their best should get full financial support from society	0	1	2	3
38.	Most of my life gets wasted doing things that don't mean anything	0	1	2	3
39.	Lots of times I don't really know my own mind	0	1	2	3
40.	I have no use for theories that are not closely tied to the facts	0	1	2	3
41.	Ordinary work is just too boring to be worth doing	0	1	2	3
42.	When other people get angry at me, it's usually for no good reason	0	1	2	3
43.	Changes in routing bother me	0	1	2	3
44.	I find it hard to believe people who tell me that the work they do is of value to society	0	1	2	3
45.	I feel that if someone tries to hurt me, there's usually not much I can do to try and stop him/her	0	1	2	3
46.	Most days, life just isn't very exciting for me	0	1	2	3
47.	I think people believe in individuality only to impress others	0	1	2	3
48.	When I'm reprimanded at work, it usually seems to be unjustified	0	1	2	3
49.	I want to be sure someone will take care of me when I get old	0	1	2	3
50.	Politicians run our lives	0	1	2	3

1.8 ORIENTATION TO LIFE

Each question below has seven possible answers. Please mark the number which expresses your answer, with 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently than either 1 or 7 circle, the number which best expresses your feelings.

1. When you talk to people, do you have the feeling that they don't understand you?

1	2	3	4	5	6	7
never have this feeling						Always have this feeling

2. In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:

1	2	3	4	5	6	7
surely would not get done						Surely would get done

3. Think of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them?

1	2	3	4	5	6	7
you feel that they're strangers						You know them very well

4. Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
very seldom or never						Very often

5. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew

1	2	3	4	5	6	7
never happened						Always Happened

6. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
never happened						Always Happened

7. Life is:

1	2	3	4	5	6	7
full of interest						Completely Routine

8. Until now your life has had:

1	2	3	4	5	6	7
no clear goals or purpose at all						Very clear goals and purpose

9. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
very often						Very seldom or never

10. In the past ten years your life has been:

1	2	3	4	5	6	7
full of change without you knowing what will happen next						Completely consistent and clear

11. Most of the things you do in the future will probably be:

1	2	3	4	5	6	7
completely fascinating						Deadly boring

12. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5	6	7
very often						Very seldom Or never

13. What best describes how you see life:

1	2	3	4	5	6	7
one can always find a solution to painful things in life						There is no Solution to Painful things In life

14. When you think about your life, you very often:

1	2	3	4	5	6	7
feel how good it is to be alive						Ask yourself why you exist at all

15. When you face a difficult problem, the choice of a solution is:

1	2	3	4	5	6	7
always confusing and hard to find						Always completely clear

16. Doing the things you do every day is:

1	2	3	4	5	6	7
a source of deep pleasure and satisfaction						A source of pain and boredom

17. Your life in the future will probably be:

1	2	3	4	5	6	7
full of changes without your knowing what will happen next						Completely consistent and clear

18. When something unpleasant happened in the past your tendency was:

1	2	3	4	5	6	7
"To eat yourself up" about it						To say "ok, That's that, I have to live with it, and go on

19. Do you have very mixed-up feelings and ideas?

1	2	3	4	5	6	7
very often						Very seldom Or never

20. When you do something that gives you a good feeling:

1	2	3	4	5	6	7
it's certain that you'll go on feeling good						It's certain that something will happen to spoil the feeling

21. Does it happen that you have feelings inside you would rather not feel?

1	2	3	4	5	6	7
very often						Very seldom Or never

22. You anticipate that your personal life in the future will be:

1	2	3	4	5	6	7
totally without meaning or purpose						Full of meaning and purpose

23. Do you think that there will always be people whom you'll be able to count on in the future?

1	2	3	4	5	6	7
you're certain there will be						You doubt there will be

24. Does it happen that you have the feeling that you don't know exactly what's about to happen?

1	2	3	4	5	6	7
very often						Very seldom Or never

25. Many people - even those with a strong character - sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
never						Very often

