

**WORK WELLNESS IN A UNIVERSITY OF TECHNOLOGY IN SOUTH
AFRICA**

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DEDICATION

I TRUST GOD

*“For I am the Lord Your God who takes hold of your right hand,
and who says to you, do not fear, I will help you” (Isaiah 41:13)*

**“Without trust, there can be no faith.
Without faith, you will hold on to what you know.
In the process, you will not be making any progress.”**

Iyanla Vanzant

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SUMMARY

Topic: Work wellness in a university of technology in South Africa.

Key terms: Well-being, higher education, university of technology, distress, eustress, work engagement, occupational stress, ill health, organisational commitment.

Change and transformation in higher education institutions worldwide are advancing at a rate that institutions and individual employees find hard to comprehend. During the past two decades, complex changes challenging institutions' mandates, traditional practices, authority and organisational structures have surfaced. It is widely acknowledged that stable and productive higher education institutions are vitally important to any country in order to ensure sustainable economic, social and political reconstruction and development.

In the South African context, higher education institutions have an additional duty to contribute to the consolidation of democracy and social justice as well as the growth and development of the economy and redress the imbalances institutionalised by apartheid. The responsibility to execute the institutional strategies and plans to adapt to changes and to transform rests primarily with the staff of these institutions. However, the above-mentioned changes present major challenges for staff as it results in a multiplicity of roles, expectations to make paradigm shifts, implementation of new policies and practices as well as constant innovation. These challenges may be considered a healthy diversification leading to eustress and engagement, or a toll, which may well be an important cause of distress and burnout. Consequently, staffs' experience of distress/burnout and eustress/engagement, i.e. their work-related well-being, is crucially important to the success of the institution.

The general objective of this research was to assess the work wellness of staff at a university of technology, and to understand the relationships between factors contributing to the experience of distress/burnout and eustress/engagement and how these relate to employees' levels of commitment and ill health. Furthermore, the study aimed to develop and test a comprehensive structural model of work related well-being to determine the effect of job demands and (lack of) job resources on distress, eustress, ill health and commitment of employees at a university of technology in South Africa.

The findings are presented in three research articles, each consisting of a brief literature review and an empirical study. A cross-sectional survey design was used. The study included 353 participants (132 academic staff members and 221 support staff members). The questionnaire used in the empirical study comprised the Maslach Burnout Inventory-General Survey (MBI-GS), the Cognitive Weariness Scale (CWS), the Utrecht Work Engagement Scale (UWES), An Organizational Stress Screening Tool (ASSET), the Life Orientation Test-Revised (LOT-R), the Job Demands-Resources Scale (JDERS) and a biographical questionnaire.

Structural equation modelling confirmed a four-factor structure of burnout, and a two-factor structure of work engagement. Principal component analysis indicated that work-related well-being consists of a dual bipolar structure namely Eustress/Engagement (vigour, dedication, professional efficacy) and Distress/Burnout (exhaustion, cynicism, cognitive weariness). It was found that language was the only reliable background variable to predict differences in levels of distress/burnout and eustress/engagement between subgroups. Different organisational stressors were found to contribute significantly to psychological and physical ill health and low organisational commitment. The comprehensive structural model that was tested showed that job demands lead to distress, which in turn leads to ill health. Furthermore, job resources contributed to work wellness and organisational commitment whilst dispositional optimism has a limited effect on staff's distress.

Recommendations for the institution and future research are made.

OPSOMMING

Onderwerp: Werkwelstand binne 'n universiteit van tegnologie in Suid-Afrika.

Sleutelwoorde: Welstand, hoër onderwys, universiteit van tegnologie, stres, kognitiewe vermoeidheid, eustres, werkbegeestering, swak gesondheid, organisasieverbondenheid.

Verandering en transformasie in hoër onderwysinstellings wêreldwyd geskied tans teen so 'n vinnige tempo dat instellings en individuele werknemers sukkel om dit te begryp. Gedurende die afgelope twee dekades het komplekse veranderinge plaasgevind wat die mandate, tradisionele praktyke, outoriteit en organisasiestrukture van die instellings bevraagteken het. Daar word algemeen erken dat stabiele en produktiewe hoër onderwysinstellings uiters belangrik in enige land is om volhoubare ekonomiese ontwikkeling, sosiale en politieke rekonstruksie en ontwikkeling te bewerkstellig.

In die Suid-Afrikaanse konteks het hoër onderwysinstellings 'n bykomende verantwoordelikheid om 'n bydrae te lewer tot die konsolidering van demokrasie en sosiale geregtigheid, die uitbouing en ontwikkeling van die ekonomie en die regstelling van wanbalanse wat deur apartheid geïnstitusioneel is. Die verantwoordelikheid vir die uitvoering van hierdie institusionele strategieë en die planne om by die veranderinge aan te pas en om te transformeer, berus hoofsaaklik by die personeel van genoemde instellings. Hierdie veranderinge hou egter belangrike uitdagings vir die personeel in omdat dit lei tot meervoudige rolle, verwagtinge om paradigmaskuiwe te maak, implementering van nuwe beleid en praktyke, asook voortdurende innovasie. Hierdie uitdagings kan beskou word as 'n gesonde afwisseling wat eustres en werkbegeestering tot gevolg het, of 'n eis wat net sowel 'n oorsaak van inspanning kan wees en dus tot stres en uitbranding kan lei. Gevolglik is personeel se belewing van stres ("distress") asook as eustres ("eustress"), met ander woorde hulle werkverwante welstand, baie belangrik vir die sukses van onderwysinstellings.

Die algemene doelstelling van hierdie navorsing was eerstens om die werkverwante welstand van personeel by 'n universiteit van tegnologie te bepaal, en tweedens om die verhoudinge tussen die faktore wat tot die belewing van stres en uitbranding sowel as eustres en werkbegeestering bydra, te begryp. In die derde plek is daar ondersoek ingestel na die invloed van hierdie faktore op werknemers se vlakke van organisasieverbondenheid en swak

gesondheid. Die studie het verder gepoog om 'n omvattende strukturele model van werkverwante welstand te ontwikkel en daardeur die invloed van werkseise en (gebrek aan) werkhulpbronne op stres, eustres, swak gesondheid en organisasieverbondenheid van personeel by 'n universiteit van tegnologie in Suid-Afrika te bepaal.

Die bevindinge word in drie navorsingsartikels aangebied en elkeen bestaan uit 'n bondige literatuuroorsig en 'n empiriese studie. 'n Dwarsnee-opname-ontwerp is gebruik. Die studie het 353 deelnemers (132 akademiese personeellede en 221 ondersteuningsdienste personeellede) ingesluit. Die vraelys wat in die empiriese studie gebruik is het bestaan uit die Maslach Uitbrandingsvraelys - Algemene Opname (MBI-GS), die Kognitiewe Vermoeidheidvraelys (CWS), die Utrecht Werkbegeesteringskaal (UWES), 'n Organisasiestresgraderingsinstrument (ASSET), die Lewensoriëntasietoets - Hersiene Weergawe (LOT-R), die Werkseise-werkhulpbronnenskaal (JDRS) en 'n biografiese vraelys.

Strukturele vergelykingsmodellering het 'n vierfaktorstruktuur van uitbranding en 'n tweefaktorstruktuur van werkbegeestering bevestig. Hoofkomponente faktorontleding het aangedui dat werkverwante welstand uit 'n tweeledige, bipoelêre struktuur bestaan, naamlik Eustres/Werkbegeestering (energie, toewyding, professionele doeltreffendheid) en Stres/Uitbranding (uitputting, sinisme, kognitiewe vermoeidheid). Daar is bevind dat taal die enigste agtergrondveranderlike is om verskille in vlakke van stres/uitputting en eustres/werkbegeestering tussen subgroepe te voorspel. Verskillende organisasiestressors het 'n beduidende bydrae tot psigologiese en fisieke swak gesondheid en lae organisasieverbondenheid gelewer. Die omvattende strukturele model wat getoets is, het getoon dat werkseise tot stres lei, wat weer tot swak gesondheid lei. Werkhulpbronne het verder tot werkwelstand en organisasieverbondenheid bygedra terwyl disposisionele optimisme 'n beperkte effek op personeel se vlakke van welstand gehad het.

Aanbevelings vir die instelling en toekomstige navorsing word aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This thesis deals with the work wellness of staff at a university of technology in South Africa. The focus is specifically on the work-related well-being of staff and how this is affected by factors such as distress, eustress, job demands, job resources, and dispositional optimism, as well as the impact of these factors on employees' levels of commitment and health.

In this chapter, the background to the study is provided and the problem statement is discussed. Furthermore, the research objectives are set out and the research method is explained. The chapter concludes with a brief overview of the chapters of this thesis.

1.1 PROBLEM STATEMENT

Change and transformation in *higher education* institutions worldwide are advancing at a rate that institutions and individual employees find hard to comprehend (Mapesela, 2004). Changes relate to issues such as changing policy imperatives, massification of higher education, widened access and the need for redress, responses to new demands in technology, globalisation, internationalisation, increased accountability, the use of new modes of delivery and materials, increased demand for research relevant to the needs of society and dwindling financial resources (Green & Hayward, 1997; Van der Wende, 2001).

In South Africa, higher education is seen to have a duty to contribute to the consolidation of democracy and social justice as well as the growth and development of the economy (Favish, 2003). According to Khosa (1996), the higher education sector also needs to contribute to the social, economic and scientific development of people. The White Paper of 1997 (DoE, 2001) furthermore outlines the expected contributions of these institutions to social, economic, cultural and intellectual life; provision of high-level skills training and continuous technological improvement and innovation as key aspects of higher education in a knowledge-driven world.

Specific changes that have taken place since 1994 in the higher education sector in South Africa include the influx of black students to historically white institutions (Gultig, 2000);

regional collaboration and formations of consortia among institutions (Reddy, 2000; Hay, Fourie, & Hay, 2001); imperatives upon institutional governance enshrined in the Higher Education Act of 1997 (Nadison, 2000); redress, affirmative action, democratisation of the workplace, and quality assurance. In addition, educators have to cope with demands such as rationalisation, increasing specialisation and increasing student numbers (Niehaus, Myburgh, & Kok, 1995).

These changes affect employees in various ways and challenge them to constantly cope and adapt. In this regard, Weber (1999) mentions that it has a huge impact on the traditional roles of employees and that in some instances, working conditions have become unfavourable and unsupportive towards staff's efforts in pursuing the vision and mission of institutions. Hellriegel, Slocum, and Woodman (2001), Mestry (1999) and Tennant (2001) support this view by noting that consequences of these changes (e.g. financial predicaments, increased demands placed on staff, insecurity about the future and rapid changes) are unavoidable and causing increasing emotional turmoil and stress for employees.

Information regarding stress experienced by employees of higher education institutions in South Africa is not in abundance (Abouserie, 1996). However, a study conducted at a higher education institution in South Africa (Coetzee & Rothmann, 2004) found that employees, compared to the normative data, reported significantly higher levels of physical ill health and psychological outcomes of stress. Studies in other countries have shown that educators often experience high levels of stress and burnout (Byrne, 1991). University educators are likely candidates for burnout because of their relationship with large numbers of students, staff and administrators (Blix, Cruise, Mitchell, & Blix, 1994; Meléndez & De Guzmán, 1983; Seiler & Pearson, 1984). High self-expectations, finding financial support for research, insufficient time, a heavy workload, low pay and striving for publication are among the most troublesome stressors reported (Wissing, Du Toit, & Rothmann, 2002).

Blix et al. (1994) showed that research-related activities were considered more stressful than either teaching or service delivery. According to Singh, Mishra, and Dongwook (1998), many academics lose interest in research as they continue to work in their institutions, making burnout a significant problem in higher education. In South Africa, academic staff is not only confronted with demands relating to teaching, community service and research, they also have to conform and adapt to the demands associated with transformation and change of the

higher education sector. Demands such as these all contribute to feelings of insecurity and stress in the academic context (Houghton, 2001; Olivier, 2005).

Stress has become a major topic of research throughout the world (Kyriacau, 2001). According to Nikolaou and Tsaousis (2002), the most common definitions of stress may be categorised into three types. The first is stimulus-based, which views stress as a situational or environmental-based stimulus, impinging upon the person. The second is response-based, viewing stress as an individual's psychological or physiological response to environmental/situational forces. The third is an interactive approach, often named the stressor-strain approach, defining stress as both the stimulus (the source of stress) and the response (the outcome of stress), which is consistent with the manner in which stress is conceptualised in this research.

Theories based on the latter definition of stress is usually accepted as being the more superior, given that it provides a more comprehensive view of the dynamics of stress. Varca (1999) explains stress as a gap between environmental demands and personal resources to meet those demands. Anderson, Litzenberger, and Plecas (2002) explain that stress is a response of an individual to the self-perceived imbalance between the demands of the situation presented, and the resources he/she has to respond successfully. In other words, the stressfulness of the situation will depend on the individual's perception of the difference between the demands of the situation and his/her ability to meet those demands.

Stress is not only negative and some degree of stress is considered healthy. This is referred to as *eustress*, for it can "promote survival at a time of crisis" (Jones & Bright, 2001, p. 47). It can furthermore increase individuals' performance and help them to realise their potential (Schafer, 2000). Eustress, the "healthy" stressor, is referred to in the literature as experiences of pleasure, enjoyment, satisfaction, ecstasy or fulfilment that occur during some stress reactions (Selye & Tache, 1979). However, "unhealthy" stress, referred to as *distress*, is a state of discomforting tension, conflict or psychological pressure (Budzinski & Peffer, 1980) and has become the illness of our time (Schafer, 2000). With reference to stress, distress and eustress, Lazarus (1988) suggested that environmental events and individual characteristics combine to shape cognitive appraisals. Furthermore, he noted that cognitive appraisals classify such events as either a challenge ("eustress") or a threat ("distress"). He stated that

the difference lies in the perceived opportunity for positive mastery of a situation or in the actual or perceived potential of an event to cause harm.

Stress should not be confused with burnout. Schaufeli and Enzmann (1998) propose that burnout can be considered as a particular kind of prolonged job stress. An individual experiences job stress when the demands of the workplace exceed his or her adaptive responses. Burnout is a particular, multidimensional and chronic stress reaction that goes beyond the experience of mere exhaustion. The literature revealed that occupational stress is conceptualised as the adverse emotional and physical reaction employees have to any source of pressure in their environment and that these stress reactions negatively affect personal health and organisational effectiveness.

Burnout, as an indicator of *distress* (Bourbonnais, Comeau, Vézina, & Dion, 1998), is a negative work-related psychological state that is primarily characterised by mental exhaustion and has been intensively studied for the past 30 years (Schaufeli, 2003; Shirom, 1993). Burnout is primarily characterised by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviours at work (Schaufeli & Enzmann, 1998). Burnout is a stress-induced problem that does not involve a specific feeling, attitude, or physiological outcome and is not anchored in a specific point in time (Maslach & Schaufeli, 1993). Distress, in the same sense, refers to baleful effects of stress with long-term negative impacts (Selye, 1974).

Weisberg (1994) states that burnout occurs when one can no longer tolerate occupational pressures and feel overwhelmed by stress. Maslach (1982), Maslach, Jackson, and Leiter (1996) and Maslach, Schaufeli, and Leiter (2001) regard burnout as a syndrome consisting of three dimensions, namely exhaustion, cynicism and reduced professional efficacy. Exhaustion, the stress dimension of burnout, refers to feelings of reduction in emotional resources and prompts the worker to distance him/herself emotionally from his/her work, presumably as a way to cope with work overload. The exhaustion component predicts stress-related health consequences and refers to feelings of being overextended and drained of one's emotional and physical resources. Over time, emotional exhaustion leads to depersonalisation, which is a state of psychological withdrawal from one's job. This ultimately results in a feeling of being unappreciated, ineffective, or inadequate (Kreitner & Kinicki, 1995). Cynicism refers to an increase in negative, cynical and insensitive attitudes

towards colleagues and clients and a detached response to various aspects of the job. Reduced professional efficacy refers to feelings of insufficiency, incompetence, lack of achievement and feelings of unproductiveness.

Most of the research on burnout have utilised the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986; Schaufeli & Enzmann, 1998). Currently the MBI is standardised for various occupational groups in South Africa (Rothmann, 2002). More information is necessary regarding the components of burnout in higher education institutions. This will make it possible to assess the levels of burnout of employees at higher education institutions and to compare their levels of burnout with the national or international norm. Furthermore, it is difficult to identify burnout at an early stage, and the implementation of intervention programmes is hampered by a lack of South African benchmarks for the MBI.

The new trend in burnout research seems to shift towards its opposite, namely work engagement. Researchers recently extended their interest to the positive pole of employees' well-being, instead of looking exclusively at the negative pole. Seen from this perspective, burnout is rephrased as an erosion of engagement with the job (Schaufeli, Salanova, González-Romá, & Bakker, 2002). This development indicates an emerging trend towards "positive" psychology that focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000).

Engagement, as an indicator of *eustress* (Bourbonnais et al., 1998), is identified as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour. Engaged employees view themselves as competent in dealing with the demands of their jobs and they are energetic and have a sense of effective connection with their work activities. According to Schaufeli et al. (2002), vigour refers to having high energy levels, demonstrating resilience with regard to work activities, investing effort in one's work and persistence throughout difficult circumstances. Dedication includes a sense of significance, enthusiasm, inspiration, pride and challenge, while absorption is characterised by full concentration on and engrossment in one's work and finding it difficult to detach oneself from work.

Studies on engagement have utilised the Utrecht Work Engagement Scale (UWES), which was developed by Schaufeli et al. (2002) to measure engagement. In a study to determine the psychometric properties of the UWES for academic staff in South African higher education, (Barkhuizen & Rothmann, 2006b) found acceptable internal consistency in the vigour and dedication subscales, but the absorption subscale was below the 0,70 guideline. Investigation into the factorial structure of the UWES proved Items 9 and 12 to be problematic. These findings are also consistent with previous findings by Naudé and Rothmann (2004) and Jackson (2004). Further validation of the UWES for staff of higher education institutions in South Africa could enable effective assessment of engagement levels, and make comparisons with various other demographic groups possible.

Considerable evidence exists that particular work stressors influence burnout (Burke, 1993). According to Schaufeli and Enzmann (1998), organisational stressors can be divided into two groups, namely *job demands* and (lack of) *job resources*. Various studies confirm the relationship between burnout, job demands and resources. In a proposed process model of burnout, Leiter (1991, 1993) found that job demands are more strongly related to exhaustion, while a lack of job resources is more strongly related to cynicism and professional efficacy. Taris, Schreurs, and Schaufeli (1999) found that job demands were more strongly related to exhaustion, while cynicism and professional efficacy were related to the resource variables. Peeters and Le Blanc (2001) found that organisational demands relate only to exhaustion. It could therefore be expected that job demands will associate strongly with exhaustion, while a lack of resources will be strongly associated with lower professional efficacy.

Demerouti, Bakker, Nachreiner, and Schaufeli (2001) developed the Job Demand-Resources (JD-R) model and confirmed that job demands are associated with exhaustion, whereas lacking job resources are associated with disengagement. Schaufeli and Bakker (2004) expanded the JD-R model by including engagement and by adding indicators for health impairment and organisational withdrawal in their proposed Comprehensive Burnout and Engagement (COBE) model. The COBE model assumes two psychological processes, namely an energetic and a motivational process. The energetic process links job demands with health problems through burnout, while the motivational process links job resources with organisational outcomes through burnout. Job resources may play either an intrinsic motivational role (by fostering the employee's growth, learning and development), or it may play an extrinsic motivational role (by being instrumental in achieving work goals). In either

case, be it through the satisfaction of basic needs or through the achievement of work goals, the outcome is positive and engagement – a fulfilling positive work-related state of mind – is likely to occur. Moreover, it is plausible to assume that engaged workers have a low tendency to leave the organisation because the organisation provides them with job resources that not only enable them to achieve their work goals, but that also provide opportunities for learning, growth, and development (Schaufeli & Bakker, 2004).

Mullins (1999) explains that what is perceived as stress by one individual, can be excitement or an energizer for another. Although stress may activate some people and result in possible positive behavioural consequences, for others it may have an immobilising effect. Based on these individual differences, optimism might moderate the effects of stress.

Dispositional optimism can be explained as the degree to which an individual has a positive expectation of his/her future (Scheier & Carver, 1987). It can also be defined as a person's positive outlook on life events (Ebert, Tucker, & Roth, 2002; Scheier, Carver, & Bridges, 1994). In a hierarchical multiple regression analysis done by Fry (1995), evidence was found that optimism significantly moderates the relationship between daily hassles and self-esteem maintenance, burnout and physical illness. Optimism is furthermore also associated with improved immune functioning and lower neuroticism scores (Ebert et al., 2002; Scheier et al., 1994; Segerstrom, Taylor, Kemeny, & Fahey, 1998; Shea, Burton, & Girgis, 1993). This personality trait is also described as a psychological resistance factor, which could be used to conceptualise individual differences and are related to more positive outcomes (Ebert et al., 2002). Positive outcomes predicted by optimism include coping with major life stresses, adjusting to major life transitions, and responding more positively to minor stresses (Hasan & Power, 2002).

Reker and Wong (1988) have proposed that the cognitive appraisals of stressful situations and the coping patterns of optimistic individuals differ from those of individuals who are pessimistic or lacking in optimism. Reker and Wong (1988) demonstrated that optimists, as compared to pessimists, appraised situations of stress in a more positive light and used a variety of coping styles more extensively. In contrast, people lacking in optimism experienced greater negative stress and used more restricted patterns of active withdrawal to cope with anticipated stressful events. Optimism as a personality attribute therefore serves to

moderate the psychological effects of stress, as reflected in physical symptoms, loss of self-esteem, and burnout.

It is widely accepted that dispositional and situational factors interact in the shaping of work and organisational attitudes, but there is still some debate about the relative weight attached to dispositional and situational aspects. Those leaning towards the dispositional side have contended that work attitudes are determined by, or are at least directly linked to individual attributes, whereas those leaning to the situational side have argued that job characteristics, organisational situations and economic conditions affect attitudes more strongly than individual differences (Strümpfer, Danada, Gouws, & Viviers, 1998).

Sui (2002) argued that the indirect or moderating effect of *organisational commitment* protects individuals from the negative effect of stress because it enables them to attach direction and meaning to their work. Two approaches can be followed when defining organisational commitment (Blau & Boal, 1987). In the first approach, commitment is seen as a behaviour during which the individual is viewed as committed to an organisation because it is too costly for him or her to leave; in the second approach, the individual is committed to the organisation because of shared goals and the wish to maintain membership (Blau & Boal, 1987). Organisational commitment can also provide people with stability and a feeling of belonging. However, the opposite can also be true. Being too committed to the organisation can inhibit personal growth and prevent one from recognising the organisation's faults, which can in turn result in group thinking.

Organisational commitment takes three distinctive forms (Allen & Meyer, 1990). Firstly, affective commitment refers to identification with, involvement in, and emotional attachment to the organisation in the sense that employees with strong affective commitment remain with the organisation because they want to. Secondly, continuance commitment refers to the commitment based on employees' recognition of the cost associated with leaving the organisation. Employees with strong continuance commitment remain with the organisation because they have to, either because of perceived unfavourable alternatives or because of high personal sacrifice associated with leaving the organisation. Thirdly, normative commitment refers to the commitment based on sense of obligation to the organisation. Therefore, those with strong normative commitment remain with the organisation because they feel they ought to do so (Allen & Meyer, 1990; Yousef, 2000).

Research over the past three decades has also revealed that the experiences of occupational stress are closely related to the *health* and safety of individuals and to the well-being of organisations (Rees & Redfem, 2000). According to the constitution of the World Health Organization (2000), general health can be defined as a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living. It is a positive concept emphasising social and personal resources, as well as physical capabilities. Mohren, Swaen, Kant, Van Amelsvoort, Borm, and Galama (2003) found a relationship between job insecurity and common infections or health complaints. Significant effects of job insecurity on physiological parameters such as increased blood pressure levels were found in a number of longitudinal studies (Heaney, Israel, & House, 1994).

McDonough (2000) further found perceived job insecurity to be associated with lower scores in self-rated general health and increases in both distress and the use of medications among a national sample of Canadian workers. Borg, Kristensen, and Burr (2000) analysed data from 5 001 Danish employees over a 5-year period and found that high levels of perceived job insecurity were significantly related to lowered self-rated general health. A study conducted by Domenighetti, D'Avanzo, and Bisig (2000) among more than 2 000 Swiss employees found that psychosocial stress induced by perceived job insecurity had negative effects on ten different self-reported indicators of health and health-related behaviours. Organisations may ultimately suffer financially from heightened employee perceptions of job insecurity due to the associated costs of increased absenteeism and sickness resulting from lowered employee well-being.

Well-being or *work wellness* is widely considered the underlying, conceptual basis of a salutogenic (health causing) orientation (Spangenberg, 2004). The definition of Myers, Sweeney, and Witmer (2000, p. 252) will be used as a guideline in this study: "Wellness is a way of life oriented toward optimal health and well-being in which body, mind and spirit are integrated by the individual to live more fully within the human and natural community. Ideally it is the optimum state of health and well-being that each individual is capable of achieving." Wellness involves a lifestyle with an integrated pattern of living focused on several dimensions, i.e. emotional, intellectual, career, environmental, physical, spiritual and social (Ardell & Tager, 1982; MacGuire & Snow, 1994; Robbins, Powers, & Burgess, 1999).

Against this background, the following research problems are formulated. Firstly, although information is available on burnout and engagement in the South African higher education context, there seems to be a lack of models integrating the available information and explaining the interactions between factors. The second research problem is that little information is available regarding the relationships between occupational stressors and the effect thereof on ill health and organisational commitment of employees at higher education institutions in South Africa. Thirdly, information is needed on the general well-being of employees at higher education institutions and how their well-being is affected by occupational stressors (job demands and job resources), distress and eustress. In addition, the influence of these factors on ill health and commitment needs to be investigated.

The following research questions emerge from the above problem statement:

- Can a model of work-related well-being for employees at a South African university of technology be tested?
- Are background variables such as employment category, gender, marital status, language, age, education level and years of service at the institution valid predictors of differences in levels of wellness of employees at a university of technology?
- Is occupational stress related to organisational commitment and physical and psychological ill health of employees at a university of technology?
- Are the instruments used to assess work-related well-being of employees at a university of technology in South Africa valid and reliable?
- Can a comprehensive structural model of work-related wellness of employees at a university of technology in South Africa be developed to determine the effect of job demands and (lack of) job resources on distress, eustress, work wellness, ill health and commitment?
- Does dispositional optimism of employees at a university of technology moderate the relationship between distress and eustress on the one hand, and ill health and commitment on the other hand?

Consequently, answers to the above-mentioned research problems will contribute to industrial psychology as a science in the following ways:

- A reliable and valid model explaining work-related well-being and comprising both energy and identification dimensions will exist for employees at a university of technology in South Africa.
- Information regarding the effects of stress and occupational stress on commitment and ill health of employees at a university of technology in South Africa will be available.
- Information will be available on employee wellness at a South African university of technology, focusing specifically on the relationship between occupational stress (job demands and job resources), distress, eustress, ill health and organisational commitment.
- Information regarding the moderating affects of dispositional optimism on general employee wellness, job demands, organisational commitment and ill health will be available to employees at a university of technology.
- A comprehensive structural model for wellness of employees at a university of technology (consisting of job demands, job resources, distress, eustress, commitment and ill health) will exist. This model could be used to predict wellness of staff and serve as a guideline for the development of wellness programmes for employees at universities of technology in South Africa.

1.2 RESEARCH OBJECTIVES

1.2.1 General objective

The general objective of this research is to assess the work wellness of staff at a university of technology in South Africa, and to understand the relationships between factors contributing to the experience of distress/burnout and eustress/engagement and how these relate to employees' levels of commitment and ill health.

To these ends, the following specific objectives are formulated:

1.2.2 Specific objectives

- To test a model of work-related well-being for employees at a South African university of technology.

- To investigate the relationship between background variables such as employment category, gender, marital status, language, age, education level, and years of service at the institution, and work related well-being of employees at a university of technology.
- To investigate the relationship between occupational stressors and employees' levels of commitment and ill health at a university of technology.
- To assess the validity and internal consistency of instruments measuring specific constructs included in a model of work-related well-being for employees at a university of technology.
- To develop and test a comprehensive structural model of work-related well-being and thereby determine the effect of job demands and (lack of) job resources on distress, eustress, work wellness, ill health and commitment of employees at a university of technology.
- To investigate whether dispositional optimism of employees at a university of technology moderates the relationship between distress and eustress on the one hand, and ill health and commitment on the other hand.

1.3 RESEARCH METHOD

The research method for each of the three articles submitted for the purposes of this thesis consists of a brief literature review and an empirical study. In each article, the literature review focuses on the conceptualisation of relevant terminology and constructs, and lists previous research findings relevant to the topic under discussion. In the following part, relevant aspects of the empirical studies conducted in this thesis are discussed.

1.3.1 Research design

A survey design is used to achieve the research objectives. The specific design is the cross-sectional design, whereby a sample is drawn from a population at one point in time (Shaughnessy & Zechmeister, 1997). Information collected is used to describe the population at that point in time and is appropriate for studying various groups at different stages of development (Burns & Grove, 1993). This design can also be used to assess interrelationships among variables within a population. According to Shaughnessy and Zechmeister (1997), this

design is ideally suited to the descriptive and predictive functions associated with correlation research.

Structural equation modelling is used to address the problems associated with the cross-sectional design (Byrne, 2001). Structural equation modelling is employed to test structural models of distress, burnout, eustress, work engagement, occupational stressors, commitment, ill health and optimism. As such, structural equation modelling is a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne, 2001). The term “structural equation modelling” (SEM) or covariance analysis conveys two important aspects of the procedure. Firstly, the causal processes under study are represented by a series of structural (i.e. regression) equations, and secondly, these structural relations can be pictorially represented or modelled to enable a clear conceptualisation of the theory under study.

1.3.2 Participants

The study population consisted of support staff ($N=1\ 084$) and academic staff ($N=529$) of a higher education institution in South Africa. All available staff was included in the survey. In total, 1 613 questionnaires were distributed across six campuses, of which 353 were completed and returned. This included responses from 132 academic and 221 support staff members. The total response rate was 21,88% (37,4% for academic staff and 62,6% for support staff).

Females constituted 63,3% of the participants, while males constituted 36,7%. The majority of the participants (65,8%) were married. Different language groups were included in the study. A total of 69,9% of the participants were Afrikaans speaking, 12% English speaking and 18,1% were speaking other indigenous languages.

The age distribution pointed to a reasonably young workforce with only 15,4% older than 50 years. In total, 22,8% of the population obtained a Master’s (or related) qualification and/or a higher qualification. 60,5% of the participants had been in service at the institution for 6+ years. 40,2% reported to have had no opportunity to be promoted during their years of service. 80,7% of the respondents indicated that they do not smoke, and 66,9% admitted to drinking alcohol.

1.3.3 Measuring instruments

The questionnaire used in the empirical study consisted of five measuring instruments and a biographical questionnaire. The instruments are the Maslach Burnout Inventory-General Survey (MBI-GS) (Maslach et al., 1996), the Cognitive Weariness Scale (CWS) (Van Horn, Taris, Schaufeli, & Schreurs, 2004); the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2002); the ASSET Organizational Stress Screening Tool (Cartwright & Cooper, 2002); the Life Orientation Test-Revised (LOT-R) (Scheier et al., 1994); the Job Demands-Resources Scale (JDERS) (Barkhuizen & Rothmann, 2006a). The extensive biographical questionnaire enabled comparisons between different subgroups.

The *Maslach Burnout Inventory-General Survey* (MBI-GS) (Maslach et al., 1996) is used to measure burnout. The MBI-GS consists of 16 items and has three subscales, namely exhaustion (Ex) (five items; e.g. "I feel used up at the end of the workday"), cynicism (Cy) (five items; e.g. "I have become less enthusiastic about my work"), and professional efficacy (PE) (six items; e.g. "In my opinion, I am good at my job"). These three components of the burnout construct are conceptualised in broader terms relating to the job and not just to the personal relationships that may be part of the job (Maslach et al., 2001). Together the subscales of the MBI-GS provide a three-dimensional perspective on burnout. High scores on exhaustion and cynicism and low scores on professional efficacy are indicative of burnout. The items of the MBI-GS are phrased as statements about personal feelings and attitudes, which is self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). Internal consistencies found by Leiter and Schaufeli (1996) and Schaufeli, Van Diederendonck, and Van Gorp (1996) range from 0,73 (cynicism) to 0,91 (exhaustion). In four South African samples, alpha coefficients ranging from 0,69-0,89 were reported (Kruger, Veldman, Rothmann, & Jackson, 2002; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2002; Storm & Rothmann, 2003).

The *Cognitive Weariness Scale* (CWS) was developed by Van Horn et al. (2004) to measure cognitive well-being. Initially this scale consisted of seven items, but they recommended that Item 7 be dropped in the general six-item version due to high internal consistency of Items 3 and 7. The scale refers to the capacity to take up new information and loss of concentration at work, for instance, "I have trouble concentrating". It was scored on a seven-point frequency

scale with 0 (*a few times a year*) to 6 (*every day*). Van Horn et al. (2004) reported a Cronbach alpha coefficient of 0,92.

The *Utrecht Work Engagement Scale* (UWES) which was developed by Schaufeli et al. (2002), is a self-report questionnaire used to assess work engagement. It includes items such as “I am bursting with energy in my work (vigour); “My job inspires me” (dedication); “I feel happy when I am engrossed in my work” (absorption). Acceptable internal consistency was reported. Recent confirmatory factor-analytic studies confirmed the factorial validity of the UWES (Schaufeli et al., 2002). The findings showed internal consistent results for the three scales of the UWES. Steyn (2004) confirmed a one-factor model of work engagement. The literature review found that three other studies have investigated the internal consistency, factorial validity, structural equivalence and bias of the UWES in South Africa. In all of these studies, one in the SA Police Service (Rothmann & Storm, 2003), one among emergency workers in Gauteng (Naudé & Rothmann, 2003) and one in the SA higher education sector (Coetzee & Rothmann, 2005), a three-factor model of work engagement as measured by the UWES was confirmed. In two of the three studies, acceptable Cronbach alpha coefficients of >0,70, as proposed by Nunnally and Bernstein (1994), were found. In the study by Naudé and Rothmann (2003) only the absorption scale was slightly below the guideline (0,67).

The *ASSET Organizational Stress Screening Tool* (Cartwright & Cooper, 2002) is a screening tool to help organisations assess the risk of occupational stress in their workforce. It measures potential exposure to stress in respect of a range of common workplace stressors. It also provides important information on current levels of physical health, psychological well-being and organisational commitment. The ASSET is divided into three questionnaires. The first questionnaire (37 items) measures the individual’s perception of his or her job and the second questionnaire (nine items) measures the individual’s attitude towards his or her organisation. Both these are scored on a six-point scale with 1 (*strongly disagree*) to 6 (*strongly agree*). The third questionnaire (19 items) focuses on the individual’s health and is scored on a four-point scale with 1 (never) to 4 (often). Reliability is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0,70, ranging from 0,60 to 0,91 (Cartwright & Cooper, 2002). Johnson and Cooper (2003) found that the psychological well-being subscale has good convergent validity with an existing measure of psychiatric disorders, namely the General Health Questionnaire (GHQ – 12) (Goldberg & Williams, 1988). In a South African study by Coetzee and Rothmann (2005) using structural equation

modelling, satisfactory fit with the original model was obtained, after five of the ASSET dimensions (resources and communication, job characteristics, work relationships, commitment, and health) had been respecified by correlating errors. Reliability analysis revealed that all the dimensions were sufficiently internally consistent.

The *Life Orientation Test-Revised* (LOT-R) (Scheier et al., 1994) is a 10-item measure developed to assess dispositional optimism. Six items contribute to the optimism score and four items are fillers. The original Life Orientation Test (Scheier & Carver, 1985), which hypothesised a two-factor structure of optimism, namely optimism and pessimism, was questioned (Harju & Bolen, 1998). Follow-up analysis has demonstrated a one-factor structure, indicating that the LOT-R measures a continuum of high, average and low optimism/pessimism (Scheier et al., 1994). The LOT-R measures optimism/pessimism on a five-point Likert scale, ranging from 5 (*I strongly agree*) to 1 (*I strongly disagree*). The LOT-R was found to have adequate internal consistency with a Cronbach's alpha of 0,78, and excellent convergent and discriminant validity (Scheier et al., 1994). Based on a sample of 204 college students, Harju and Bolen (1998) obtained a Cronbach alpha coefficient of 0,75.

The *Job Demands-Job Resources Scale* (JDRS) (Barkhuizen & Rothmann, 2006a) measures job demands and job resources of staff of higher education institutions. The JDRS consists of 48 items. The questions are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JDRS include pace and amount of work, mental load, emotional load, work variety, opportunities to learn, work independence, relationships with colleagues, relationship with immediate supervisor, ambiguities of work, information, communications, participation, contact possibilities, remuneration and career possibilities. In a study conducted with ($N = 595$) academics from six South African universities, the authors extracted four factors through principal factor analysis with Varimax rotation. The four factors were labelled organisational support, growth opportunities and advancement, overload and job insecurity. Second-order principal component analysis led to the extraction of organisational support, growth opportunities, and advancement into one factor labelled job resources, while overload formed the next factor labelled job demands. Job security loaded negatively on both factors and was subsequently excluded (Barkhuizen & Rothmann, 2006a).

A *biographical questionnaire* is used to gather information about the demographic characteristics of the population, including geographical location (e.g. campus), gender,

marital status, language, level of qualification, various aspects of job-associated characteristics and certain social behaviours.

1.3.4 Data analysis

The statistical analysis is carried out with the help of the SPSS program (SPSS Inc., 2003) and the Amos program (Byrne, 2001). SPSS is used to carry out statistical analysis regarding reliability, validity, construct equivalence and predictive bias of the measuring instruments, descriptive statistics, analysis of variance, correlation coefficients and canonical analysis. The Amos program is used to carry out structural equation modelling.

The data-analysis process will proceed as follows:

To test the factorial validity of the measuring instruments, structural equation modelling (SEM) methods are initially used with the maximum likelihood method of the AMOS program (Arbuckle, 1997). SEM is a statistical methodology that takes a confirmatory or hypothesis-testing approach to the analysis of a structural theory bearing on a specific phenomenon (Byrne, 2001, p. 3). However, when model-fit with the data is computed, an exploratory factor analysis approach is taken in the post-hoc analysis of the data.

Hypothesised relationships are tested empirically for goodness of fit with the sample data. The Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), and Comparative Fit Index (CFI) all represent indices of fit and/or variance with the hypothesised model. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). The Tucker-Lewis Index (TLI) by Tucker & Lewis (1973) measures co-variation explained by the model that was specifically developed to assess factor models. For these fit indices, it is generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995). Browne and Cudeck (1993) suggest using the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval of the RMSEA that estimate the overall amount of error. The RMSEA point estimate should be 0,05 or less and the upper limit of the confidence interval should not exceed 0,08.

Descriptive statistics (e.g., means, standard deviations, skewness and kurtosis) are used to analyse the data. Cronbach alpha coefficients are used to assess the reliability (i.e. internal consistency) of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale. Explanatory Factor Analysis is used to determine the components responsible for the total variance. Principal Component Analysis with a direct oblimin rotation is used to explore the second-order factor structure of the measuring instruments.

Where applicable, multivariate analysis of variance (MANOVA) is used to investigate the significance of differences between factors. It then compares this data with various biographical characteristics of the sample. MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA, a new dependent variable that maximises group differences is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda is used to test the significance of the effects. Wilks' Lambda is a likelihood ratio statistic that tests the likelihood of the data under the assumption of equal population mean vectors for all groups against the likelihood under the assumption the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect is significant in MANOVA, ANOVA is used to discover which dependent variables are affected. Because multiple ANOVAs are used, a Bonferroni-type adjustment is made for inflated Type I error. Tukey tests are done to indicate which groups differed significantly when ANOVAs are done.

In some cases standard multiple regression analyses are carried out to assess the contribution of the independent variables (e.g. occupational stressors) to dependent variables (e.g. commitment and ill health). According to Tabachnick and Fidell (2001), the correlation between an independent variable and a dependent variable reflects variance shared with the dependent variable.

1.3.5 Research procedure

In 2003, the research unit “WorkWell” at the North-West University obtained permission and support from SAUVCA (South African Universities Vice-chancellors Association) to conduct research on *Occupational Stress, Burnout and Engagement of Academics in Higher Education Institutions in South Africa*. Following this development, a request to conduct part of this research at a South African university of technology was accepted by the North-West University.

A proposal made to the Vice-Chancellor and Deputy Vice-Chancellor of the university concerned along with provisional approval was subsequently forwarded to the Central Research Committee (CRC) of the university for consideration. Information provided to the CRC included the endorsement letter from SAUVCA, the research proposal and the full questionnaire to be used in the empirical study. The CRC and its ethical subcommittee approved the proposed research. Written confirmation from the chairperson of the CRC prompted the research to proceed.

Following this, relevant line managers and the representative trade union were targeted to assist with the distribution of questionnaires as well as motivating staff to participate in the research. The questionnaire was accompanied by a set of instructions to participants, including assurance of anonymity and confidentiality. The Human Resources department of the university assisted by providing information on staff numbers at different locations for distribution purposes. Anonymity of participants was ensured by using unmarked questionnaires. After a specified period, the completed questionnaires were returned whereupon they were sent for data capturing. A letter of appreciation for participating in the research was sent to all staff. Following this, statistical analysis was conducted.

1.4 CHAPTER DIVISION

The chapters of this thesis are divided as follows:

In Chapter 2, a model of work-related well-being for employees at a university of technology is investigated. Chapter 3 focuses on occupational stress and its influence on organisational commitment and ill health of employees at a university of technology. Chapter 4 proposes

and tests a comprehensive model of employees' work-related well-being at a university of technology. Chapter 5 presents the conclusion, shortcomings and recommendations related to this study.

1.5 CHAPTER SUMMARY

This chapter discussed the background to this study and the problem statement. This was followed by a broad contextualisation of the study in terms of relevant theoretical concepts whereupon the general and specific research objectives were explained. Following this, the research method including the research design, participants, measuring instruments, method of data analysis and research procedure used in this research were explained. The chapter concludes with a brief overview of the chapters presented in this thesis.

REFERENCES

- Abouserie, R. (1996). Stress, coping strategies and job satisfaction in university academic staff. *Educational Psychology, 16*(1), 49-57.
- Allen, N., & Meyer, J. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.
- Anderson, G. S., Litzenberger, R., & Plecas, D. B. (2002). Physical evidence of police officer stress. *Policing: An International Journal of Police Strategies & Management, 25*, 399-420.
- Arbuckle, J. L. (1997). *Amos user's guide version 4.0*. Chicago, IL: Smallwaters Corporation.
- Ardell, D. B., & Tager, M. J. (1982). *Planning for wellness: A guidebook for achieving optimal health* (2nd ed.). Dubuque, IA: Kendall-Hunt Publishers.
- Barkhuizen, E. N., & Rothmann, S. (2006a, April). *Occupational stress, health and commitment of academic staff in South African higher education institutions*. Paper presented at South African Positive Psychology Conference: Individual, Social and Work Wellness, Potchefstroom.
- Barkhuizen, E. N., & Rothmann, S. (2006b). *Work engagement of academic staff in South African higher education institutions*. Accepted for publication in *Management Dynamics*.
- Blau, G. J., & Boal, K. B. (1987). Conceptualizing how job involvement and organizational commitment affect turnover and absenteeism. *Academy of Management Review, 12*, 288-300.
- Blix, A. G., Cruise, R. J., Mitchell, B. M., & Blix, G. G. (1994). Occupational stress among university teachers. *Educational Research, 36*, 157-169.
- Borg, V., Kristensen, T. S., & Burr, H. (2000). Work environment and changes in self-rated health: A five-year follow up study. *Stress Medicine, 16*, 37-47.
- Bourbonnais, R., Comeau, M., Vézina, M., & Dion, G. (1998). Job strain, psychological distress, and burnout in nurses. *American Journal of Industrial Medicine, 34*(1), 20-28.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). London: Sage.