26. When something happened, have you generally found that:

1	2	3	4	5	6	7
you oversti-mated or under-estimated its importance						You saw things in the right proportion

27. When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:

1	2	3	4	5	6	7
you will always succeed in over-coming the difficulties						You won't succeed in over-coming the difficulties

28. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
very often						Very seldom or never

29. How often do you have feelings that you're not sure you can keep under control?

1	2	3	4	5	6	7
very often						Very seldom

In the following questionnaire several common symptoms or bodily sensations are listed. Most people have experienced them at one time or another.

Next to each item circle yes or no, indicating wether you experienced that symptom in the past year or not. **Remember we are only interested in symptoms you have experienced in the past year.**

Do you often suffer from coughs/coughing?	Yes	No
Do you sometimes suffer from pain in the chest or in the region of the heart?	Yes	No
Do you often experience cold fingers, hands or feet?	Yes	No
Do you have less of an appetite than what you normally have?	Yes	No
Do you sometimes experience a bloated feeling, or a sensation of pressure in your upper abdominal area?	Yes	No
Do you become short of breath quickly?	Yes	No
Do you often experience either a sweet, or unpleasant taste in your mouth?	Yes	No
Do you sometimes experience teary or sensitive eyes?	Yes	No
Do you suffer from ringing ears?	Yes	No
Are you feeling fit as of late?	Yes	No
Do you often have to clear your throat?	Yes	No
Is you nose often blocked/congested?	Yes	No
Do you often suffer hunger pangs?	Yes	No
Do you sometimes experience a suffocating feeling in your chest?	Yes	No
Do you have complaints of pain in your bones or muscles?	Yes	No
Are your bowl movements regular?	Yes	No
Do you often suffer from a feeling of tiredness?	Yes	No
Do you sometimes sweat heavily, even if it is not warm?	Yes	No
Do you sometimes suffer from itching?	Yes	No
Do you sometimes suffer headaches?	Yes	No
Do you sometimes experience dizziness?	Yes	No
Do you from time to time suffer from any abdominal discomfort?	Yes	No
Do you sometimes feel dull or sleepy?	Yes	No
Do you sometimes experience numbness or tingling in your limbs?	Yes	No
Are you often become excited?	Yes	No
Do you think of yourself as too thin?	Yes	No
Do you think of yourself as too fat?	Yes	No
Do you sometimes feel listless?	Yes	No
Do you sometimes find yourself making little accidents?	Yes	No
When you drink does the effects of alcohol set in quicker now than before? (If you are not a drinker circle 'no'	Yes	No
Are you easily stirred emotionally?	Yes	No
Are you sometimes tired after a strenuous day?	Yes	No
Do you often suffer from trembling/shaking hands?	Yes	No
Do you fall asleep quickly when you are tired?	Yes	No
Do you sometimes suffer heart palpitations or throbbings in the region of your heart?	Yes	No
Do you become excessively thirsty sometimes?	Yes	No
Do you sometimes experience pain in your upper abdominal area?	Yes	No
Do you often experience pain in or around your eyes?	Yes	No
Do you often suffer from sneezing?	Yes	No
Do you fall asleep immediately and do you sleep well?	Yes	No
Do you suffer from weak or painful feet?	Yes	No
Do you often suffer from pimples?	Yes	No
Do you often become nervous?	Yes	No
Do often feel that you are still tired, or that you had insufficient rest after sleep?	Yes	No
Do you often experience runny/upset stomach?	Yes	No
Do you sometimes suffer backpain?	Yes	No
Do you sometimes suffer from sleeplessness?	Yes	No

4. LIFE EXPERIENCES SURVEY

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of - 3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of + 3 would indicate an extremely positive impact.