- Budzinski, T., & Peffer, K. (1980). Biofeedback training. In I. Kutash, L. Schlesinger & Associates (Eds.), *Handbook on stress and anxiety* (pp. 413-427). San Francisco, CA: Jossey-Bass.
- Burke, R. J. (1993). Work-family stress, conflict, coping, and burnout in police officers. *Stress Medicine, 9*, 171-180.
- Burns, N., & Grové, S. K. (1993). *The practice of nursing research, conduct, critique, and utilization* (2nd ed.). Philadelphia: W.B. Saunders.
- Byrne, B. M. (1991). The Maslach Burnout Inventory: Validating factorial structure and invariance across intermediate, secondary and university educators. *Multivariate Behavioral Research, 26*, 583-605.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.
- Cartwright, S., & Cooper, C. L. (2002). *ASSET: An Organizational Stress Screening Tool – The Management Guide*. Manchester: RCL Ltd.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*, 309-319.
- Coetzee, S. E., & Rothmann, S. (2004). An adapted model of burnout for employees at a higher education institution in South Africa. *SA Journal of Industrial Psychology, 30*(3), 29-40.
- Coetzee, S. E., & Rothmann, S. (2005). Work engagement of employees at a higher education institution in South Africa. *Southern African Business Review, 9*(3), 23-34.
- Demerouti E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.
- Department of Education (DoE). (2001). *National plan for higher education*. Pretoria, SA: Government Printers.
- Domenighetti, G., D'Avanzo, B., & Bisig, B. (2000). Health effects of job insecurity among employees in the Swiss general population. *International Journal of Health Services, 30*, 477-490.
- Ebert, S. A., Tucker, D. C., & Roth, D. L. (2002). Psychological resistance factors as predictors of general health status and physical symptoms reporting. *Psychology, Health & Medicine, 7*, 363-375.
- Favish, J. (2003). A new contract between higher education and society. *South African Journal of Higher Education, 17*, 24-30.

- Fry, P. S. (1995). Perfectionism, humor, and optimism as moderators of health outcomes and determinants of coping styles of women executives. *Genetic, Social, and General Psychology Monographs*, 121, 211-245.
- Goldberg, D. P., & Williams, P. (1988). *A user's guide to the GHQ*. London: NFER, Nelson.
- Green, M. F., & Hayward, F. M. (1997). Forces for change in transforming higher education. In M. F. Green (Ed.), *Transforming higher education: Views from leaders around the world* (pp. 27-56). Phoenix: Oryx Press.
- Gultig, J. (2000). The University in post-apartheid South Africa: New ethos and new divisions. *South African Journal of Higher Education*, 14, 37-52.
- Harju, B., & Bolen, L. M. (1998). The effects of optimism on coping and perceived quality of life of college students. *Journal of Social Behaviour & Personality*, 13, 185-200.
- Hasan, N., & Power, T. G. (2002). Optimism and pessimism in children: A study of parenting correlates. *International Journal of Behaviour Development*, 26, 185-191.
- Hay, H. R., Fourie, M., & Hay, J. F. (2001). Are institutional combinations, mergers or amalgamation the answer? An investigation into staff perceptions. *South African Journal of Higher Education*, 15, 100-108.
- Heaney, C., Israel, B., & House, J. (1994). Chronic job insecurity among automobile workers: Effects on job satisfaction and health. *Social Science and Medicine*, 38, 1431-1437.
- Hellriegel, D., Slocum, J. W., & Woodman, R. W. (2001). *Organizational behavior* (9th ed.). Cincinnati, OH: South-Western College Publishing.
- Houghton, P. (2001). Finding allies: Sustaining teachers' health and well-being. *Phi Delta Kappan*, 82, 706-712.
- Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 1-15). Thousand Oaks, CA: Sage.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Jackson, L. T. B. (2004). *Work-related well-being of teachers in the North West Province*. Unpublished doctoral thesis, North West University, Potchefstroom.
- Johnson, S., & Cooper, C. (2003). The construct validity of the ASSET stress measure. *Stress and Health*, 19, 181-185.
- Jones, F., & Bright, J. (2001). *Stress: Myth, theory and research*. London: Pearson Educational.

- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Khosa, M. M. (1996). Leaders or followers? Transforming South African universities. *Indicator South Africa*, 13(4), 73-77.
- Kreitner, R., & Kinicki, A. (1995). *Organisational behavior* (3rd ed.). Chicago, IL: Irwin.
- Kruger, M. M., Veldman, H., Rothmann, S., & Jackson, L. T. B. (2002, July). *Burnout, job satisfaction, sense of coherence and job stress in a local government*. Paper presented at the 25th International Conference of Applied Psychology.
- Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review*, 53(1), 27-36.
- Lazarus, R. S. (1988). The psychology of stress and coping. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and Anxiety* (pp. 399-418). New York: Hemisphere Publishing.
- Leiter, M. P. (1991). Coping patterns as predictors of burnout. The functions of control and escapist coping patterns. *Journal of Occupational Behavior*, 12, 123-144.
- Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research*. Washington DC: Taylor & Francis.
- Leiter, M. P., & Schaufeli, W. B. (1996). Consistency of the burnout construct across occupations. *Anxiety, Stress, and Coping*, 9, 229-243.
- MacGuire, J. G., & Snow, B. M. (1994). Wellness and mental health: Characteristics and thoughts for educators. *Thresholds in Education*, 20(1), 13-16.
- Mapesela, M. L. E. (2004). Academic staff satisfaction suffers due to increased learner access and redress. *South African Journal of Higher Education*, 18, 265-277.
- Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.
- Maslach, C., & Jackson, S. E. (1986). *The Maslach Burnout Inventory* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Schaufeli, W. B. (1993). Historical and conceptual development of burnout. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 1-16). Washington, DC: Taylor & Francis.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *The Maslach Burnout Inventory* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.

- McDonough, P. (2000). Job insecurity and health. *International Journal of Health Services*, 30(3), 453–476.
- Meléndez, W. A., & De Guzmán, R. M. (1983). *Burnout: The new academic disease*. ASHE-ERIC Higher Education Research Report No.9. Washington, DC: Association for the Study of Higher Education.
- Mestry, R. (1999). The role of principals in the management of stress and burnout. *Education Practice*, 3, 19-23.
- Mohren, D. C. L., Swaen, G. M. H., Kant, I., Van Amelsvoort, L. G. P. M., Borm, P. J. A., & Galama, J. M. D. (2003). Common infections and the role of burnout in a Dutch working population. *Journal of Psychosomatic Research*, 55, 201-208.
- Mullins, L. J. (1999). *Management and organizational behaviour* (5th ed.). London: Financial Times Management.
- Myers, J. E., Sweeney, T. J., & Witmer, J. M. (2000). The wheel of wellness counselling for wellness: A holistic model for treatment planning. *Journal of Counselling and Development*, 78, 251-266.
- Nadison, N. (2000). Strategic programme and project leadership. In N. Cloete (Ed.) *Leadership and institutional challenges in higher education*. Pretoria: Centre for Higher Education Transformation.
- Naudé, J. L. P., & Rothmann, S. (2003). Occupational stress of emergency workers in Gauteng. *South African Journal of Industrial Psychology*, 29(4), 92-100.
- Naudé, J. L. P., & Rothmann, S. (2004). The validation of the Utrecht Work Engagement Scale for emergency medical technicians in Gauteng. *South African Journal of Economic and Management Sciences*, 7, 473-487.
- Niehaus, L., Myburgh, C. P. H., & Kok, J. C. (1995). Selfhandhawingsvermoë van hoërskool onderwysers. *Suid-Afrikaanse Tydskrif vir Opvoedkunde*, 15(2), 71-78.
- Nikolaou, I., & Tsaousis, I. (2002). Emotional intelligence in the workplace: exploring its effects on occupational stress and organizational commitment. *The International Journal of Organizational Analysis*, 10, 327-342.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Olivier, M. A. J. (2005). How do academics handle their job-related stress? *South African Journal of Higher Education*. 19, 345-358.

- Peeters, M. C. W., & Le Blanc, P. M. (2001). Towards a match between job demands and sources of social support: A study among oncology care providers. *European Journal of Work and Organisational Psychology*, 10(1), 53-72.
- Reddy, C. 2000. Regional consortia, partnership, mergers and their implications for the transformation of the South African higher education system. *South African Journal for Higher Education*, 14, 79-87.
- Rees, C. J., & Redfem, D. (2000). Recognizing the perceived causes of stress – a training and development perspective. *Industrial and Commercial Training*, 3(4), 120-127.
- Reker, G. T., & Wong, P. T. P. (1988). Towards a theory of personal meaning. In J. E. Birren and V. L. Bengston (Eds.), *Emergent theories of aging* (pp. 214-246). New York: Springer Publishing Co.
- Robbins, G., Powers, D., & Burgess, S. (1999). *A wellness way of life* (4th ed). Toronto: McGraw-Hill.
- Rothmann, S. (2002, March). *Burnout research in South Africa*. Paper presented at the 1st South African Conference on Burnout, Potchefstroom.
- Rothmann, S., & Jansen van Vuuren, J. A. (2002, March). *Sense of coherence, self-efficacy, locus of control, coping and burnout of senior managers in a manufacturing industry*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.
- Rothmann, S., & Malan, H. (2002, March). *Koherensiesin, selfdoeltreffendheid, lokus van beheer en uitbranding by maatskaplike werkers*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.
- Rothmann, S., & Storm, K. (2003). A psychometric analysis of the Utrecht Work Engagement Scale in the South African police service. *SA Journal of Industrial Psychology* 29(4), 62-70.
- Schafer, W. (2000). *Stress management for wellness*. New York: Harcourt College Publishers.
- Schaufeli, W. B. (2003). Past performance and future perspectives of burnout research. *SA Journal of Industrial Psychology*, 29(4), 1-15.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293-315.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.

- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schaufeli, W. B., Van Diederendonck, D., & Van Gorp, K. (1996). Burnout and reciprocity: Towards a dual-level social exchange model. *Work and Stress*, 10, 225-237.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping and health: Assessment and implications of generalised outcome expectancies. *Health Psychology*, 4, 219-247.
- Scheier, M. F., & Carver, C. S. (1987). Dispositional optimism and physical well-being: The influence of generalized outcome expectancies on health. *Journal of Personality*, 55, 169-210.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67, 1063-1078.
- Seegerstrom, S. C., Taylor, S. E., Kemeny, M. E., & Fahey, J. L. (1998). Optimism is associated with mood, coping and immune change in response to stress. *Journal of Personality and Social Psychology*, 74, 1646-1655.
- Seiler, R. E., & Pearson, D. A. (1984). Dysfunctional stress among university faculty. *Educational Research Quarterly*, 9, 15-26.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5-14.
- Selye, H. (1974). *Stress without distress*. New York: J.B. Lippincott.
- Selye, H., & Tache, J. (1979). The stress concept and some of its implications. In V. Hamilton & D. M. Warburton (Eds.), *Human stress and cognition* (pp. 11-31). Salisbury, Great Britain: John Wiley.
- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.
- Shea, J. D., Burton, R., & Girgis, A. (1993). Negative affect, absorption and immunity. *Physiology and Behavior*, 53, 449-457.
- Shirom, A. (1993). Burnout in work organisations. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 25-48). Washington, DC: Taylor & Francis.
- Singh, S. N., Mishra, S., & Dongwook, K. (1998). Research-related burnout among faculty in higher education. *Psychological Reports*, 83, 463-473.

- Siu, O. L. (2002). Occupational stressors and well-being among Chinese employees: The role of organizational commitment. *Applied Psychology: An International Review*, 5, 527-544.
- Spangenberg, H. (2004, March). *How leadership may influence employee wellness*. Poster presented at the 2nd South African Work Wellness Conference. North-West University (Potchefstroom Campus), Potchefstroom.
- SPSS Inc. (2003). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Steyn, L. J. (2004). *Sense of coherence, job stress, coping and burnout in an electricity supply organisation*. Unpublished master's dissertation, North-West University, Potchefstroom.
- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Maslach Burnout Inventory: general survey in the South African police service. *South African Journal of Psychology*, 33, 219-226.
- Strümpfer, D. J. W., Danada, N., Gouws, J. F., & Viviers, M. R. (1998). Personality dispositions and job satisfaction. *South African Journal of Psychology*, 28, 92-100.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed). Boston, MA: Allyn & Bacon.
- Taris, T. W., Schreurs, P. J. G., & Schaufeli, W. B. (1999). Construct validity of the Maslach Burnout Inventory – General Survey: A two-sample examination of its factor structure and correlates. *Work and Stress*, 13, 223-237.
- Tennant, C. (2001). Work-related stress and depressive disorders. *Journal of Psychosomatic Research*, 51, 697-704.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.
- Van der Wende, M. C. (2001). Internationalisation policies: about new trends and contrasting paradigms. *Higher Education Policy*, 14, 249-259.
- Van Horn, J. E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365-375.
- Varca, P. E. (1999). Work stress and customer service delivery. *The journal of Service Marketing*, 13, 229-241.
- Weber, L. E. (1999). Survey of facing higher education at the millennium. In W. Z. Hirsch & L. E. Weber (Eds.), *Changes facing higher education at the millennium* (pp. 3-17). Washington: American Council on Higher Education & Oryx Press.

- Weisberg, J. (1994). Measuring workers burnout and intention to leave. *International Journal of Manpower*, 15(1), 4-14.
- Wissing, M. P., Du Toit, M., & Rothmann, S. (2002). Faktore wat die navorsingsproduktiwiteit van universiteitspersoneel beïnvloed. *Journal of Industrial Psychology*, 28(3), 92-98.
- World Health Organization. (2000). *Definitions of health*. Official Records of the World Health Organization, 2,100. Retrieved 20 April, 2005, from the World Wide Web: <http://www.who.int/en>.
- Yousef, D. A. (2000). Organizational commitment and job satisfaction as predictors of attitudes toward organizational change in a non-western setting. *Personnel Review*, 29, 557-592.

CHAPTER 2

RESEARCH ARTICLE 1

A MODEL OF WORK-RELATED WELL-BEING FOR EMPLOYEES AT A UNIVERSITY OF TECHNOLOGY

ABSTRACT

The objectives of this study were to test a model of work-related well-being and to investigate the relationship between background variables on the one hand and work-related well-being on the other hand. A survey design was used. In total, the sample ($N=353$) consisted of academic ($n=132$) and support staff ($n=221$). The measurement battery consisted of the Maslach Burnout Inventory – General Survey, the Cognitive Weariness Scale, the Utrecht Work Engagement Scale and a biographical questionnaire. The results confirmed a four-factor structure of burnout. A two-factor structure of work engagement consisting of two internally consistent factors, namely vigour and dedication, was confirmed. Principal component analysis indicated that work-related well-being consists of a dual bipolar structure namely Engagement (Vigour, Dedication, Professional Efficacy) and Burnout (Exhaustion, Cynicism, Cognitive Weariness). It was found that language was the only reliable background variable to predict differences in levels of burnout and engagement between subgroups.

OPSOMMING

Die doelstellings van hierdie studie was om 'n model van werkverwante welstand te toets, en om ondersoek in te stel na die verwantskap tussen agtergrondveranderlikes aan die een kant, en werkverwante welstand aan die ander kant. 'n Opname-ontwerp is gebruik. Die totale steekproef ($N=353$) het uit akademiese ($n=132$) en ondersteuningsdienste personeel ($n=221$) bestaan. Die metingsbattery het uit die Maslach Uitbrandingsvraelys – Algemene Opname, die Kognitiewe Vermoeidheidsvraelys, die Utrecht Werkbegeesteringskaal en 'n biografiese vraelys bestaan. Die resultate het 'n vierfaktormodel van uitbranding bevestig. 'n Tweefaktorstruktuur van werkbegeesting, bestaande uit twee interne konsekwente faktore genaamd energie en toewyding, is ook bevestig. Faktoranalise het aangedui dat affektiewe welstand uit 'n tweeledige bipolêre struktuur bestaan, naamlik Werkbegeesting (Energie, Toewyding, Professionele Doeltreffendheid) en Uitbranding (Uitputting, Sinisme, Kognitiewe Vermoeidheid). Daar is bevind dat taal die enigste betroubare agtergrondveranderlike was om verskille in vlakke van uitbranding en begeesting tussen subgroepe te voorspel.

Modern business is highly competitive, demanding and expensive, and as a result, organisations, management and employees are under constant pressure to achieve higher targets (Brunt, 2000). Organisations in all parts of the world are downsizing, outsourcing and restructuring, leaving workers feeling stressed, unsure, insecure, undervalued and alienated. Constant pressure to achieve more with fewer staff in nearly every industry leads employees to experience exhaustion both mentally and physically (Wise, 2001). Moreover, the general lack of skilled workers for vacant positions causes increased workloads for existing employees.

These changes in the world of work also impact on higher education institutions that have to adapt unremittingly in order to survive (Gilbert, 2000). During the past two decades, higher education institutions from all over the globe have been confronted with a series of complex changes, challenging their mandates, traditional practices, authority and organisational structures (Doyle & Hind, 1998; Hugo, 1998; Nixon, Marks, Rowland, & Walker, 2001). A global phenomenon in the changing landscape of higher education institutions is the expansion from elite systems to institutions of mass student numbers (Gilbert, 2000; Kistan, 1999; Kraak, 2000). Other consequences include lifelong learning (Wallace & Ipson, 1992), adult learning (Kraak, 2000), internet-based education and training (Gilbert, 2000), formation of strategic alliances on international level (Rowley, 2000), new trends in teaching and learning (Kistan, 1999; Kraak, 2000), changes in the market place (Blackmore, 2001; Brown, 1999; Gilbert, 2000; Kistan, 1999; Lomas, 1997; Robertson, 1998; Rowley, 2000), the growth of alternative systems of education and new demands and needs of society (Kistan, 1999). These changes will have a direct impact on the way employees at higher education institutions experience their work. Zhao and Guo (2002) cautioned that to become more competitive in the globalised world, more educated and better trained workforces are required.

In South Africa, higher education institutions can make an important contribution to the reconstruction and development of society (Marais, Grobbelaar, & Potgieter, 1997) and redress of the apartheid legacy (Cross, Mungadi, & Rouhani, 2002; Dlamini, 1995; Hugo, 1998). There is however growing evidence that higher education institutions no longer provide the low-stress environment they once did (Gillespie, Walsh, Winefield, Dua, & Stough, 2001; Winefield, Gillespie, Stough, Dua, & Hapuararchchi, 2002; Winefield & Jarrett, 2001). Higher education institutions face an overload of demands but are equipped

with an undersupply of response capabilities, especially concerning finances (Viljoen & Rothmann, 2002). At the same time, the realities of globalisation are forcing structural changes and adjustments on higher education institutions to create a new organisational reality that has second-order effects in its human impact (Du Toit, 2000; Quick, Nelson, & Quick, 2001).

At an institutional level this boils down to the introduction of policies and mechanisms aimed at redress on different levels and huge demands in terms of access to education (Kraak, 2000). According to Davis (1996), the main characteristic of a higher education institution as a work organisation is its two distinct social structures: (1) academic staff engaged in teaching and research, and (2) non-academic administrative and support staff. The two constituencies rarely share similar jobs and supervisory structures, and this gives rise to various significant problems and concerns of employees.

The above-mentioned changes present major complications for academic staff. Not only is the multiplicity of roles (e.g. teacher, researcher, counsellor, adviser, facilitator, colleague, marketer, tutor, writer, manager) increasing, but academics are also required to make paradigm shifts, adopt new policies and practices, and approach their professional endeavours in new and innovative ways (Fisher, 1994; Fourie, 1999; Fourie & Alt, 2000; Gmelch, Lovrich, & Wilke, 1984). According to Fisher (1994), academics are frequently expected to perform a number of these roles simultaneously. On the one hand, such supplementary tasks may be considered a healthy diversification of one's job. On the other hand, the toll on academics as result of these added responsibilities, tighter controls and diminishing resources may well be an important cause of an extreme and specific job-related strain, commonly labelled as burnout (Cooper, Dewe, & O' Driscoll, 2001; Mintz, 1999).

According to Maslach, Schaufeli, and Leiter (2001) and Maslach and Jackson (1986), burnout is a long-term stress reaction that occurs particularly among professionals who do "people work" of some kind. Academic staff in higher education institutions is likely candidates for burnout because of their relationships with large numbers of students, staff and administration (Blix, Cruise, Mitchell, & Blix, 1994; Byrne, 1991; Seiler & Pearson, 1984). The intense level of personal, emotional contact that characterises these kinds of relationships can be quite stressful, since it is expected of professionals to be selfless and put the needs of others first, and do whatever it takes to help the client or the learner (Maslach, 1998).

In recent literature and research support staff at higher education institutions has been largely overlooked when the issues of quality service, stress and burnout have come under scrutiny (Pitman, 2000). Reasons for this are twofold. Firstly, research is normally done by academic staff focused on the areas that concern them most and secondly, institutions focus on teaching and research with the administrative tasks only facilitating these aims. Banata and Kuh (1998, p. 41) have drawn attention to this oversight and state: "A faculty cannot by itself accomplish the higher education institution's objectives for a student's intellectual and personal development; it needs the cooperation of others who work with students where students spend the majority of their time."

Support staff plays an important role in the creation and development of knowledge and innovation in a higher education institution (Gillespie et al., 2001). The term "support staff" is used in this study to refer to all the non-academic staff employed within the higher education institution, including staff in academic support, administrative support, library and technical areas. Support staff within higher education institutions experience different problems (Smewing & Cox, 1998). For example, it appears as if many of the pressures on academic and senior support staff are passed on to secretarial and administrative employees. This in turn merely increases their duties and creates a situation where they have to provide support to more and more people. This gives rise to problems with regard to their control of workflow, deadlines and conflicting pressures. In addition, they are required to use new technology, sometimes without adequate training, and often in circumstances where the people they support do not understand the complexities of the tasks involved.

Higher education institutions execute their plans and reach their objectives primarily through the individual and collective efforts of their academic and support staff. Against this backdrop, staff burnout and engagement and how this relates to their affective and cognitive well-being warrant further investigation.

Work-related well-being

Maslach (1982, 1993), Maslach, Jackson, and Leiter (1996) and Maslach et al. (2001) describe burnout as a syndrome consisting of three dimensions, namely feelings of emotional exhaustion, depersonalisation (cynicism) and reduced personal accomplishment. Emotional exhaustion, the individual stress dimension of burnout, refers to feelings of depleted physical

and emotional resources and prompts actions in the individual to distance him/herself emotionally and cognitively from his/her work, presumably as a way to cope with work overload. The interpersonal context dimension is represented by depersonalisation, which entails negative, callous and cynical attitudes or excessively detached responses to the recipients of service and care, reducing the recipient to an impersonal object. These two dimensions are generally considered to be the core symptoms of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The third dimension, lack of personal accomplishment (professional efficacy), is not regarded as a core characteristic of burnout. Maslach and Schaufeli (1993) noted that burnout is an individual stress experience embedded in the context of complex social relationships. The research focus on burnout has shifted from a crisis in one's relationship with people at work (depersonalisation) to indifferent or distant attitudes towards one's relationship with work in general (cynicism) (Maslach et al., 1996). *Burnout*, as an indicator of *distress* (Bourbonnais, Comeau, Vézina, & Dion, 1998), is a negative work-related psychological state that is primarily characterised by mental exhaustion. Distress is defined as a negative psychological response to a stressor, as indicated by the presence of negative psychological states (Nelson & Simmons, 2003).

Cognitive weariness was devised as an analogue to Maslach's (1993) emotional exhaustion concept and can be considered as an extension of the burnout concept. It refers to the lack of capacity to take up new information and loss of concentration at work. Whereas the concept of emotional exhaustion taps feelings of work-related fatigue (thus reflecting the tiredness-vigour dimension of affect), cognitive weariness specifically reflects employees' cognitive functioning, especially the degree to which workers are able to take up new information and able to concentrate on their work (Van Horn, Taris, Schaufeli, & Schreurs, 2004). Empirical research has shown that (affective) well-being on the one hand and indicators of cognitive functioning (e.g. "the number of minor everyday errors people make") (Broadbent, Cooper, FitzGerald, & Parkes, 1982) and self-reports about one's ability to concentrate and decision-making skills (Goldberg, 1972; Wissing & Van Eeden, 2002) on the other are correlated. As cognitive functioning is relevant for many of today's jobs (e.g. 56% of the European workers reports that they must solve complex tasks) (Merllié & Paoli, 2001), it was decided that this dimension deserved an additional place in the model of burnout (Schaufeli, 2003).

A major part of the research on burnout has focused on identifying its antecedents and outcomes (Lee & Ashforth, 1996; Schaufeli & Buunk, 2002). Only in recent years have

burnout researchers started to pay attention to the conceptual opposite of burnout, namely work engagement (Maslach et al., 2001; Schaufeli, Salanova, Gonzales-Roma, & Bakker, 2002).

Schaufeli et al. (2002) define engagement as a positive, fulfilling, work-related mental state characterised by vigour, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour. Engagement consists of three dimensions (Schaufeli et al., 2002), namely vigour, dedication and absorption. Vigour is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, not being easily fatigued, and persistence even in the face of difficulties. Dedication is characterised by deriving a sense of significance from one's work, feeling enthusiastic and proud about one's job, and feeling inspired and challenged by it. Absorption is characterised by being totally and happily immersed in one's work and having difficulties detaching oneself from it. When absorbed in one's work, time passes quickly and one forgets everything else that is around. *Engagement*, as an indicator of *eustress* (Bourbonnais et al., 1998), is identified as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption. Eustress can also be described as desirable and associated with positive effects of an antecedent response (Selye, 1976). Following Selye's conception of eustress, Quick, Quick, Nelson and Hurrell (1997) identified eustress as essentially good health and high performance. Nelson and Simmons (2003) conceptualised eustress as a positive psychological response to a stressor, as indicated by the presence of positive psychological states.

Research on the engagement concept has taken two different but related paths. Maslach and Leiter (1997, p. 23) rephrased burnout as "an erosion of engagement with the job". Therefore, they also assess engagement by the opposite pattern of scores on the three Maslach Burnout Inventory (MBI) dimensions – low scores on exhaustion and cynicism, and high scores on efficacy are indicative of engagement. Schaufeli and his colleagues partly agree with Maslach and Leiter's (1997) description, but take a different perspective and define and operationalise engagement in its own right. Schaufeli et al. (2002) consider burnout and engagement to be opposite concepts that should be measured independently with different instruments.

According to Schaufeli et al. (2002), vigour (exhaustion) and dedication (cynicism) are two dimensions of engagement and logically related to burnout. Vigour refers to the activation dimension of well-being, while dedication refers to identification with work. Although absorption and professional efficacy seem to be less related than the above dimensions, both dimensions might also be regarded as components of engagement. Schaufeli and Bakker (2004) found that burnout and engagement are negatively related, sharing between 10% and 25% of their variance. In turn, Storm (2002) found a canonical correlation of 0,51 between burnout and engagement. A moderately negative correlation ($r = -0,42$) was found between cynicism and dedication. Vigour correlated negatively with exhaustion ($r = -0,28$).

Two prototypes of employee well-being can be distinguished. Both are part of a more comprehensive taxonomy constituted by the two independent dimensions of identification and activation (energy) (Watson & Tellegen, 1985). Energy ranges from exhaustion to vigour, while identification ranges from cynicism to dedication. Theoretically, vigour is conceived as the opposite of emotional exhaustion, and dedication is conceived as the opposite of cynicism (Maslach & Leiter, 1997; Schaufeli et al., 2002). From this point of view, vigour items and exhaustion items measure a single underlying bipolar dimension, and, consequently, they should be scalable on a single underlying bipolar dimension. The same applies to the other pair of opposite constructs: dedication items and cynicism items should be scalable on a single underlying bipolar dimension as well. These underlying bipolar dimensions have been labelled energy and identification respectively (Schaufeli et al., 2002). According to this framework, burnout is characterised by a combination of exhaustion (low energy) and cynicism (low identification), whereas engagement is characterised by vigour (high energy) and dedication (high identification). This framework forms the basis for understanding cognitive and affective well-being at work encompassing burnout and engagement.

The consequences of burnout are potentially serious and of individual and organisational concern, with ramifications for general well-being, job performance, absenteeism and staff turnover (Kilfedder, Power, & Wells, 2001). According to Levert, Lucas, and Ortlepp (2000), burned out workers show a lack of commitment and are less capable of providing adequate services, especially along dimensions of decision-making and initiating involvement with clients. Burned out workers are also sometimes too depleted to give of themselves in a creative, cooperative fashion (Sammut, 1997).

Background variables

It seems that there is ambiguity in research findings as far as the relationship between burnout and particular background variables, such as gender, age, years of experience, academic rank, language and qualifications are concerned (Van Horn, 2002; Byrne, 1991; Coetzee & Rothmann, 2004). Consequently, these background variables are also considered in the present study.

According to Byrne (1991), investigations of gender differences in educator burnout have yielded inconsistent findings. He reported that previous studies (Maslach & Jackson, 1981; Anderson & Iwanicki, 1984) found significantly greater feelings of reduced personal accomplishment for females than for males, whereas other (Maslach & Jackson, 1985; Schwab & Iwanicki, 1982) reported no significant differences. In all cases, the levels of exhaustion, mental distance, and professional efficacy did not differ between the gender groups.

Age appears to be a prominent background variable with respect to the emotional exhaustion component of burnout. Previous studies found that significant burnout differences exist between age categories. According to Barkhuizen, Rothmann, and Tytherleigh (2004), academics between the ages of 60-69 experienced significantly lower levels of exhaustion compared to their colleagues between the ages of 20-29, 30-39 and 40-49 respectively. These results partially support earlier findings of Byrne (1991) and Jackson, Barnett, Stajich, and Murphy (1993) suggesting that academics between the ages of 20-39 are more likely to feel exhausted than academics aged 50 years and older.

Literature is quite consistent in reporting no significant effect of marital status on the incidence of burnout (Maslach & Jackson, 1981, 1985; Schwab & Iwanicki, 1982). Barkhuizen et al. (2004) found the same tendency regarding academic rank and qualifications.

Research by Anderson and Iwanicki (1984) and Schwab and Iwanicki (1982) found no support for the notion that years on the job would be an important variable in terms of burnout. In contrast, Coetzee and Rothmann (2005) found that employees with more than 10

years experience at an institution experienced significantly higher levels of Exhaustion, Cynicism and Cognitive Weariness.

Objectives

The objectives of this study were to test a model of work-related well-being and to investigate the relationship between background variables on the one hand and work-related well-being on the other hand.

The following hypotheses are set for the purposes of this study:

- H1: Burnout (as measured by the MBI-GS and Cognitive Weariness Scale) is a four-factor construct.
- H2: Work engagement (as measured by the UWES) is a three-dimensional construct and shows high internal consistency.
- H3: Burnout dimensions (exhaustion and cynicism) and engagement dimensions (vigour and dedication) are related to two distinct dimensions, namely distress and eustress.
- H4: Background variables like language, age, education level and gender will predict differences in levels of burnout in different groups.

METHOD

Research design

A survey design targeting all permanent employees of the higher education institution was used.

Participants

The study population consisted of support ($N=1084$) and academic staff ($N=529$) of a higher education institution in South Africa. A total of 1 613 questionnaires were distributed across six campuses. All available staff was included in the survey. A total of 353 completed questionnaires were received back. This included responses from 132 academic and 221 support staff members. This gives a total response rate of 21,88% (37,4% for academic staff and 62,6% for support staff).

Females constituted 63,3% and males 36,7% of the participants. The majority of the participants (65,8%) were married. Different language groups were included in the study. A total of 69,9% of the participants were Afrikaans speaking, 12% English speaking and 18,1% were speaking other indigenous languages.

The age distribution pointed to a reasonably young workforce with only 15,4% older than 50 years. In total, 22,8% of the population obtained a Master's (or related) qualification and/or a higher qualification. 60,5% of the participants had been in service at the institution for 6+ years. 40,2% reported to have had no opportunity to be promoted during their years of service. 80,7% of the respondents indicated that they don't smoke, and 66,9% admitted to drinking alcohol. The characteristics of the participants are shown in Table 1.

Table 1
Characteristics of Participants

Item	Category	Frequency	Percentage
Employment category	Academic	132	37,4
	Support	221	62,6
Gender	Female	221	63,3
	Male	128	36,7
Marital status	Single	61	17,4
	Engaged/in relationship	20	5,7
	Married	231	65,8
	Divorced	32	9,1
	Widow/er	7	2,0
Language	Afrikaans	244	69,9
	English	42	12,0
	Other	43	18,1
Age distribution	20 – 30	73	21,7
	31 – 40	118	35,0
	41 – 50	94	27,9
	51+	52	15,4
Education	Grade 12 or lower	91	26,2
	3 year qualification	75	21,6
	4 year qualification	102	29,4
	Masters	63	18,2
	Doctoral	16	4,6
Years of service	0 – 2 years	51	15,4
	3 – 5 years	80	24,1
	6 – 10 years	109	32,8
	11 years +	92	27,7
Opportunity for promotion	none	115	40,2
	1	120	42,0
	2+	51	17,7
Smoke	Yes	67	19,3
	No	281	80,7
Drink alcohol	Yes	232	66,9
	No	115	33,1

Measurement battery

The following measuring instruments were used in the empirical study:

The *Maslach Burnout Inventory - General Survey (MBI-GS)* (Schaufeli, Leiter, Maslach, & Jackson, 1996) was used to measure burnout. The MBI-GS consists of 16 items and has three subscales: Exhaustion (five items), Cynicism (five items) and Professional Efficacy (six items). Internal consistencies (Cronbach coefficient alphas) reported by Schaufeli et al.

(1996) varied from 0,87 to 0,89 for Exhaustion, 0,73 to 0,84 for Cynicism and 0,76 to 0,84 for Professional Efficacy. Test-retest reliabilities after one year were 0,65 (Exhaustion), 0,60 (Cynicism) and 0,67 (Professional Efficacy) (Schaufeli et al., 1996). All items were scored on a seven-point frequency rating scale ranging from 0 (*never*) to 6 (*daily*). Storm and Rothmann (2003) confirmed the three-factor structure of the MBI-GS in a sample of police members, recommending that Item 13 should be dropped from the questionnaire. The structural equivalence of the MBI-GS for different race groups was also confirmed. The following Cronbach alpha coefficients were obtained for the MBI-GS: Exhaustion: 0,88; Cynicism: 0,79; Professional Efficacy: 0,78 (Storm, 2002). Coetzee and Rothmann (2004) confirmed a four-factor structure for the MBI-GS in a study involving 372 academic and support employees at a higher education institution in South Africa.

The *Utrecht Work Engagement Scale (UWES)* (Schaufeli et al., 2002) was used to measure the levels of engagement of participants. The UWES measures levels of engagement on a 17-item seven-point frequency rating scale, ranging from 0 (*never*) to 6 (*every day*). Three dimensions can be distinguished, namely vigour, dedication and absorption. Engaged individuals are characterised by high levels of vigour and dedication, as well as by elevated levels of absorption. Steyn (2004) confirmed a one-factor model of work engagement in a South African study. Two other separate South African studies were found confirming a three-factor model of work engagement as measured by the UWES. In both these studies, one in the SA Police Service (Rothmann & Storm, 2003) and one in the SA Higher Education sector (Coetzee & Rothmann, 2005), acceptable Cronbach alpha coefficients of >0,70, as proposed by Nunnally and Bernstein (1994), were found.

The *Cognitive Weariness Scale (CWS)* was developed by Van Horn et al. (2004) to measure cognitive well-being. Initially this scale consisted of seven items, but they recommended that, due to high internal consistency of Items 3 and 7, Item 7 be dropped in the general six-item version. The scale refers to the capacity to take up new information and loss of concentration at work, for instance, "I have trouble concentrating". It was scored on a seven-point frequency scale with 0 (*a few times a year*) to 6 (*every day*). Van Horn et al. (2004) reported a Cronbach alpha coefficient of 0,92.

A *biographical questionnaire* was designed and used to gather information on various aspects of the population, e.g. gender, marital status, language, and education.

Statistical analysis

The statistical analysis was carried out with the help of the SPSS program (SPSS Inc., 2003) and the Amos program (Byrne, 2001). SPSS was used to carry out statistical analysis regarding reliability and validity of the measuring instruments, descriptive statistics, multivariate analysis of variance, and correlation coefficients. The Amos program was used to carry out structural equation modelling.

To test the factorial validity of the MBI-GS, structural equation modelling (SEM) methods were initially used with the maximum likelihood method of the AMOS program (Arbuckle, 1997). SEM is a statistical methodology that takes a confirmatory or hypothesis-testing approach to the analysis of a structural theory bearing on a specific phenomenon (Byrne, 2001, p. 3). However, when model-fit with the data is computed, an exploratory factor analysis approach is taken in the post-hoc analysis of the data.

Hypothesised relationships are tested empirically for goodness of fit with the sample data. The Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), and Comparative Fit Index (CFI) all represent indices of fit and/or variance with the hypothesised model. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). The Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973) measures co-variation explained by the model that is specifically developed to assess factor models. For these fit indices, it is generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995). Browne and Cudeck (1993) suggest using the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval of the RMSEA that estimates the overall amount of error. The RMSEA point estimate should be 0.05 or less and the upper limit of the confidence interval should not exceed 0,08.

Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to analyse the data. Cronbach alpha coefficients were used to assess the reliability (i.e. internal consistency) of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale. Principal Component Analysis

with a direct oblimin rotation was used to explore the second-order factor structure of the measuring instruments.

Finally, multivariate analysis of variance (MANOVA) was used to investigate the significance of differences between burnout (exhaustion, cynicism, professional efficacy and cognitive weariness), engagement (vigour and dedication), and various biographical characteristics of the sample. MANOVA tests whether mean differences among groups on a combination of dependant variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable that maximises group differences is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda was used to test the significance of the effects. Wilks' Lambda is a likelihood ratio statistic that tests the likelihood of the data under the assumption of equal population mean vectors for all groups against the likelihood under the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Because multiple ANOVAs were used, a Bonferroni-type adjustment was made for inflated Type 1 error. Tukey tests were done to indicate which groups differed significantly when ANOVAs were done.

RESULTS

Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 1997), were used to test the factorial models for the MBI-GS. Data analysis was conducted in two consecutive steps. Firstly, a quick overview of the model fit was done by looking at the overall χ^2 value, together with its degrees of freedom and probability value. Several goodness-of-fit statistics (GFI, AGFI, NFI, TLI, CFI and RMSEA) were used to globally assess the model fits. Secondly, given findings of a poor-fitting initially hypothesised model, exploratory analysis was done. Possible misspecifications, as suggested by the so-called modification indices, were looked for in order to fit a revised, re-specified model to the data.

Hypothesised model

The aim of this study was to verify an adapted model of burnout consisting of a four-factor model (as confirmed in research) with Cognitive Weariness as a fourth factor. Three default models using the total population were tested:

- A one-factor model of burnout including the Cognitive Weariness items.
- Two three-factor models. The first three-factor model (3.1 Factor) consisted of Exhaustion (including the Cognitive Weariness items), Cynicism and Professional Efficacy. The second three-factor model (3.2 Factor) consisted of Weariness (including Exhaustion and Cognitive Weariness items as separate factors), Cynicism and Professional Efficacy.
- A four-factor model of burnout (with Cognitive Weariness as fourth factor).

Table 2 presents fit statistics for the different models.

Table 2

The Goodness-of-fit Statistics for the Hypothesised 1- Factor, 3.1- Factor & 3.2 -Factor MBI-GS Models

Default Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Model 1 (1 factor)	1380,71	7,31	0,63	0,55	0,61	0,60	0,64	0,13
Model 2 (3.1 factor)	839,32	4,51	0,74	0,68	0,76	0,78	0,80	0,10
Model 3 (3.2 factor)	414,84	2,26	0,90	0,87	0,88	0,92	0,93	0,06

The first model tested. Model 1 (1 factor), showed very poor overall fit as can be seen from the statistically significant χ^2 value of 1380,71 ($df = 189$; $p = 0,00$). All the other fit indices confirmed an extremely poor fit with the data.

The second model tested, Model 2 (3.1 factor), consisted of 3 factors, namely Exhaustion (including the Cognitive Weariness items), Cynicism and Professional Efficacy. Although slightly better than Model 1, a rather poor overall fit was again obtained as indicated by the statistically significant χ^2 value of 839,32 ($df = 186$; $p = 0,00$). All the other fit indices confirmed a poor fit with the data. The third model tested, Model 3 (3.2 factor), consisted of Professional Efficacy, Cynicism and Weariness. The last factor consisted of the combined

loadings of Exhaustion and Cognitive Weariness. A better, but still not satisfactory fit with the hypothesised four-factor model was obtained. This is reflected in the statistically significant χ^2 value of 414,84 ($df = 184$; $p = 0,00$). All the other fit indices confirmed a poor fit with the data.

Subsequently, a four-factor model (Model 1) was tested (See Table 3 below). The full hypothesised four-factor model (Exhaustion, Cynicism, Professional Efficacy, Cognitive Weariness) consisting of 21 items was tested, with Exhaustion and Cognitive Weariness as separate factors (instead of combined as in the three-factor model). The statistically significant χ^2 value of 382,86 ($df = 183$; $p = 0,00$) revealed a reasonably good fit with the originally hypothesised four-factor model, and is substantially better than the χ^2 values of the 1-factor, 3.1-factor and 3.2-factor models. The indices of GFI, IFI, TLI and CFI all above 0,90 indicate a reasonably good fit between the hypothesised model and the data obtained. However, with the indices of NFI and RMSEA respectively at 0.89 and 0,06, modification indices (MI) were examined to identify possible areas of misfit.

Table 3

The Goodness-of-fit Statistics for the Hypothesised Four-Factor MBI-GS Models

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Model 1 (4 factor)	382,86	2,09	0,90	0,88	0,89	0,93	0,94	0,06
Model 2 (4 factor)	360,13	1,99	0,91	0,89	0,90	0,94	0,95	0,05

Examination of the modification indices revealed that by paring error 14 and error 15 a better fit could be achieved, whilst influencing only one factor namely Cynicism.

Post-hoc analysis

Based on the regression weights and standardised residual co-variances, the four-factor model was re-estimated with error 14 and 15 paired. The final model of the MBI-GS structure (Model 4) was based on all 21 of the original items and included one correlated error between Errors 14 and 15. After testing each consequent model, based on the adjustments as described, the χ^2 value and other indices seem to have improved compared to those of the original four-factor model. These results support Hypothesis 1.

The results of the final model, Model 2 (4 factor), are shown in Table 3. The χ^2 value improved after adjustment to 360,13 ($df = 182$; $p = 0,00$). The other fit statistics indicate, as in the first four-factor model, an acceptable fit also for the re-specified model.

The descriptive statistics, alpha coefficients and correlations of the four factors of the MBI-GS and the two factors of the UWES are given in Table 4.