Use the following scale:

-3	=	*Extremely Negative Impact*
-2	=	*Moderately Negative Impact*
-1	=	*Somewhat Negative Impact*
0	=	*No Impact*
+1	=	*Slightly Positive Impact*
+2	=	*Moderately Positive Impact*
+3	=	*Extremely Positive Impact*

For example the following rating:

Lost a friend ___ ___ *-3 -2 -1 0 +1 +2 +3*

indicates that this was experienced within the last six months and had an extremely negative impact.

NB: respond only to those items that apply to you

		0-6 Mo	7-12 Mo	NEGATIVE				POSITIVE		
1.	Marriage	___	___	-3	-2	-1	0	+1	+2	+3
2.	Detention in jail or comparable institution	___	___	-3	-2	-1	0	+1	+2	+3
3.	Death of spouse	___	___	-3	-2	-1	0	+1	+2	+3
4.	Major change in sleeping habits (much more or much less sleep)	___	___	-3	-2	-1	0	+1	+2	+3
5.	Death of a close family member:									
	a. mother	___	___	-3	-2	-1	0	+1	+2	+3
	b. father	___	___	-3	-2	-1	0	+1	+2	+3
	c. brother	___	___	-3	-2	-1	0	+1	+2	+3
	d. sister	___	___	-3	-2	-1	0	+1	+2	+3
	e. grandmother	___	___	-3	-2	-1	0	+1	+2	+3
	f. grandfather	___	___	-3	-2	-1	0	+1	+2	+3
	g. other (specify)	___	___	-3	-2	-1	0	+1	+2	+3
6.	Major change in eating habits (much more or much less food intake)	___	___	-3	-2	-1	0	+1	+2	+3

		0-6 Mo	7-12 Mo	NEGATIVE				POSITIVE		
7.	Foreclosure on mortgage or loan.....	___	___	-3	-2	-1	0	+1	+2	+3
8.	Death of close friend.....	___	___	-3	-2	-1	0	+1	+2	+3
9.	Outstanding personal achievement.....	___	___	-3	-2	-1	0	+1	+2	+3
10.	Minor law violations (traffic tickets, disturbing the peace, etc).....	___	___	-3	-2	-1	0	+1	+2	+3
11.	Male: Wife/girlfriend's pregnancy.....	___	___	-3	-2	-1	0	+1	+2	+3
12.	Female: Pregnancy.....	___	___	-3	-2	-1	0	+1	+2	+3
13.	Changed work situation (different work responsibility, major change in working conditions, working hours, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
14.	New job.....	___	___	-3	-2	-1	0	+1	+2	+3
15.	Serious illness or injury of close family member:									
	a. father.....	___	___	-3	-2	-1	0	+1	+2	+3
	b. mother.....	___	___	-3	-2	-1	0	+1	+2	+3
	c. sister.....	___	___	-3	-2	-1	0	+1	+2	+3
	d. brother.....	___	___	-3	-2	-1	0	+1	+2	+3
	e. grandfather.....	___	___	-3	-2	-1	0	+1	+2	+3
	f. grandmother.....	___	___	-3	-2	-1	0	+1	+2	+3
	g. spouse.....	___	___	-3	-2	-1	0	+1	+2	+3
	h. other (specify).....	___	___	-3	-2	-1	0	+1	+2	+3
16.	Sexual difficulties.....	___	___	-3	-2	-1	0	+1	+2	+3
17.	Trouble with employer (in danger of losing job, being suspended, demoted, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
18.	Trouble with in-laws.....	___	___	-3	-2	-1	0	+1	+2	+3
19.	Major change in financial status (a lot better off or a lot worse off).....	___	___	-3	-2	-1	0	+1	+2	+3
20.	Major change in closeness of family members (increased or decreased closeness).....	___	___	-3	-2	-1	0	+1	+2	+3
21.	Gaining a new family member (through birth, adoption, family member moving in, etc).....	___	___	-3	-2	-1	0	+1	+2	+3
22.	Change of residence.....	___	___	-3	-2	-1	0	+1	+2	+3
23.	Marital separation from mate (due to conflict).	___	___	-3	-2	-1	0	+1	+2	+3
24.	Major change in church activities (increased or decreased attendance).....	___	___	-3	-2	-1	0	+1	+2	+3
25.	Marital reconciliation with mate.....	___	___	-3	-2	-1	0	+1	+2	+3
26.	Major change in number of arguments with spouse (a lot more or a lot less arguments).....	___	___	-3	-2	-1	0	+1	+2	+3
27.	Married Male: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
28.	Married Female: Change in husband's work (loss of job, beginning new job, retirement, etc.)...	___	___	-3	-2	-1	0	+1	+2	+3
29.	Major change in usual type and/or amount of recreation.....	___	___	-3	-2	-1	0	+1	+2	+3
30.	Borrowing more than R10,000 (buying home, TV, getting school loan, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
31.	Borrowing less than R10,000 (buying car, TV, getting school loan, etc.).....			-3	-2	-1	0	+1	+2	+3