Table 4

Descriptive Statistics, Alpha Coefficients and Correlations of the MBI-GS, CWS and UWES

Dimension	Mean	SD	Skewness	Kurtosis	α	1	2	3	4	5
1. Exhaustion	11,82	7,29	0,46	-0,56	0,87	-	-	-	-	-
2. Cynicism	6,88	5,25	0,51	-0,59	0,72	0,56***	-	-	-	-
3. Professional Efficacy	29,95	5,11	-1,38	3,54	0,78	-0,17*	-0,36*	-	-	-
4. Cognitive Weariness	9,71	6,98	0,94	0,48	0,88	0,52***	0,52***	-0,43**	-	-
5. Vigour	26,28	6,08	0,83	1,18	0,77	-0,41**	-0,47**	0,69***	-0,51***	-
6. Dedication	24,20	5,45	-1,25	1,40	0,88	-0,34**	-0,53***	0,72***	-0,44**	0,74***

* Statistically significant differences: $p < 0,01$

+ Practically significant – $r > 0,30$ (medium effect)

++ Practically significant – $r > 0,50$ (large effect)

The results in Table 4 indicate that the scores on the four dimensions of the adapted model of burnout are normally distributed. From the α values it is evident that with regard to internal consistency, all dimensions of the MBI-GS demonstrate acceptable coefficient alphas above the 0,70 guideline provided by Nunnally and Bernstein (1994). The same seem to be true for the UWES with both Vigour and Dedication above 0,70. These results support in part Hypothesis 2.

Vigour, Dedication and Professional Efficacy showed statistically significant correlations. These relationships were also practically significant (all large effects). Cognitive Weariness, Exhaustion and Cynicism also showed practically significant correlations. Between the UWES factors, Vigour and Dedication, a practically significant correlation (large effect) was found.

As far as negative correlations in the data are concerned, there are practically significant negative correlations (medium effect) between the subscales of the UWES (Vigour and Dedication) and three of the MBI-GS subscales namely Exhaustion, Cynicism and Cognitive Weariness. One negative correlation (large effect) was found between Dedication and Cynicism. Negative correlations also exist between the UWES factors and Cognitive Weariness. Professional Efficacy correlates negatively with Exhaustion and Cynicism.

Table 5
Pattern Matrix for the MBI-GS, CWS and UWES

Dimension	Component	
	1	2
1. Exhaustion	0,16	0,96
2. Cynicism	-0,15	0,75
3. Professional Efficacy	0,98	0,14
4. Cognitive Weariness	-0,21	0,67
5. Vigour	0,80	-0,18
6. Dedication	0,85	-0,11

Principle component analysis showed that 76,33% of total variance could be explained by two components with Eigenvalues >1. The results in Table 5 show the loadings on the two components. From the results it is clear that Professional Efficacy, Vigour and Dedication correlate strongly with component 1. This component can be identified as a positive factor which can be labelled as *Engagement* or *Eustress*. Component 2 is a negative factor and can be labelled as *Burnout* or *Distress*. This component correlates strongly with the Exhaustion, Cynicism and Cognitive Weariness dimensions. Component 1 and 2 correlated significantly (-0,45). These results support Hypothesis 3.

Differences between groups

Next, MANOVA was conducted to investigate the relationship between the perceived wellness of various groups identified in the sample including language, age, education level, years at institution, years in current job, campus and gender. Demographic characteristics

were first analysed for statistical significance using Wilks' Lambda statistics. The results of these comparisons are reflected in Table 6.

Table 6
MANOVA with various Independent Variables

Variable	Value	F	Df	Error df	p	η^2
Language	0,91	2,61	12	682	0,00*	0,04
Age	0,96	0,77	18	928	0,74	–
Education level	0,90	1,21	30	1346	2,06	–
Years at Institution	0,95	1,02	18	903	4,31	–
Years in current job	0,92	1,52	18	894	0,75	–
Gender	0,98	0,97	6	342	4,47	–

* Statistically significant differences: $p < 0,01$

Table 6 shows that the independent variable Language had a significant effect on the dependent variable wellness ($F_{(12, 682)} = 2,61; p < 0,01; \eta^2 = 0,039$). Further tests of between-subjects effects revealed that three factors accounted for this effect, namely Exhaustion ($F = 6,95; p < 0,01; \eta^2 = 0,04$), Vigour ($F = 4,52; p < 0,01; \eta^2 = 0,025$) and Dedication ($F = 6,75; p < 0,01; \eta^2 = 0,038$).

Tukey HSD tests revealed some correlations and differences in multiple comparisons between the Language categories (1) Afrikaans, (2) English and (3) Other languages. On the Exhaustion scale significant differences ($p < 0,01$) were detected when comparing Groups 1 and 3, with Group 1 experiencing generally higher levels of Exhaustion than Group 3. The same tendency was discovered on the Dedication scale but in reverse, indicating that Group 1 exhibits less Dedication whilst Group 3 seems to be more dedicated. Less significant correlations exist on the Vigour scale with p values for both the groups being 0,02. No other statistically significant effects were caused by the other independent variables. These results partially support Hypothesis 4.

DISCUSSION

The objectives of this study were firstly to validate the use of the MBI-GS including the Cognitive Weariness scale and the UWES for staff in higher education institutions in South Africa. The second objective was to test a model of energy and identification at work and to

investigate the relationship between background variables on the one hand and energy and identification with work on the other hand. The study confirmed a four-factor structure of burnout consisting of Exhaustion, Cynicism, Professional Efficacy, and Cognitive Weariness. A two-factor structure of work engagement consisting of Vigour and Dedication, as measured by the UWES, was also confirmed. Acceptable internal consistency in the UWES as measure of engagement was found. A negative correlation between the factors predicting burnout and those predicting engagement was evident. Lastly, language was the only reliable background variable found to predict differences in levels of burnout between subgroups.

During the investigation it became clear that neither of the hypothesised one-factor or three-factor models exhibited sufficient fit to be adopted. The first four-factor model tested consisted of 21 items, including 15 items from the MBI-GS and six items from the Cognitive Weariness Scale. This excluded the original MBI-GS Item 13 eliminated from the instrument. It seems as if problems with Item 13 (“I just want to do my job and not be bothered”) might be caused by the ambivalent nature of the item, as confirmed by previous research (Rothmann, Jackson, & Kruger, 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2002; Schutte, Toppinen, Kalimo, & Schaufeli, 2000). The model revealed sufficient fit.

After examining modification indices it was decided to pare Errors 14 and 15 on the Cynicism factor. The paring improved the fit of the model substantially. The results obtained in this study using the structural equation modelling approach confirmed the hypothesised four-factor model for the adapted MBI-GS and Cognitive Weariness Scales including Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness as factors. This is only the second time a four-factor model is confirmed in South African research on burnout, and it supports the findings of Coetzee and Rothmann (2004). These findings support the adoption of Hypothesis 1.

Investigations into the internal consistencies of both the MBI-GS and UWES revealed acceptable coefficient alphas in all six scales above 0,70. In terms of the relationship between burnout and engagement, the following was found: The core dimensions of burnout, namely Exhaustion and Cynicism, correlate with Cognitive Weariness and presuppose that burnout is related to and will lead to a diminished capacity to concentrate and to deal with new information at work. Although the UWES factors of vigour and dedication showed high

internal consistencies, structural equation modelling did not support the hypothesised three factor structure for engagement. This leads to only the partial adoption of Hypothesis 2 in so far as internal consistency of the scales.

As can be expected there is a strong correlation between the UWES factors of Vigour and Dedication. These factors also correlate positively with Professional Efficacy. This indicates that if a person has energy and is dedicated, thus engaged, Professional Efficacy will be positively influenced. Furthermore, correlations in the burnout dimension were confirmed by strong correlations between Exhaustion, Cynicism and Cognitive Weariness. It is also clear that Engagement is negatively correlated with burnout from the strong negative correlations between Vigour, Dedication and Professional Efficacy and the burnout indicators of Exhaustion, Cynicism and Cognitive Weariness.

From the results it seems that only the Language variable can be highlighted as a valid predictor for differences in levels of wellness. From the biographical data it became clear that the Afrikaans-speaking group (69,9%) in comparison with the Other languages group (18,1%), excluding English-speaking staff (12%), experienced more burnout as reflected in the elevated scores on Exhaustion and Dedication. The Other languages group exhibits lower levels of Exhaustion and higher levels of Dedication. This seems to support in part the findings of Coetzee and Rothmann (2004), except for the fact that the English-speaking group did not, as in the previous study, show elevated levels of burnout. This finding prompts the adoption of Hypothesis 4 in part, as only the Language variable, and none of the other variables, was found to be a valid predictor of levels of burnout and engagement

Affective well-being at work would be characterised by high levels of Vigour (Energy) and Dedication (Identification). High scores on these dimensions would propose a syndrome of Engagement. On the opposite side of the matrix, high levels of Cynicism accompanied by high levels of Exhaustion would propose a syndrome of Burnout. However, the findings in this study propose that the Afrikaans-speaking group suffer from higher levels of Exhaustion, accompanied by lower levels of Dedication (Identification) than the comparative groups. These findings support the adoption of Hypothesis 3.

With regard to differences attributable to language groups, international research findings indicate that no significant differences of burnout patterns and burnout levels could as yet be

established (Enzmann, Schaufeli, & Girault, 1994; Schutte et al., 2000). Nationally, however, the study of Coetzee and Rothmann (2005) found practically significant differences in engagement levels of employees in different language groups. In part, this study supports the current findings. The difference, however, seems to be that higher levels of exhaustion, accompanied with lower levels of dedication, were found and seems to point to a syndrome of over-commitment on the part of the Afrikaans-speaking group. Although the current findings do not necessarily support a syndrome of burnout, it can be interpreted as the first step of burnout where exhaustion increases and dedication decreases. In other words, exhausted employees will be incapable of performing because of the loss of energy, coupled with a lack of dedication, which refers to a weak involvement in their work.

The results of the Principal Component Analysis to explore the second-order factor structure of the MBI-GS, CWS and UWES indicated that the second-order factors underlie two distinct components. Component one consists of Professional Efficacy, Vigour and Dedication. This component can be identified as a positive factor, aptly labelled as “Engagement” or “Eustress”. Eustress is referred to in the literature as experiences of pleasure, enjoyment, satisfaction, ecstasy or fulfilment that occur during some stress reactions (Selye & Tache, 1979). Component two is a negative factor and can be labelled as “Burnout” or “Distress”. This component correlates strongly with the Exhaustion, Cynicism and Cognitive Weariness dimensions. Literature refers to distress on the other hand as a state of discomfoting tension, conflict or psychological pressure (Budzinski & Pfeffer, 1980).

With reference to stress, distress and eustress, Lazarus (1988) defined stress as a relationship between the person and the environment which is perceived by the person as taxing or exceeding his/her resources. He suggested that environmental events and individual characteristics combine to shape cognitive appraisals. Furthermore he noted that cognitive appraisals classify such events as either a challenge “eustress” or a threat “distress”. The difference according to him lies in the perceived opportunity for positive mastery of a situation or in the actual or perceived potential of an event to cause harm. From this perspective, the study of burnout and engagement could benefit from the voluminous literature on stress, including distress, as well as contribute to the limited literature and understanding of the eustress concept.

A better understanding of the above findings can be gained if one considers the change and transformation in the higher education sector in South Africa. These changes relate to issues of access to education, redress of the legacy of apartheid, reconstruction and development of society, diminishing financial resources and structural changes and adjustments in general. The above realities create an unpredictable and ever-changing environment for institutions to operate in. At institutional level this translates into challenges for both academic and support staff. They are required to make paradigm shifts, adopt new policies and practices and perform a number of roles simultaneously.

Since 1994, the institution under study had experienced an increase in student numbers and accompanying change in the composition of the student population from predominantly white to predominantly black. This brought about changes in the student culture affecting teaching methods, language of instruction and workload. Considering that the largest part of the workforce participating in this study is Afrikaans speaking (69,9%) (and presumably white), adjusting to these changes in a relatively short period of time might have resulted in elevated levels of Exhaustion, Cynicism, reduced Professional Efficacy and Cognitive Weariness in comparison with the English-speaking (12,0%) and Other Languages (18,1%) groups.

For this higher education institution, but even more so for higher education institutions in South Africa in general, the consequences of burnout are potentially serious. It is of individual and institutional concern, with ramifications for staff's general well-being, job performance, absenteeism and staff turnover (Kilfedder et al., 2001). The elevated levels of burnout portrayed in this study could lead to one or more of the above outcomes. This in turn could influence the performance of the institution negatively, and bring about increased costs and poor institutional performance. As burned out workers show a lack of commitment and are less capable of providing adequate services, especially along dimensions of decision-making and initiating involvement with clients (Levert et al., 2000). This aspect is easily grasped considering the high levels of contact academic and support staff of higher education institutions has with clients, and the need of students (more often than not from disadvantaged backgrounds) for quality services as paying customers.

The confirmation of a four-factor structure of burnout (Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness) as measured by the MBI-GS and Cognitive Weariness Scale could serve as a standard to assess levels of burnout of academic and support staff in

higher education institutions in South Africa. Add on to this the promising internal consistency of the UWES subscales namely Vigour and Dedication, and an integrated model of affective well-being is at least in part a reality. The higher levels of burnout observed among the Afrikaans-speaking group at the institution is however a cumbersome aspect that warrants further investigation.

A limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzmann, and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variances between measures can be attributed to method variance. Another limitation is the size of the sample, which has significant limitations in terms of the generalisation of the findings to the total population.

RECOMMENDATIONS

According to the results obtained in this study, the use of the MBI-GS combined with the Cognitive Weariness Scale is recommended to assess burnout in higher education institutions in South Africa. Based on this and previous studies, additional research is needed to further determine the reliability and validity of the four-factor model of burnout in other industries, as both studies to date have focused on the higher education sector in South Africa.

The UWES seems to be a reliable measure of engagement in so far as the Vigour and Dedication subscales are concerned. However, the findings in this study do not support the original UWES three-factor structure findings of Schaufeli et al. (2002). It also did not confirm later findings in South African studies conducted by Rothmann and Storm (2003) or Coetzee and Rothmann (2005). Further research is required to clarify the factor structure and establish the factorial validity of the UWES as measure of engagement.

At the organisational level, the discrepancies found in levels of burnout between different language groups should be a cause of concern. This is especially relevant considering that the negatively affected group (experiencing diminished levels of Vigour and Dedication) seems to represent the majority of the sample, and supposedly then also of the total population. This phenomenon should be investigated further to determine the full extent thereof, as well as the

contributing factors. Following this, suitable interventions could be developed to assist employees suffering from increased levels of burnout.

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REFERENCES

- Anderson, M. G., & Iwanicki, E. F. (1984). Teacher motivation and its relationship to burnout. *Educational Administration Quarterly*, 20(2), 109-132.
- Arbuckle, J. L. (1997). *Amos user's guide version 4.0*. Chicago, IL: Smallwaters Corporation.
- Banata, T. W., & Kuh, D. K. (1998). A missing link in assessment: collaboration between academics and student affairs professionals, *Change*, 30(2),40-46.
- Barkhuizen, E. N., Rothmann, S., & Tytherleigh, M. Y. (2004). *Burnout of academics in a South African Higher Education Institution*. Paper presented at the 2nd South African Work Wellness Conference, Potchefstroom, South Africa.
- Blackmore, J. (2001). Universities in crisis? Knowledge economics, emancipatory pedagogies, and the critical intellectual. *Educational Theory*, 51, 353-370.
- Blix, A. G., Cruise, R. J., Mitchell, B. M., & Blix, G. G. (1994). Occupational stress among university teachers. *Educational Research*, 36, 157-169.
- Bourbonnais, R., Comeau, M., Vézina, M., & Dion, G. (1998). Job strain, psychological distress, and burnout in nurses. *American Journal of Industrial Medicine*. 34(1), 20-28.
- Broadbent, D. E., Cooper, P. F., FitzGerald, P., & Parkes, K. R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology*, 21, 1-16.
- Brown, P. (1999). Globalization and the political economy of high skills. *Journal of Education and Work*, 12, 233-251.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). London: Sage.
- Brunt, G. (2000). Burnout. Retrieved January 19, 2006, from the World Wide Web: <http://www.corporatetraining.co.za/news3.htm>
- Budzinski, T., & Pepper, K. (1980). Biofeedback training. In I. Kutash, L. Schlesinger & Associates (Eds.), *Handbook on stress and anxiety* (pp 413-427). San Francisco, CA: Jossey-Bass.
- Byrne, B. M. (1991). The Maslach Burnout Inventory: Validating factorial structure and invariance across intermediate secondary and university educators. *Multivariate Behavioral Research*, 26, 583-605.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.

- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.
- Coetzee, S. E., & Rothmann, S. (2004). An adapted model of burnout for employees at a higher education institution in South Africa. *SA Journal of Industrial Psychology*, 30(3), 29-40.
- Coetzee, S. E., & Rothmann, S. (2005). Work engagement of employees at a higher education institution in South Africa. *Southern African Business Review*, 9(3), 23-34.
- Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organisational stress: A review and critique of theory, research and applications*. Thousand Oaks, CA: Sage.
- Cross, M., Mungadi, R., & Rouhani, S. (2002). From policy to practice: Curriculum reform in South African education. *Comparative Education*, 38, 171-187.
- Davis, A. J. (1996). Employee assistance provision in higher education. *Employee Counselling Today: The Journal of Workplace Learning*, 8(5), 4-12.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- Dlamini, C. R. M. (1995). The transformation of SA Universities. *South African Journal of Higher Education*, 9, 39-46.
- Doyle C., & Hind, P. (1998). Occupational stress, burnout and job status in female academics. *Gender, Work and Organizations*, 5, 67-82.
- Du Toit, A. (2000). Critic and citizen: The intellectual, transformation and academic freedom. *Pretexts: Literary and Cultural studies*, 9(1), 91-104.
- Enzmann, D., Schaufeli, W. B., & Girault, N. (1994). The validity of the Maslach Burnout Inventory in three national samples. In L. Bennet, D. Miller & M. Ross (Eds.), *Health workers and AIDS: Research, interventions and current issues* (pp. 131-150). London: Harwood.
- Fisher, S. (1994). *Stress in academic life: The mental assembly line*. Bristol, PA: Open University Press.
- Fourie, M. (1999). Institutional transformation at South African Universities: Implications for academic staff. *Higher Education*, 38, 275-290.
- Fourie, M., & Alt, H. (2000). Challenges to sustaining and enhancing quality of teaching and learning in South African Universities. *Quality in Higher Education*, 6(2), 115-124.
- Gilbert, A. D. (2000). The idea of a university beyond 2000. *Policy*, 16, 31-36.

- Gillespie, N. A., Walsh, M., Winefield, A. H., Dua, J., & Stough, C. (2001). Occupational stress in universities: Staff perceptions of the causes, consequences and moderators of stress. *Work & Stress, 15*, 53–72.
- Gmelch, W. H., Lovrich, N. P., & Wilke, P. K. (1984). Sources of stress in academe: A National perspective. *Research in Higher Education, 20*, 477-490.
- Goldberg, D. (1972). *The detection of psychiatric illness by questionnaire*. London: Oxford University Press.
- Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 1-15). Thousand Oaks, CA: Sage.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Hugo, P. (1998). Transformation: The changing context of academia in post-apartheid South Africa. *African Affairs, 97*, 5-27.
- Jackson, R. A., Barnett, C. W., Stajich, G. V., & Murphy, J. E. (1993). An analysis of burnout among pharmacy school faculty. *American Journal of Pharmaceutical Education, 53*, 9–17.
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kilfedder, C. J., Power, K. G., & Wells, T. J. (2001). Burnout in psychiatric nursing. *Journal of Advanced Nursing, 34*, 383-396.
- Kistan, C. (1999). Quality assurance in South Africa. *Quality Assurance in Education, 7*, 125-134.
- Kraak, A. (2000). *Changing modes: New knowledge production and its implications for higher education in South Africa*. Parow, South Africa: CTP Book Printers.
- Lazarus, R. S. (1988). The psychology of stress and coping. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and Anxiety* (pp. 399-418). New York: Hemisphere Publishing.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.
- Levert, T., Lucas, M., & Ortlepp, K. (2000). Burnout in psychiatric nurses: Contributions of the work environment and a Sense of Coherence. *South African Journal of Psychology, 30*, 36-43.
- Lomas, L. (1997). The decline of liberal education and the emergence of a new model of education and training. *Education and Training, 39*, 111-115.

- Marais, H. C., Grobbelaar, J. W., & Potgieter, K. M. (1997). *Critical issues in South African higher education reform*. Pretoria, South Africa: SAUVCA Publication Series.
- Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.
- Maslach, C. (1993). Burnout: A multidimensional perspective. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.). *Professional burnout: Recent developments in theory and research* (pp. 19-32). Washington, DC: Taylor & Francis.
- Maslach, C. (1998). A multidimensional view of burnout. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 68-85). Oxford, UK: Oxford University Press.
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, 2, 99–113.
- Maslach, C., & Jackson, S. E. (1985). The role of sex and family variables in burnout. *Sex Roles*, 12, 837-851.
- Maslach, C., & Jackson, S. E. (1986). *The Maslach Burnout Inventory* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it*. San Francisco, CA: Jossey-Bass.
- Maslach, C., & Schaufeli, W. B. (1993). Historical and conceptual development of burnout. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.). *Professional burnout: Recent developments in theory and research* (pp. 1-16). Washington, DC: Taylor & Francis.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *The Maslach Burnout Inventory* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.
- Merllié, D., & Paoli, P. (2001). *Ten years of working conditions in the European Union*. Dublin, Ireland: European Foundation for the Improvement of Living and Working Conditions.
- Mintz, J. A. (1999). Faculty development and teaching: A holistic approach. *Liberal Education*, 8(2), 32-37.
- Nelson, D. L., & Simmons, B. L. (2003). Health psychology and stress: A more positive approach. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 97-117). Washington, DC: American Psychological Association.
- Nixon, J., Marks, A., Rowland, S., & Walker, M. (2001). Towards a new academic professionalism: A manifesto of hope. *British Journal of Sociology of Education*, 22, 227-244.

- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Pitman, T. (2000). Perceptions of academics and students as customers: A survey of administrative staff in higher education. *Journal of Higher Education Policy and Management*, 22, 165-176.
- Quick, J. C., Nelson, D. L., & Quick, J. D. (2001). Occupational stress and self-reliance: Development and research issues. In J. Dunham (Ed.), *Stress in the workplace: Past, presence and future* (pp. 19-33). London: Whurr Publishers.
- Quick, J. C., Quick, J. D., Nelson, D. L., & Hurrell, J. J. (1997). *Preventative stress management in organisations*. Washington, DC: American Psychological Association.
- Robertson, D. (1998). The emerging political economy of higher education. *Studies in Higher Education*, 23, 221-228.
- Rothmann, S., & Jansen van Vuuren, J. A. (2002, March). *Sense of coherence, self-efficacy, locus of control, coping and burnout of senior managers in a manufacturing industry*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.
- Rothmann, S., & Malan, H. (2002, March). *Koherensiesin, selfdoeltreffendheid, lokus van beheer en uitbranding by maatskaplike werkers*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.
- Rothmann, S., & Storm, K. (2003). A psychometric analysis of the Utrecht Work Engagement Scale in South African police service. *SA Journal of Industrial Psychology* 29(4), 62-70.
- Rothmann, S., Jackson, L. T. B., & Kruger, M. M. (2003). Burnout and job stress in a local government: The moderating effect of sense of coherence. *SA Journal of Industrial Psychology*, 29(4), 52-60.
- Rowley, R. (2000). Is higher education ready for knowledge management? *The International Journal of Educational Management*, 14, 325-333.
- Sammut, R. G. (1997). Psychiatric nurses' satisfaction: The effect closure of a hospital. *Journal of Advanced Nursing*, 26, 20-24.
- Schaufeli, W. B. (2003). Past performance and future perspectives of burnout research. *SA Journal of Industrial Psychology*, 29(4), 1-15.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293-315.

- Schaufeli, W. B., & Buunk, B. P. (2002). Burnout: An overview of 25 years of research and theorising. In M. J. Schabracq, C. L. Cooper, & J. A. M Winnubst (Eds.), *Handbook of work and health psychology* (pp. 383-425). Chichester, UK: Wiley.
- Schaufeli, W. B., Enzmann, D., & Girault, N. (1993). The Measurement of burnout: A review. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 199-215). Washington, DC: Taylor & Francis.
- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). Maslach Burnout Inventory – General Survey. In C. Maslach, S. E. Jackson & M. P. Leiter, *The Maslach Burnout Inventory* (3rd ed.) – Test Manual. Palo Alto, CA: Consulting Psychologists Press.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schutte, N., Toppinen, S., Kalimo, R., & Schaufeli, W. B. (2000, March). The factorial validity of the Maslach Burnout Inventory-General Survey (MBI-GS) across occupational groups and nations. *Journal of Occupational and Organisational Psychology*, 73, 53-66.
- Schwab, R. L., & Iwanicki, E. F. (1982). Who are our burned out teachers? *Educational Research Quarterly*, 7, 5-16.
- Seiler, R. E., & Pearson, D. A. (1984). Dysfunctional stress among university faculty. *Educational Research Quarterly*, 9, 15-26.
- Selye, H. (1976). *Stress in health and disease*. Reading, MA: Butterworth.
- Selye, H., & Tache, J. (1979). The stress concept and some of its implications. In V. Hamilton & D. M. Warburton (Eds.), *Human Stress and Cognition* (pp. 11-31). Salisbury, Great Britain: John Wiley.
- Smewing, C., & Cox, T. (1998). Employee assistance programmes and their place within universities. *British Journal of Guidance and Counselling*, 26, 273-286.
- SPSS Inc. (2003). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Steyn, L. J. (2004). Sense of coherence, job stress, coping and burnout in an electricity supply organisation. Unpublished master's dissertation, North-West University, Potchefstroom.
- Storm, K. (2002). *Burnout and work engagement in the South African Police Service* Unpublished doctoral thesis, PU for CHE, Potchefstroom.

- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Maslach Burnout Inventory: general survey in the South African police service. *South African Journal of Psychology*, 33(4), 219-226.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed). Boston, MA: Allyn & Bacon.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.
- Van Horn, J. E. (2002). *Teacher burnout: A flickering flame. An empirical study on burnout among teachers from a social exchange perspective*. Unpublished doctoral thesis, Utrecht University, Faculty of Social Sciences.
- Van Horn, J. E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365-375.
- Viljoen, J. P., & Rothmann, S. (2002). Transformation in a tertiary education institution: A case study. *Management Dynamics*, 11(2), 2-9.
- Wallace, J. R., & Ipson, G. V. (1992). Workforce development: Business/university partnership. *Economic Development Review*, 10, 83-84.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98, 219-235.
- Winefield, A. H., & Jarrett, R. J. (2001). Occupational stress in university staff. *International Journal of Stress Management*, 8, 285-298.
- Winefield, A. H., Gillespie, N., Stough, C., Dua, J., & Hapuararchchi, J. (2002). *Occupational stress in Australian universities: A national survey*. Melbourne, Victoria: National Tertiary Education Union.
- Wise, D. (2001). Employee burnout taking major toll on productivity. *Los Angeles Business Journal*. [online] URL: <http://www.findarticles.com/cf-/m5072/28-23/76613647>. Retrieved January 19, 2006.
- Wissing, M. P., & Van Eeden, C. (2002). Empirical clarification of the nature of psychological well-being. *South-African Journal of Psychology*, 32, 32-44.
- Zhao, J., & Guo, J. (2002). The restructuring of China's higher education: An experience for market economy and knowledge economy. *Educational Philosophy and Theory*, 34, 207-215.

CHAPTER 3

RESEARCH ARTICLE 2

ORGANISATIONAL COMMITMENT, ILL HEALTH AND OCCUPATIONAL STRESS OF EMPLOYEES AT A UNIVERSITY OF TECHNOLOGY

ABSTRACT

The objective of this study was to investigate the relationship between occupational stress, organisational commitment and ill health. A survey design was used. The sample ($N=353$) consisted of academic ($n=132$) and support staff ($n=221$) at a university of technology. The Organizational Stress Screening Tool (ASSET) and a biographical questionnaire were administered. The results showed that different organisational stressors contributed significantly to ill health and low organisational commitment. Job security contributed to both physical and psychological ill health, whereas overload and job aspects contributed to psychological ill health. Control and resources contributed to organisational commitment. Individual commitment to the organisation was predicted by work-life balance, overload, control, job aspects and pay.

OPSOMMING

Die doelstelling van hierdie studie was om die verwantskap tussen beroepstres, organisasieverbondenheid en ongesondheid te ondersoek. 'n Opname-ontwerp is gebruik. Die steekproef ($N=353$) het bestaan uit akademiese ($n=132$) en ondersteuningsdienste personeel ($n=221$) by 'n universiteit van tegnologie. Die Organisasiestresgraderings-instrument (ASSET) en 'n biografiese vraelys is gebruik. Die resultate het getoon dat verskillende organisasiestressors betekenisvol bygedra het tot ongesondheid en lae verbondenheid. Werksekuriteit het bygedra tot beide fisieke en psigologiese ongesondheid, terwyl oorbelading en aspekte van die werk bygedra het tot psigologiese ongesondheid. Beheer en hulpbronne het bygedra tot lae organisasieverbondenheid. Lae individuele verbondenheid aan die organisasie is voorspel deur werk/lewe balans, oorbelading, beheer, aspekte van die werk en salaris.

The South African higher education system is presently undergoing a complex restructuring process involving the merger of higher education institutions. Consequences such as financial predicaments, increased demands, insecurity and rapid changes are unavoidable and causing increasing emotional turmoil and stress (Clarke & Koonce, 1995; Hellriegel, Slocum, & Woodman, 2001; Mestry, 1999; Tennant, 2001). Seijts and O'Farrell (2003) note that poor staff morale, staff insecurities due to possible retrenchments, redundancies and redeployment usually accompany the merger of higher education institutions.

The restructuring of higher education institutions is not a uniquely South African phenomenon. Universities and colleges of education have undergone restructuring in many other countries, such as Canada, Australia, Russia, China, the United States of America and Britain (Blackmore, 2002; Curri, 2002; Finkelstein, 2003; Gumport, 2000; Mok, 2003; Wood & Meek, 2002). Several reasons have been suggested why higher education institutions had no choice but to undergo a process of restructuring, namely governments' diminishing ability to subsidise education; restructuring of global capitalism and the emergence of neo-liberal macro-economics (Kraak, 2004; Manicas, 1998; Mok, 2003; Woodard, 1997); technological advances that have increased the demand for distance teaching (Mok, 2003); and socio-political changes in countries that have triggered the restructuring of their government institutions, including higher education (Finkelstein, 2003; Mok, 2003).

In South Africa, the successful transition from the "current" to the "envisaged" new system is of extreme importance as it will determine to a large extent the future success of high level human resource development in the country. Khosa (1996) accentuates this statement in acknowledging that stable and productive support systems in terms of higher education and training is of vital importance to any country in order to ensure sustainable economic, social and political reconstruction and development.

Changes in higher education institutions affect staff in numerous ways as proven in a 1996 survey of the academic profession, using data from 14 countries worldwide. Results from the survey show that significant changes have taken place in higher education (Altbach, 1996). Some of these changes include demands for greater accountability, value for money, efficiency and quality, and an increase in remote and autocratic management styles (AUT, 1990). There has also been a gradual erosion in pay and job security and, with the abolition of tenure in the 1980s, an increasing number of staff have been appointed on fixed-term

contracts. Moreover, these changes in conditions are now being reflected in levels of job satisfaction and commitment. For example, a recent study of levels of job satisfaction experienced by academics from Australia, Germany, Hong Kong, Israel, Mexico, Sweden and the UK revealed that fewer than 50% of British academics were generally satisfied with their jobs (Lacy & Sheehan, 1997).

Apart from the kinds of stress related to academic work in other contexts, South African academics have had to face stresses associated with the radical transformation of the South African society and the demand that education itself become transformed while making a contribution to the wider transformation of society. Seldin (1991, p. 14) explains that “levels of stress of staff on campuses have risen appreciably in recent years and are likely to get worse”. This is relevant for both academic and support staff who contribute to daily operations and success of a higher education institution.

Research over the past 30 years has recognised and studied the phenomenon that stress at work is problematic if above acceptable levels are experienced. Initially a one-factor model was proposed to explain this phenomenon (Selye, 1975). Other theorists followed and proposed more detailed models of work stress, for example Karasek’s (1979) two-factor model which illustrated the importance of control within the stressor/strain relationship and Cooper and Marshall’s (1976) Model of Stress at Work. Over subsequent years work stress has become one of the most frequently researched areas among organisational psychologists (Barley & Knight, 1992).

Occupational stress

The term *stress* is derived from the Latin word “*strictus*”, which literally means “*tightly strung*” (Van Wyk, 1998, p. 18). The literature offers various definitions of this phenomenon. Schafer (2000, p. 6) defines stress as “arousal of mind and body in response to demands made on them”. Varca (1999) defines stress as a gap between environmental demands and personal resources to meet those environmental demands. Anderson, Litzenberger, and Plecas (2002) define stress “as the response of an individual to the self-perceived imbalance between the demands of the situation presented, and the resources one has at one’s disposal to respond successfully.” All the above definitions reflect on the perceived relationship between demands on individuals and their ability to cope with those demands. In other words, the

stressfulness of the situation will depend on people's assessment and perception of the difference between the demands of the situation and their ability to meet those demands. This correlation between stress and well-being is emphasised by Jamal (1999).

Occupational stress has the same typical characteristics, with the exception that it appears specifically within the parameters of the work environment, is caused by work-related factors and also has consequences for the work situation (Kyriacau, 2001, p. 28). It implies that a person cannot effectively handle work-related demands, such as work overload, role conflict in the workplace and poor working conditions. Mention is made of a "mismatch" between the demands made upon an individual and his/her ability to cope with them.

The level of stress an individual experiences in his or her organisational context, and the extent to which adverse effects such as psychological and other strains occur, depend on how effectively he or she copes with stressful organisational situations (Bhagat, Ford, Driscoll, Frey, Babakus, & Mahanyele, 2001). Research on stress has indicated that people working in the *helping professions* where they are dealing with people, especially educators, are particularly prone to stress (Kyriacau, 2001, p. 29). It is widely accepted that stress has a major influence on a professional person's performance and extensive research has been done in this regard, e.g. among educators, nurses and managers (Houghton, 2001, p. 706). The presence of stress at work is almost inevitable in many occupations. However, individual differences account for a wide range of reactions to stress; a task viewed as challenging by one person may produce high levels of anxiety in another.

Conditions that tend to cause stress are called stressors (Newstrom & Davis, 2002). The term *stressor(s)* is used to refer to the demands made on a person (Jones & Bright, 2001), which act as a stimulus for evoking a response, such as emotions of anger, anxiety and stress (Van Wyk, 1998; Abouserie, 1996). An *external* stressor (e.g. one's job, family or friends) or an *internal* stressor (e.g. ambition, competitiveness, and frustration) can activate stress. Although even a single stressor may cause major stress, usually stressors combine to put pressure on an employee in a variety of ways until stress develops (Newstrom & Davis, 2002).

One of the latest and most widely-accepted models to assess and explain the dynamics of occupational stress is the ASSET (An Organizational Stress Screening Tool) model,

developed by Cartwright and Cooper (2002). The ASSET model is a measurement instrument based on a conceptual framework that measures an employee's potential exposure to stress with reference to a number of occupational stressors (See Figure 1).

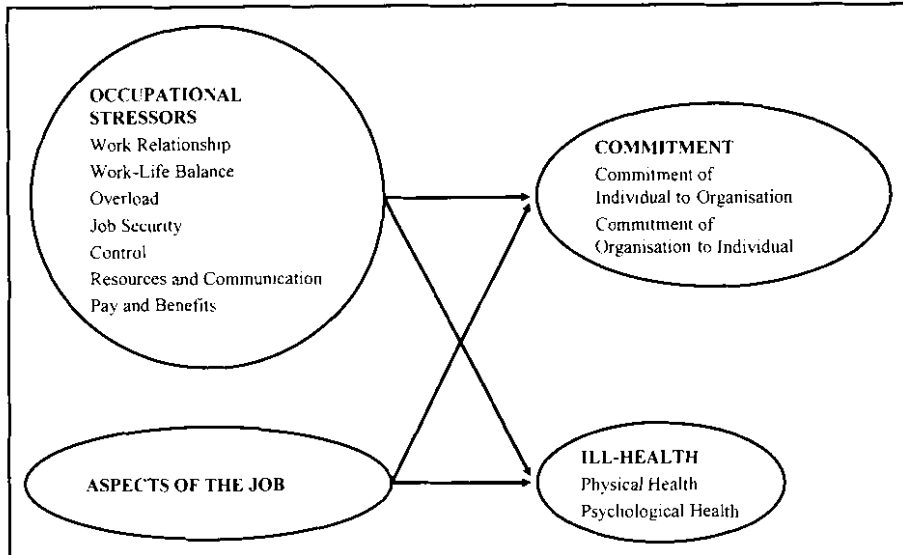


Figure 1. ASSET model of occupational stress, commitment and ill health

According to the ASSET model by Cartwright and Cooper (2002), there are eight sources that contribute to the experience of occupational stress and levels of commitment, namely *Work Relationships, Work-Life Balance, Overload, Job Security, Control, Resources and Communication, Pay and Benefits and Job Aspects*. It is however evident from the literature that most of these stressors have a multi-dimensional nature and any one, or a combination thereof, can lead to the experience of stress. Newstrom and Davis (2002) further state that almost any job condition can cause stress, depending on the employee's reaction to the condition.

Relationships with colleagues and/or superiors can be either positive (helping individuals cope with stress) or negative (creating stress). Studies found that strained *work relationships* and interpersonal conflict at work predicted physician-diagnosed psychiatric morbidity, mental instability and stress (neuroticism, hostility, life stress, low self-assurance) (Romanov, Appelberg, Honkasalo, & Koskenvuo, 1996). A work environment characterised by conflict in relationships or poor social support seems to predict the experience of stress. Conversely, good relationships at work can help individuals to cope with stress (Industrial Society, 2001).

Balancing the demands of an occupation with family and personal life, namely *work-life balance*, is a complex and thoroughly researched phenomenon. Studies have identified the contribution of factors linked to family, social networks, and individual characteristics to the development of stress. It has been found that psychological distress is associated with marital status (Shirom, Westman, & Melamed, 1999), parental status (Pugliesi, 1999), strained relations with spouses, children, friends, and neighbours (Voydanoff & Donnelly, 1999), the economic situation of the household (McDonough, 2000), weak social support (Van der Doef, Maes, & Diekstra, 2000) and the need to balance work and family life (Grzywacz, 2000; Voydanoff & Donnelly, 1999). With regard to social networks outside work, findings reveal that having a variety of sources of social support and actively participating in such networks tend to lower levels of distress (Bourbonnais, Comeau, & Vezina, 1999).

The relationship between workload or *overload* and stress is well documented (Faragher, Cooper, & Cartwright, 2004). Some of the factors contributing to this ambivalent relationship are physical demands related to the environment and individual effort (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000), psychological and emotional demands caused by workload, pace of work, conflicting requests, and role ambiguity (Demerouti et al., 2000; Van der Doef et al., 2000), and irregular schedules and long hours (Bourbonnais et al., 1999; Spurgeon, Harrington, & Cooper, 1997).

The potential for the development of stress associated with *job insecurity* (the fear of losing one's job, changes in the workplace or redundancy) have been listed by various researchers (Bourbonnais et al., 1999; McDonough, 2000). O'Driscoll and Cooper (1996) mention that the fear associated with the prospect of losing a job is one of the biggest sources of stress in employees.

The amount of authority an individual has in making decisions regarding the way work is organised and performed refers to *control*. This is confirmed by De Jonge, Reuvers, Houtman, Bongers, and Kompier (2000) and Van der Doef et al. (2000) who add that control goes hand in hand with authority and levels of utilisation. Makin, Cooper, and Cox (2003) explain that individuals who perceive that they can control their environment are less likely to suffer stress than those who do not. Glass and McKnight (1996) found that the inability to exercise control in the workplace ("uncontrollability") contributes to negative psychological

states especially when there is a discrepancy between career aspirations and occupational achievement, i.e. if there is career dissatisfaction.

Employees need adequate *resources* (training, equipment) and effective *communication* in order to perform their jobs effectively. According to Daniels and Guppy (1994), open communication in organisations can decrease levels of stress experienced by employees but organisational communication will only be effective if it provides accurate information, thereby increasing the predictability of the working environment. A deficiency in these workplace stressors have been found to be associated with increased levels of stress (Pilkington, Mulholland, & Cowie, 2001; Industrial Society, 2001). Furthermore, poor communications was found to be the third highest rated stressor in the British Industrial Society report. In a study done by Tytherleigh (2003) it was found that work relationships, job security, resources and communication caused the highest levels of strain for educators.

Demerouti et al. (2000) and Tepper (2000) found that levels of stress experienced by employees are also related to monetary rewards (*pay and benefits*). Shirom et al. (1999) broadened this view by explaining that there is also a link between levels of stress and performance pay.

There are also a number of *job aspects* that frequently cause stress. When dealing with stress, it is important to accurately identify the stressors in the educator's job that may lead to stress, job dissatisfaction and low organisational commitment. Van Zyl and Buitendach (2004) highlighted a list of stressors in the education profession, including lack of fit between person and environment; classroom; supervision; time pressures; learner discipline; system of promotion; salary; lack of decision-making; role conflict; role ambiguity; role overload; role insufficiency; responsibility towards others; contact overload; attitudes of parents and community; frequent clashes with superiors; redundancy; retrenchments and cutbacks and educator strikes as such. Intrinsic factors identified in the study of Wevers and Steyn (2002) among educators were learner-oriented factors; achievement; acknowledgement and praise; positive work impact; autonomy; salaries; promotion; job security; fair treatment; professional respect; lack of support services; working hours; disciplinary problems; lack of community commitment. Johansson (1989) and Shirom et al. (1999) also list repetitive work with little or no variety and change as a factor.

According to Kinman (2001), research has demonstrated that stressors can have a wide-ranging negative impact on the individual. Strain refers to reactions to the conditions of stress (Dollard, Winefield, & Winefield, 2003), and is observable at cognitive level (a decline in the quality of decision making, lower levels of creativity, impaired memory); behavioural level (absenteeism, poor time management, substance abuse, irritability); physical level (headaches, digestive disorders, cardiovascular disease); and psychological level (depression, anxiety, low self-esteem) (Kinman, 2001).

Quick, Quick, Nelson, and Hurrell (1997) noted that while stress and strain are features of organisational life, these concepts tend to be ambiguously defined. Despite the ambiguity, stress and strain remain a matter of serious concern to medical and organisational professionals. The concern is for two reasons: one being economic, as mismanaged stress can be costly to organisations as it leads to lost productivity and increased health care costs; the other being humanitarian, as it is not desirable to overstress individuals. Leong, Furnham, and Cooper (1996) stated that stress resulting from work is a major problem, both for individuals within an organisation and for organisations themselves. For this reason, it is argued that it is in the organisation's best interest to intervene and minimise the amount of stress that is caused by continuous organisational change in particular (Mack, Nelson, & Quick, 1998).