		0-6 Mo	7-12 Mo	NEGATIVE				POSITIVE		
32.	Being fired from job.....	___	___	-3	-2	-1	0	+1	+2	+3
33.	Male: Wife/Girlfriend having abortion.....	___	___	-3	-2	-1	0	+1	+2	+3
34.	Female: Having abortion.....	___	___	-3	-2	-1	0	+1	+2	+3
35.	Major personal illness or injury.....	___	___	-3	-2	-1	0	+1	+2	+3
36.	Major change in social activities, e.g., parties, movies, visiting, (increased or decreased participation).....	___	___	-3	-2	-1	0	+1	+2	+3
37.	Major change in living conditions of family (building new home, remodeling, deterioration of home, neighbourhood, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
38.	Divorce.....	___	___	-3	-2	-1	0	+1	+2	+3
39.	Serious injury or illness of close friend.....	___	___	-3	-2	-1	0	+1	+2	+3
40.	Retirement from work.....	___	___	-3	-2	-1	0	+1	+2	+3
41.	Son or daughter leaving home (due to marriage, college, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
42.	Ending of formal schooling.....	___	___	-3	-2	-1	0	+1	+2	+3
43.	Separation from spouse (due to work, travel, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
44.	Engagement.....	___	___	-3	-2	-1	0	+1	+2	+3
45.	Breaking up with boyfriend/girlfriend.....	___	___	-3	-2	-1	0	+1	+2	+3
46.	Leaving home for the first time.....	___	___	-3	-2	-1	0	+1	+2	+3
47.	Reconciliation with boyfriend/girlfriend.....	___	___	-3	-2	-1	0	+1	+2	+3

Other recent experiences which have had an impact on your life. List and rate.

48.	.....	___	___	-3	-2	-1	0	+1	+2	+3
49.	.....	___	___	-3	-2	-1	0	+1	+2	+3
50.	.....	___	___	-3	-2	-1	0	+1	+2	+3
51.	Beginning a new school experience at a higher academic level (college, university , technikon etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
52.	Changing to a new school at same academic level (undergraduate, graduate, etc.).....	___	___	-3	-2	-1	0	+1	+2	+3
53.	Being dismissed from hostel or other residence.....	___	___	-3	-2	-1	0	+1	+2	+3
54.	Failing an important exam.....	___	___	-3	-2	-1	0	+1	+2	+3
55.	Changing a major.....	___	___	-3	-2	-1	0	+1	+2	+3
56.	Failing a course.....	___	___	-3	-2	-1	0	+1	+2	+3
57.	Dropping a course.....	___	___	-3	-2	-1	0	+1	+2	+3
58.	Joining a club/society.....	___	___	-3	-2	-1	0	+1	+2	+3
59.	Financial problems concerning studies (in danger of not having sufficient money to continue).....	___	___	-3	-2	-1	0	+1	+2	+3