Commitment

According to the ASSET model, the effect of the above-mentioned sources of occupational stress is the commitment relationship between the organisation and the individual. Organisational commitment is defined as the employee's feelings of obligation to stay with the organisation: feelings resulting from the internalisation of normative pressures exerted on an individual prior to entry or following entry (Allen & Meyer, 1990). Mowday, Porter, and Steers (1982) define organisational commitment as the relative strength of an individual's identification with and involvement in a particular organisation. Organisational commitment is an individual's orientation towards the organisation in terms of loyalty, identification and involvement (Robbins, 1998). Organisational commitment is defined as the extent to which employees identify with their organisation and managerial goals (Chow, 1994; Kreitner & Kinicki, 1995), show a willingness to invest effort, participate in decision-making and internalise organisational values (Chow, 1994).

Commitment of the organisation to the employee (organisational commitment) refers to employees' expectations to be trusted and respected and feeling that it is worth "going the extra mile" for the organisation. *Commitment of the employee to the organisation (individual commitment)* on the other hand implies expectations of the organisation that its employees will do their job to the best of their ability and that they will be loyal and dedicated to the organisation (Cartwright & Cooper, 2002).

According to Meyer and Allen (1991), organisational commitment can take three distinct forms. Firstly, affective commitment refers to identification with, involvement in, and emotional attachment to the organisation, in the sense that employees with strong affective commitment remain with the organisation because they want to do so. Secondly, continuance commitment refers to commitment based on employees' recognition of the costs associated with leaving the organisation. Thus, employees with strong continuance commitment remain with the organisation because they have to do so, either because of low perceived alternatives or because of high personal sacrifice associated with leaving the organisation. Thirdly, normative commitment refers to commitment based on a sense of obligation to the organisation. Those with strong normative commitment remain with the organisation because they feel they ought to do so. It could be argued that employees with strong affective commitment would be more willing to accept change, provided that such a change is not altering the basic values and goals of the organisation, and is seen as beneficial to the organisation, since organisational commitment reflects a belief in the values and goals of the organisation.

Within the structure of the ASSET model, commitment measures an effect of stress, reflecting the non-economic reciprocal obligations which extend between employer and employee (Cartwright & Cooper, 2002). However, issues other than workplace stress may affect employees' level of commitment. For example, industrial action such as a threatened union strike may affect employees' commitment to their organisation.

Despite the plethora of studies of organisational commitment and its nature, antecedents, consequences and collates, the construct remains ill-defined and ill-conceptualised (Suliman & Iles, 2000b). According to Suliman and Iles (2000a), the following are important aspects of organisational commitment: it improves employees' performance, i.e. committed employees are assumed to be motivated to work hard and put in more effort than less committed

employees; it fosters better superior-subordinate relationships; it enhances organisational development, growth and survival; it improves the work environment; it negatively influences withdrawal behaviour, such as turnover, tardiness and absenteeism; and it has a positive impact on employees' readiness to innovate and create. Commitment is usually stronger among longer-term employees, those who have experienced personal success in the organisation, and those working within a committed employee group. Organisationally committed employees will usually have good attendance records, demonstrate a willing adherence to company policies, and have lower turnover rates (Newstrom & Davis, 2002).

Ill health

There is ample evidence that occupational stress has an impact on workers' mental and physical well-being (Kahn & Byosiere, 1992). According to Siu (2002) and Winefield, Gillispie, Stough, Dua, and Hapuararchchi (2002), there is significant evidence to suggest that chronic and high levels of occupational stress, left unchecked, be related to mental and physical well-being, job dissatisfaction, absenteeism, stress-related injuries, turnover, and intention to quit. They have shown significant correlations between higher levels of psychological strain and incidences of self-reported stress-related health symptoms, such as sleeping difficulties, headaches, viral and cold infections. Furthermore, these symptoms significantly associate with stress-related medical conditions reported by staff members, such as migraines, hypertension and coronary heart disease. Other possible psychological problems include burnout, alcohol abuse, unexplained physical symptoms, absenteeism, chronic fatigue and accidents, sick building syndrome and repetitive strain injury (Hothopf & Wesseley, 1997). Lu (1999) estimates that occupational stress causes half of absenteeism, 40% of turnover and 5% of total lost productivity.

Psychological health refers to clinical symptoms indicative of stress-induced mental ill-health (e.g. constant tiredness and irritability), while *physical health refers to* physical symptoms often associated with stress (e.g. insomnia/sleep loss and headaches.) If untreated, psychological distress can cause more serious reversible health problems (psychosomatic illnesses, arterial hypertension, severe depression, alcoholism), and over time, it can also lead to irreversible damage (permanent disability, premature deaths, suicide, cardiovascular and neuropsychiatric diseases). Overall, the presence of psychological distress is a sign that something is going wrong in the individual psychic (Marchand, Demers, Durand, & Simard,

2003). The ASSET model (Cartwright & Cooper, 2002) considers poor employee health to be a potential indicator of excessive workplace pressure and hence of experienced stress. However, poor health is not necessarily a direct consequence of workplace stress. Individuals may be unwell because of an organic susceptibility to illness or due to leading an unhealthy lifestyle. In addition, stress-related illnesses may be caused by the existence of stressors outside the workplace such as the break-up of a relationship or a recent bereavement.

It seems that stress and related health problems result in great costs within the organisational context. In this regard, Everley and Fieldman (1991, p. 6) state: "This relentless upward spiral of health benefit costs is taking its toll throughout industry. Each year corporations are forced to allocate a large share of their operating expenses just to provide employee health benefits, resulting in higher consumer prices or lower profits, or both." The direct costs of stress and the resulting poor performance manifest in a number of ways. Numerous research studies (Carstens, 1989; Ivancevich & Mattheson 1996; Jacobs, 2001; Quick, Murphy, & Hurrell, 1992) have shown that individuals experiencing stress make errors, are absent from work more often, must be replaced more frequently, are involved in work accidents, strikes as well as work slowdowns. In this regard, Pillay and Claase-Schutte (2003) mentions that South Africa loses billions of rand each year as result of diminished productivity, absenteeism, medical fees and high employee turnover.

Indirect costs include the question of the cost of lost opportunities. Researchers (Schaufeli, Maslach, & Marek, 1993) demonstrated that stressed employees are less creative, less effective decision-makers and inadequate communicators. Other indirect costs due to high stress can include a lack of confidence in management and colleagues, poor labour relations, and low morale.

Objectives

The objective of this study was to investigate the relationship between perceived organisational stressors and staff's levels of commitment and health.

The following hypotheses can be formulated from the above discussion:

- H1:** Occupational stressors predict physical and psychological ill health of staff.
- H2:** Occupational stressors predict low organisational and individual commitment of staff.

METHOD

Research design

A survey design targeting all permanent employees of the higher education institution was used.

Participants

The study population consisted of support staff ($N=1084$) and academic staff ($N=529$) of a higher education institution in South Africa. A total of 1 613 questionnaires were distributed across 6 campuses. All available staff was included in the survey. A total of 353 questionnaires were completed and returned. This included responses from 132 academic and 221 support staff members. The total response rate was 21,88% (37,4% for academic staff and 62,6% for support staff).

Females constituted 63,3% and males 36,7% of the participants. The majority of the participants (65,8%) were married. Different language groups were included in the study. A total of 69,9% of the participants were Afrikaans speaking, 12% were English speaking and 18,1% were speaking other indigenous languages.

The age distribution pointed to a reasonably young workforce with only 15,4% older than 50 years. In total, 22,8% of the population obtained a Master's (or related) qualification and/or a higher qualification. 60,5% of the participants had been in service at the institution for 6+ years. 40,2% reported to have had no opportunity to be promoted during their years of service. 80,7% of the respondents indicated that they don't smoke, and 66,9% admitted to drinking alcohol. The characteristics of the participants are shown in Table 1.

Table 1
Characteristics of Participants

Item	Category	Frequency	Percentage
Employment category	Academic	132	37,4
	Support	221	62,6
Gender	Female	221	63,3
	Male	128	36,7
Marital status	Single	61	17,4
	Engaged/in relationship	20	5,7
	Married	231	65,8
	Divorced	32	9,1
	Widow/er	7	2,0
Language	Afrikaans	244	69,9
	English	42	12,0
	Other	43	18,1
Age distribution	20 – 30	73	21,7
	31 – 40	118	35,0
	41 – 50	94	27,9
	51+	52	15,4
Education	Grade 12 or lower	91	26,2
	3 year qualification	75	21,6
	4 year qualification	102	29,4
	Master's	63	18,2
	Doctoral	16	4,6
Years of service	0 – 2 years	51	15,4
	3 – 5 years	80	24,1
	6 – 10 years	109	32,8
	11 years +	92	27,7
Opportunity for promotion	none	115	40,2
	1	120	42,0
	2+	51	17,7
Smoke	Yes	67	19,3
	No	281	80,7
Drink alcohol	Yes	232	66,9
	No	115	33,1

Measurement battery

The following measuring instruments were used in the empirical study:

An Organizational Stress Screening Tool (ASSET) developed by Cartwright and Cooper (2002) as a screening tool to help organisations assess the risk of occupational stress in their workforce, was used in this study. It measures potential exposure to stress in respect of a range of common workplace stressors. It also provides important information on current

levels of physical health, psychological well-being and organisational commitment. The ASSET is divided into three questionnaires. The first questionnaire (37 items) measures the individual's perception of his or her job while the second questionnaire (nine items) measures the individual's attitude to his or her organisation. Both these were scored on a six-point scale with 1 (strongly disagree) to 6 (strongly agree). The third questionnaire (19 items) focuses on the individual's health and was scored on a four-point scale with 1 (never) to 4 (often).

The ASSET has an established set of norms from a database of responses from 20 000 workers in public and private sector organisations in the United Kingdom. It presents scores in sten (standardised ten) format. A sten is a standardised score based on a scale of 1 to 10, with a mean of 5,5 and a standard deviation of 2. The sten system enables meaningful comparison to the norm group. Most people (68%) score between sten 3 and sten 8. Scores that fall further from the mean (either in the high or the low direction) are considered more extreme. About 16% score at the low end, and another 16% score at the high end. Validity is still to be completed (Cartwright & Cooper, 2002).

Reliability is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0,70, ranging from 0,60 to 0,91 (Cartwright & Cooper, 2002). Johnson and Cooper (2003) found that the psychological well-being subscale has good convergent validity with an existing measure of psychiatric disorders, the General Health Questionnaire (GHQ – 12) (Goldberg & Williams, 1988). Tytherleigh (2003) used the ASSET as an outcome measure of job satisfaction in a nationwide study of occupational stress levels in 14 English higher education institutions. Cronbach alphas were determined for each of the questions of the five ASSET subscales. The values ranged from 0,64 to 0,94, which showed good reliability.

Several hypothesised models of the ASSET subscales of health and commitment were tested, using structural equation modelling as implemented by AMOS (Arbuckle, 1997). The two-factor post-hoc model of commitment, consisting of organisational and individual commitment, was found to fit the data adequately. With regard to the health subscale, the second two-factor model tested, consisting of physical and psychological health, was found to fit the data adequately.

A *biographical questionnaire* was designed and used to gather information on various aspects of the population, e.g. gender, marital status, language, and education.

Statistical analysis

The statistical analysis was carried out with the help of the SPSS program (SPSS Inc., 2003) and the Amos program (Byrne, 2001). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to analyse the data. Cronbach alpha coefficients were used to assess the reliability (i.e. internal consistency) of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale.

Standard multiple regression analysis was carried out to assess the contribution of the independent variables (Work Relations, Work-Life Balance, Overload, Job Security, Control, Resources, Job Aspects and Pay) to dependent variables (Physical Ill Health, Psychological Ill Health, Organisational Commitment and Individual Commitment). According to Tabachnick and Fidell (2001), the correlation between an independent variable and a dependent variable reflects variance shared with the dependent variable.

RESULTS

The descriptive statistics, alpha coefficients and correlations of the factors of the ASSET subscales, namely Organisational Stressors (Work Relations, Work-Life Balance, Overload, Job Security, Control, Resources, Job Aspects and Pay), Health (Physical and Psychological) and Organisational Commitment (Commitment of the Individual to the Organisation and Commitment of the Organisation to the Individual) are given in Table 2.

Table 2
Descriptive Statistics, Alpha Coefficients and Correlations of the ASSET

Dimension	Stem	Mean	SD	Skewness	Kurtosis	α	1	2	3	4	5	6	7	8	9	10	11
1. Work Relations	5	18.50	6.69	0.84	0.51	0.83	-	-	-	-	-	-	-	-	-	-	-
2. Work-Life Balance	5	10.28	4.50	0.56	-0.64	0.74	0.33**	-	-	-	-	-	-	-	-	-	-
3. Overload	5	10.00	3.84	0.50	-0.22	0.76	0.52**	0.55**	-	-	-	-	-	-	-	-	-
4. Job Security	6	10.81	3.77	0.62	0.40	0.64	0.38*	0.16*	0.32*	-	-	-	-	-	-	-	-
5. Control	6	10.60	4.16	0.67	0.00	0.81	0.73**	0.34*	0.45*	0.35*	-	-	-	-	-	-	-
6. Resources	5	9.33	3.48	0.59	-0.04	0.63	0.65**	0.24*	0.49*	0.43*	0.67**	-	-	-	-	-	-
7. Job Aspects	5	21.96	5.57	0.27	-0.01	0.58	0.58**	0.37*	0.47*	0.38**	0.59**	0.53**	-	-	-	-	-
8. Pay	5	3.47	1.61	0.09	-1.26	-	0.32*	0.20*	0.27*	0.23*	0.33*	0.31*	0.29*	-	-	-	-
9. Physical Health	6	13.62	4.20	0.01	-0.68	0.80	0.29*	0.25*	0.27*	0.24*	0.25*	0.20*	0.29*	0.20*	-	-	-
10. Psychological Health	6	20.71	6.66	0.38	-0.40	0.91	0.40**	0.27*	0.39**	0.33**	0.36**	0.33*	0.40**	0.25*	0.73**	-	-
11. Organisational Commitment	5	23.32	4.17	-0.96	1.45	0.80	-0.50**	-0.17*	-0.34**	-0.32**	-0.52**	-0.49**	-0.41**	-0.27*	-0.19*	-0.35**	-
12. Individual Commitment	4	19.26	3.17	-0.96	1.70	0.74	-0.33**	-0.08	-0.29*	-0.18*	-0.39**	-0.38**	-0.35**	-0.24*	-0.08	-0.23*	0.73**

+ Practically significant - $r > 0.30$ (medium effect)
 ++ Practically significant - $r > 0.50$ (large effect)
 * Statistically significant - $p < 0.01$

From the results in Table 2 it is clear that there is acceptable internal consistency in the ASSET dimensions of Work Relations, Work-Life Balance, Overload and Control, as well as the Physical and Psychological Health dimensions, and Organisational and Individual Commitment. All these dimensions demonstrate acceptable Cronbach alpha coefficients above the 0,70 guideline provided by Nunnally and Bernstein (1994). The other three dimensions, namely Job Security, Resources and Job Aspects display alphas below the 0,70 guideline.

Table 2 shows that the sten scores of Job Insecurity and Control were higher than the mean of 5,5. Physical and Psychological ill health were also higher than the mean, while individual commitment was somewhat lower than the mean.

Practically significant (positive, medium effect) correlations exist between psychological ill health and all the occupational stressors, except work-life balance and pay. No practically significant correlations were found between any of the occupational stressors and physical health. Physical and psychological health show a positive correlation (practically significant, large effect).

As far as commitment is concerned, negative correlations were found with all the occupational stressors. Organisational commitment showed practically significant (negative, medium effect) correlations with all the occupational stressors, except work-life balance and pay (negative, statistically significant), and control (negative, large effect). Individual commitment showed (negative, practically significant) correlations with work relations, control, resources and job aspects. Finally, organisational commitment shows a practically significant (negative, medium effect) correlation with psychological health.

In order to determine whether organisational stressors predict physical and psychological ill health as well as organisational and individual commitment, a series of standard multiple regression analyses were conducted. The results of the multiple regression analysis with occupational stressors (as measured by the ASSET) and physical and psychological ill health as dependent variables are reflected in Table 3.

Table 3

Standard Multiple Regression Analysis with Physical and Psychological Ill Health as Dependent Variables

Dependent Variable	Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	<i>ΔR</i> ²
	B	SE	Beta						
Physical ill health						7,31*	0,38	0,15	0,13
(Constant)	7,13	0,95		7,55	0,00				
Work Relations	0,08	0,05	0,13	1,54	0,12				
Work-Life Balance	0,11	0,06	0,12	1,87	0,06				
Overload	0,06	0,08	0,06	0,80	0,42				
Job Security	0,14	0,06	0,12	2,13	0,03*				
Control	0,02	0,08	0,02	0,24	0,81				
Resources	-0,10	0,09	-0,08	-1,06	0,29				
Job Aspects	0,08	0,05	0,11	1,62	0,11				
Pay	0,21	0,14	0,08	1,52	0,13				
Psychological ill health						14,89*	0,51	0,26	0,24
(Constant)	6,90	1,40		4,94	0,00				
Work Relations	0,11	0,08	0,11	1,48	0,14				
Work-Life Balance	0,06	0,09	0,04	0,69	0,49				
Overload	0,29	0,11	0,17	2,55	0,01*				
Job Security	0,27	0,09	0,15	2,85	0,01*				
Control	0,06	0,12	0,04	0,46	0,64				
Resources	-0,04	0,13	-0,02	-0,33	0,74				
Job Aspects	0,19	0,08	0,15	2,47	0,01*				
Pay	0,33	0,21	0,08	1,60	0,11				

* $p < 0,05$

Table 3 shows that 15% of the variance in physical ill health is explained by the occupational stressors. It is clear that job security was the only statistically significant predictor ($p < 0,05$). Therefore, stress because of (a lack of) job security contribute statistically significantly to lower levels of physical ill health. Table 3 also shows that 26% of the variance in psychological ill health is predicted by the occupational stressors. Stress because of overload, job security and job aspects are statistically significant predictors of individuals' psychological ill health. These results support Hypothesis 1.

The results of the standard multiple regression analysis with organisational and individual commitment as dependent variables are reflected in Table 4.

Table 4

Standard Multiple Regression Analysis with Organisational and Individual Commitment as Dependent Variables

Dependent Variable		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
Organisational Commitment	(Constant)	31.60	0,82		38,36	0,00	22,08*	0,58	0,34	0,32
	Work Relations	-0,07	0,04	-0,11	-1,60	0,11				
	Work-Life Balance	0,07	0,05	0,08	1,41	0,16				
	Overload	-0,07	0,07	-0,07	-1,07	0,27				
	Job Security	-0,08	0,06	-0,08	-1,52	0,13				
	Control	-0,24	0,07	-0,24	-3,33	0,00*				
	Resources	-0,18	0,08	-0,15	-2,32	0,02*				
	Job Aspects	-0,05	0,04	-0,07	-1,21	0,23				
	Pay	-0,19	0,12	-0,07	-1,52	0,13				
Individual Commitment	(Constant)	24,08	0,68		35,43	0,00	12,39*	0,47	0,22	0,21
	Work Relations	0,03	0,03	0,05	0,69	0,49				
	Work-Life Balance	0,12	0,04	0,17	2,90	0,00*				
	Overload	-0,13	0,06	-0,16	-2,42	0,02*				
	Job Security	0,03	0,05	0,04	0,71	0,48				
	Control	-0,16	0,06	-0,21	-2,72	0,01*				
	Resources	-0,13	0,07	-0,14	-1,92	0,06				
	Job Aspects	-0,09	0,04	-0,16	-2,46	0,01*				
	Pay	-0,20	0,10	-0,10	-1,96	0,05*				

* $p < 0,05$

Table 4 shows that 34% of the variance in organisational commitment to the individual is explained by occupational stressors. It is clear that control and resources were the only statistically significant predictors ($p < 0,05$). Therefore, stress because of a lack of control in a job, as well as stress because of a lack of resources contributes statistically significantly to lower levels of perceived commitment of the organisational to the individual. These results support Hypothesis 2.

Table 4 also shows that 22% of the variance in individual commitment to the organisation is predicted by occupational stress. Work-life balance, overload, control and job characteristics are statistically significant predictors of low individual commitment to the organisation.

DISCUSSION

The objective of this study was to investigate the relationship between perceived organisational stressors and the levels of commitment and health of staff of a university of technology. The results showed that job insecurity and control (lack of autonomy) were the most significant stressors in the total organisation. From the results obtained in this study it can be concluded that an array of occupational stressors are related to the staff's psychological ill health and organisational and individual commitment. Furthermore, it was found that staff members' experiences of specific occupational stressors led to lower levels of organisational and individual commitment as well as to higher levels of physical and psychological ill health.

The results of this study should not be seen in isolation but should be interpreted against the background of the current higher education system in South Africa. The current restructuring of the higher education sector with consequences such as financial predicaments for institutions, increased demands for access accompanied with growing student numbers, insecurity about the future of institutions and subsequently staff's job security as well as rapid changes in various spheres of the institutions are creating emotional turmoil and stress for academic and support staff (Clarke & Koonce, 1995; Hellriegel et al., 2001; Mestry, 1999; Tennant, 2001). Apart from executing their normal duties (which in itself can lead to the experience of stress) staff has also been confronted with stresses associated with the transformation of the broader South African society as a whole. Seldin (1991) also mentions that this situation is bound to continue, and that staff of higher education institutions in South Africa will in future be confronted with increasing levels of stress.

As far as the psychological ill health of staff at the institution under study is concerned, all the occupational stressors except pay and work-life balance seem to be related. This confirms findings by Kahn and Byosiere (1992) that high levels of occupational stress, if left unchecked, could lead to psychological ill health. Hothopf and Wesseley (1997) also explain that psychological ill health could manifest as burnout, alcohol abuse, unexplained physical symptoms, absenteeism, chronic fatigue and increased accidents at work. The work relationships and accompanying social support experienced by staff of this university, aspects of the job (e.g. time pressures, learner discipline, system of promotion, role overload), lack of autonomy, overload, and lack of resources seem to be the major stressors related to

psychological ill health. This can be better understood if one considers the history and changes the institution have gone through over the past few years, with unprecedented growth in student numbers without a proportional increase in staff. Furthermore, the changes at institutional level from a technikon to a university of technology have had a direct impact on the nature of the work itself.

As far as work relationships are concerned, the geographical distribution of the different campuses needs consideration. Staff from various campuses has to lecture the same material, administer tests on the same date and time and co-ordinate academic activities in order to ensure equality in the quality of teaching and learning across campuses. The communication that accompanies this co-ordination of activities is normally done by telephone or e-mail with very limited opportunities to communicate face to face. This in itself could explain why interpersonal relationships between colleagues and managers are sometimes strained and contribute to the experience of stress.

With reference to aspects of the job, the increased student numbers, cultural differences between a predominantly white staff and predominantly black student corps, as well as low pass rates of students from predominantly disadvantaged backgrounds could be seen as contributing factors. The change from a technikon to a university also brought a different focus to the institution with subsequent pressure on staff to not only lecture but also to engage more intensively in research and community service. Also, the fact that the name has changed to "university" in itself places the institution in the domain of traditional universities, most of which have a competitive advantage, at least in some areas.

The control aspect that has been identified could be linked to the formal and sometimes rigid type of management system in the institution. Although necessary to ensure quality and legitimacy of qualifications, this could be a negative aspect as far as the staff is concerned. The lack of resources also needs mentioning. In this regard there are huge discrepancies between infrastructure and available resources between campuses. This is as result of the history in the institution and whilst not always reasonable, it can be expected that staff will compare the different campuses in terms of available resources within the institution. These perceived discrepancies between available resources could lead to the experience of stress as all staff is expected to perform on the same level.

The relationship between occupational stress and physical ill health seems to be slightly less clear. Only limited relationships could be established in this study between the occupational stressors and physical ill health. Of importance, however, is to note that there is ample evidence in the literature that psychological ill health leads to physical ill health (Siu, 2002; Winefield et al., 2002). In this regard, the significant relationship shown in this study between physical and psychological ill health confirms this notion, but could also be a precursor of the development of future physical ill health problems in staff of the university. This aspect should be a cause for concern as stress-related health problems that might develop in future could lead to increased health benefit costs to the institution (Everley & Fieldman, 1991), as well as to staff. Furthermore, it has been shown that individuals who experience stress make errors more often, are absent from work more often and need to be replaced more often (Carstens, 1989; Jacobs, 2001; Quick et al., 1992), all of which could lead to increased expenditure for the institution.

The results also indicate a negative relationship between the various occupational stressors and organisational commitment. This implies that the presence of some or all of these occupational stressors will erode the organisational commitment relationship. It can thus be expected that the experience of these occupational stressors will negatively affect staff's identification with and involvement in the organisation and its goals, as well as their willingness to participate in organisational activities and decision-making (Allen & Meyer, 1990; Robbins, 1998; Chow, 1994). Work relations, the availability of resources, and the amount of autonomy that staff has are aspects that seem to be especially relevant to the levels of stress they experience. In this regard the aspects mentioned earlier as well as the formal type of management system with accompanying "red tape" and "lack of delegation" of authority could be contributing factors. Individual commitment on the other hand is significantly negatively related to a group of more specific occupational stressors already discussed, namely work relations, control, resources and aspects of the job.

Multiple regression analysis showed that 34% of the variance in organisational commitment of staff at this university is predicted by the occupational stressors. It further revealed that control and resources were the only statistically significant predictors of organisational commitment. This implies that staff of this institution will exhibit lower levels of organisational commitment (i.e. feel that the organisation is not committed to them) when they experience stress as result of lacking autonomy and if they lack the necessary resources

to execute their duties. As far as individual commitment is concerned, similar analysis indicate that 22% of the variance in individual commitment is predicted by occupational stressors. The stressors of work-life balance, overload, control, job aspects and pay were the only statistically significant predictors of individual commitment. From these results it is evident that staff will show lower levels of individual commitment (the extent to which they feel committed to the organisation) when they experience stress as result of balancing the demands of their work and personal lives, an unreasonable high workload, lacking autonomy in the workplace, job-specific aspects (i.e. time pressures, learner discipline, system of promotion, role overload etc.), and the remuneration they receive.

In relation to physical ill health, multiple regression analysis showed that 15% of the variance in physical ill health is predicted by occupational stressors. Job security was found to be the only statistically significant ($p < 0,05$) stressor. This indicates that staff will experience higher levels of physical illness as result of the stress associated with losing one's job, changes in the workplace or redundancy. Similar analysis of the psychological health dimension showed that 26% of the variance in psychological ill health was predicted by the overload, job security and job aspects stressors. This implies that staff of this institution will experience higher levels of psychological ill health as result of stress associated with high workload, the prospect of being unemployed and job-specific aspects. Based on the above findings both Hypothesis 1 and Hypothesis 2 is adopted.

A limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzmann, and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variances between measures can be attributed to method variance. Another limitation is the size of the sample, which has significant limitations in terms of the generalisation of the findings to the total population.

RECOMMENDATIONS

According to the results obtained in this study, the use of the ASSET is recommended to assess the levels of stress, organisational commitment and health of staff in higher education institutions in South Africa. This is another step towards the validation of the ASSET as an organisational stress screening tool. Based on this and previous studies, it is recommended

that further reliability and validity research be undertaken in other higher education institutions in South Africa. This could lead to the establishment of sector-specific norms and could also provide a basis for comparison within the sector.

Staff's cognitive appraisal of occupational stressors and the resultant effect it has on their levels of commitment as well as health is a reason for concern in South African higher education. It is recommended that the ASSET be used to identify institution-specific occupational stressors and that interventions be developed to address these stressors at the individual and institutional level. At the institutional level, interventions should be targeted at eliminating, reducing or changing the perceived stressors. These could include facilitating positive work relationships, job redesign to ensure that staff has equitable but manageable workloads, delegation of authority, providing adequate resources and communication as well as ensuring that the reward system is equitable and fair. On the individual level, interventions should aim to assist employees to develop skills in dealing with stress more effectively, finding a balance between work and private life demands, and continuous development of staff in order to ensure that they remain competitive in an ever-changing world of work. Other interventions could include the development of coping strategies especially with regard to dealing with change and transformation, as well as encouraging individuals to engage in physical activity and healthy lifestyles.

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REFERENCES

- Abouserie, R. (1996). Stress, coping strategies and job satisfaction in university academic staff. *Educational Psychology, 16*(1), 49-57.
- Allen, N., & Meyer, J. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.
- Altbach, P. G. (1996). *The international academic profession. Portraits from fourteen countries*. Princeton, NJ: Carnegie Foundation for the Academic Profession.
- Anderson, G. S., Litzenberger, R., & Plecas, D. B. (2002). Physical evidence of police officer stress. *Policing: An International Journal of Police Strategies & Management, 25*, 399-420.
- Arbuckle, J. L. (1997). *Amos user's guide version 4.0*. Chicago, IL: Smallwaters Corporation.
- AUT. (1990). *Goodwill under stress: Morale in UK universities*. London: Association of University Teachers.
- Barley, S. R., & Knight, D. B. (1992). Towards a cultural theory of stress complaints. *Research in Organizational Behaviour, 14*, 1-46.
- Bhagat, R. S., Ford, D. L., O' Driscoll, M. P., Frey, L., Babakus, E., & Mahanyele, M. (2001). Do South African managers cope differently from American managers? A cross-cultural investigation. *International Journal of Intercultural Relations, 25*, 301-313.
- Blackmore, J. (2002). Globalisation and the restructuring of higher education for new knowledge economies: New dangers or old habits troubling gender equity work in universities. *Higher Education Quarterly, 56*, 419-441.
- Bourbonnais, R., Comeau, M., & Vezina, M. (1999). Job strain and evolution of mental health among nurses. *Journal of Occupational Health Psychology, 4*, 95-107.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.
- Carstens, L. (1989). *Die ontwikkeling en implementering van 'n stresbeheerprogram vir middelvlakbestuurders in 'n diensorganisasie*. Unpublished doctoral thesis, University of the Free State, Bloemfontein.
- Cartwright, S., & Cooper, C. L. (2002). *ASSET: An Organizational Stress Screening Tool – The Management Guide*. Manchester, RCL Ltd.

- Chow, I. H. (1994). Organisational commitment and career development of Chinese managers in Hong Kong and Taiwan. *International Journal of Career Management*, 6(4), 3-9.
- Clark, J., & Koonce, R. (1995). Engaging organisational survivors. *Training and Development*, 49(8), 22-30.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.
- Cooper, C. L., & Marshall, J. (1976). Occupational sources of stress: A review of the literature relating to coronary heart disease and mental ill health. *Journal of Occupational Psychology*, 49, 1-28.
- Curri, G. (2002). Reality versus perception: Restructuring tertiary education and institutional organizational change – A case study, *Higher Education*, 44(1), 133-151.
- Daniels, K., & Guppy, A. (1994). Occupational stress, social support, job control, and psychological well-being. *Human Relations*, 47, 1523-1544.
- De Jonge, J., Reuvers, M. M., Houtman, I. L., Bongers, P. M., & Kompier, M. A. (2000). Linear and nonlinear relations between psychosocial job characteristics, subjective outcomes, and sickness absence: baseline results from SMASH. Study on musculoskeletal disorders, absenteeism, stress, and health. *Journal of Occupational Health Psychology*, 5, 256-268.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2000). A model of burnout and life satisfaction amongst nurses. *Journal of Advanced Nursing*, 32, 454-464.
- Dollard, M. F., Winefield, A. H., & Winefield, H. R. (2003). *Occupational stress in the service professions*. New York: Taylor & Francis.
- Everley, G. S., & Fieldman, R. H. (1991). *Occupational health promotion*. New York: Wiley.
- Faragher, E. B., Cooper, C. L., & Cartwright, S. (2004). A shortened stress evaluation tool (ASSET). *Stress and Health*, 20, 189-201.
- Finkelstein, M. (2003). The morphing of the American academic profession: Every societal transformation in the role of higher education has brought in its wake a concomitant transformation in the faculty role. *Liberal Education*, 89(4), 6-14.
- Glass, D., & McKnight, J. D. (1996). Perceived control, depressive symptomatology, and professional burnout: a review of the evidence. *Psychology and Health*, 11, 23-48.
- Goldberg, D. P., & Williams, P. (1988). *A user's guide to the GHQ*. London: NFER, Nelson.
- Grzywacz, J. G. (2000). Work-family spillover and health during midlife: is managing conflict everything? *American Journal of Health Promotion*, 14, 236-243.

- Gumport, P. J. (2000). Academic restructuring: Organizational change and institutional imperatives, *Higher Education*, 39(1), 67-91.
- Hellriegel, D., Slocum, J. W., & Woodman, R. W. (2001). *Organizational behavior* (9th ed.). Cincinnati, OH: South-Western College Publishing.
- Hothopf, M., & Wesseley, S. (1997). Stress in the workplace: unfinished business. *Journal of Psychosomatic Research*, 43(1), 1-6.
- Houghton, P. (2001). Finding allies: sustaining teachers' health and well-being. *Phi Delta Kappan*, 82, 706-712.
- Industrial Society. (2001). *Managing best practice: Research Summaries No. 83: Occupational Stress*. London: Industrial Society.
- Ivancevich, J. M., & Matteson, M. T. (1996). *Organizational behaviour and management* (4th ed.). United States of America: Irwin Book Team.
- Jacobs, Y. (2001). *Die voorspelling van die effektiewe hantering van werkstres by bestuurspersoneel met behulp van persoonlikheidsveranderlikes*. Unpublished master's dissertation, University of the Free State, Bloemfontein.
- Jamal, M. (1999). Job stress and employee wellbeing: A cross-cultural empirical study. *Stress Medicine*, 15, 153-158.
- Johansson, G. (1989). Job demands and stress reactions in repetitive and uneventful monotony at work. *International Journal of Health Services*, 192, 365-377.
- Johnson, S., & Cooper, C. (2003). The construct validity of the ASSET stress measure. *Stress and Health*, 19, 181-185.
- Jones, F., & Bright, J. (2001). *Stress: Myth, theory and research*. London: Pearson Educational.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette (Ed.), *Handbook of industrial and organisational psychology* (pp. 571-648). Chicago, IL: Rand McNally.
- Karasek, R. A. (1979). Job demands, job decision latitude and mental strain: implications for job redesign. *Administrative Science Quarterly*, 24, 285-308.
- Khosa, M. M. (1996). Leaders or followers? Transforming South African universities. *Indicator South Africa*, 13(4), 73-77.
- Kinman, G. (2001). Pressure points: A review of stressors and strains in UK academics. *Educational Psychology*, 21, 474-492.
- Kraak, A. (2004). Discursive tensions in South African Higher Education, 1990 to 2002. *Journal of Studies in International Education*, 8, 244-281.

- Kreitner, R., & Kinicki, A. (1995). *Organisational behavior* (3rd ed.). Chicago, IL: Irwin.
- Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review*, 53(1), 27-36.
- Lacy, F. J., & Sheehan, B. A. (1997). Job satisfaction among academic staff: An international perspective. *Higher Education*, 34, 305-322.
- Leong, C. S., Furnham, A. E., & Cooper, C. L. (1996). The moderating effect of organizational commitment on the occupational stress outcome relationship. *Human Relations*, 49, 1345-1363.
- Lu, L. (1999). Work, motivation, job stress and employees' well-being. *Journal of Applied Management Studies*, 8, 61-72.
- Mack, D. A., Nelson, D. L., & Quick, J. C. (1998). The stress of organisational change: A dynamic process model. *Applied Psychology: An International Review*, 47, 219-232.
- Makin, P. J., Cooper, C. L., & Cox, C. (2003). *Organisations and the psychological contract: managing people at work*. Leicester: British Psychological Society Books.
- Manicas, P. (1998). The radical restructuring of higher education. *Futures*, 30, 651-656.
- Marchand, A., Demers, A., Durand, P., & Simard, M. (2003). The moderating effect of alcohol intake on the relationship between work strains and psychological distress. *Journal of Studies on Alcohol*, 64, 419-427.
- McDonough, P. (2000). Job insecurity and health. *International Journal of Health Services*, 30, 453-476.
- Mestry, R. (1999). The role of principals in the management of stress and burnout. *Education Practice*, 3, 19-23.
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review*, 1, 61-89.
- Mok, K. H. (2003). Globalizations and higher education restructuring in Hong Kong, Taiwan and Mainland China. *Higher Education Research & Development*, 22(2), 117-129.
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organizational linkages: The psychology of commitment, absenteeism and turnover*. New York: Academic Press.
- Newstrom, J. W., & Davis, K. (2002). *Organizational behavior: Human behavior at work*. (11th ed.). New York: McGraw-Hill.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- O'Driscoll, M. P., & Cooper, C. L. (1996). Sources and management of excessive job stress and burnout. In P. Warr (Ed.), *Psychology at work* (4th ed.). London: Penguin.

- Pilkington, A., Mulholland, R. E., & Cowie, H. A. (2001). *Baseline measurements for the evaluation of the work-related stress campaign*. CRR 322/2001. HSE Contract Research Report. HSE Books, Sudbury.
- Pillay, K. & Claase-Schutte, C. (2003, July). *Private security officers as victims of trauma and stress: the South African experience and initiatives to manage it*. Paper presented at the World Society of Victimology, XIth International Symposium on Victimology, Stellenbosch, South Africa.
- Pugliesi, K. A. (1999). The consequences of emotional labor: Effects on work stress, job satisfaction and well-being. *Motivation and Emotion*, 23(2), 125-154.
- Quick, J. C., Murphy, L. R., & Hurrell, J. J. (1992). *Stress and well-being at work. Assessments and interventions for occupational mental health*. Washington DC: American Psychological Association.
- Quick, J. C., Quick, J. D., Nelson, D. L., & Hurrell, J. J. (1997). *Preventative stress management in organizations*. Washington, DC: American Psychological Association.
- Robbins, S. P. (1998). *Organizational behavior: Concepts, controversies, and applications*. (8th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Romanov, K., Appelberg, K., Honkasalo, M. L., & Koskenvuo, M. (1996). Recent interpersonal conflict at work and psychiatric morbidity: A prospective study of 15,530 employees aged 24 – 64. *Journal of Psychosomatic Research*, 40, 169-176.
- Schafer, W. (2000). *Stress management for wellness*. New York: Harcourt College Publishers.
- Schaufeli, W. B., Enzmann, D., & Girault, N. (1993). The measurement of burnout: A review. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 199-215). Washington, DC: Taylor & Francis.
- Schaufeli, W. B., Maslach, C., & Marek, T. (Eds.). (1993). *Professional burnout: Recent developments in theory and research*. Washington, DC: Taylor & Francis.
- Seijts, G. H., & O'Farrell, G. (2003). Engage the heart: Appealing to the emotions facilitates change. *Ivey Business Journal*, January/February, 1-5.
- Seldin, P. (1991). Reducing stress on campus. *Planning for Higher Education*, 9(4), 14-20.
- Selye, H. (1975). *Stress without distress*. London: Hodder and Stoughton.
- Shirom, A., Westman, M., & Melamed, S. (1999). The effects of pay systems on blue-collar employees' emotional distress: the mediating effects of objective and subjective work monotony. *Human Relations*, 52, 1077-1097.

- Siu, O. L. (2002). Occupational stressors and well-being among Chinese employees: The role of organizational commitment. *Applied Psychology: An International Review*, 5, 527-544.
- SPSS Inc. (2003). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Spurgeon, A., Harrington, M. J., & Cooper, C. L. (1997). Health and safety problems associated with long working hours: A review of the current position. *Occupational and Environmental Medicine*, 54, 367-375.
- Suliman, A. M., & Iles, P. A. (2000a). Is continuance commitment beneficial to organizations? Commitment-performance relationship: A new look. *Journal of Managerial Psychology*, 15, 407-426.
- Suliman, A. M., & Iles, P. A. (2000b). The multi-dimensional nature of organizational commitment in a non-western context. *Journal of Managerial Psychology*, 19, 1-7.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Tennant, C. (2001). Work-related stress and depressive disorders. *Journal of Psychosomatic Research*, 51, 697-704.
- Tepper, B. J. (2000). Consequences of abusive supervision. *Academy of Management Journal*, 4, 178-190.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.
- Tytherleigh, M. V. (2003). What employers may learn from English higher education institutions: A fortigenic approach to occupational stress. *SA Journal of Industrial Psychology*, 29(4), 101-106.
- Van der Doef, M., Maes, S., & Diekstra, R. (2000). An examination of the job demand-control-support model with various occupational strain indicators. *Anxiety, Stress and Coping: An International Journal*, 13, 165-185.
- Van Wyk, B. J. (1998). *Stresbelewing by onderwysers*. Unpublished doctoral thesis. University of Port Elizabeth, Port Elizabeth.
- Van Zyl, Y., & Buitendach, J. H. (2004, March). *Occupational stress, job satisfaction and organisational commitment of educators on senior level in the Sedibeng West district - Vanderbijlpark*. Poster presented at the 2nd South African Work Wellness conference, Potchefstroom.
- Varca, P. E. (1999). Work stress and customer service delivery. *The Journal of Service Marketing*, 13, 229-241.

- Voydanoff, P., & Donnelly, B. W. (1999). Multiple roles and psychological distress: the intersection of the paid worker, spouse, and parent roles with the role of the adult child. *Journal of Marriage and the Family*, 61, 725-738.
- Wevers, N. E. J., & Steyn, G. M. (2002). Opvoeders se persepsies van hulle werkmotivering: 'n kwalitatiewe studie. *South African Journal of Education*, 22, 205-212.
- Winefield, A. H., Gillespie, N., Stough, C., Dua, J., & Hapuararchchi, J. (2002). *Occupational stress in Australian universities: A national survey*. Melbourne, Victoria: National Tertiary Education Union.
- Wood, F., & Meek, L. (2002). Over-received and underfunded? The evolving policy context of Australian higher education research and development. *Journal of Higher Education Policy and Management*, 24, 7-25.
- Woordard, C. (1997). Experts see Russian higher education becoming diverse and decentralized. *The Chronicle of Higher Education*, 44(13), A43-45.

CHAPTER 4

RESEARCH ARTICLE 3

A COMPREHENSIVE MODEL OF WORK-RELATED WELL-BEING OF EMPLOYEES AT A UNIVERSITY OF TECHNOLOGY

ABSTRACT

The objectives of this study were to a) assess the reliability and validity of measuring instruments for a model of work-related well-being, b) test a comprehensive model of work-related well-being, and c) investigate whether dispositional optimism moderates the relationship between distress/eustress, and health/commitment. A survey design was used. The sample ($N=353$) consisted of academic ($n=132$) and support staff ($n=221$) at a university of technology. The measurement instruments used are the Maslach Burnout Inventory – General Survey, the Cognitive Weariness Scale, the Utrecht Work Engagement Scale, a Health Questionnaire, the Organisational Commitment Questionnaire, the Life Orientation Test – Revised, the Job Demands-Resources Scale and a biographical questionnaire. Results showed job demands lead to distress, which leads to ill health. Job resources contributed to work wellness, which led to organisational commitment. Dispositional optimism has a moderating effect on the relationships between variables in the model of work wellness.

OPSOMMING

Die doelstellings van hierdie studie was om a) die betroubaarheid en geldigheid van meetinstrumente vir 'n model van werkverwante welstand te bepaal, b) 'n omvattende model van werkverwante welstand te toets, en c) te bepaal of disposisionele optimisme die verwantskap tussen stres/eustres en gesondheid/toewyding temper. 'n Opname-ontwerp is gebruik. Die steekproef ($N=353$) het bestaan uit akademiese ($n=132$) en ondersteuningsdienste personeel ($n=221$) by 'n universiteit van tegnologie. Die metingsinstrumente wat gebruik is, is die Maslach Uitbrandingsvraelys – Algemene Opname, die Kognitiewe Vermoeidheidvraelys, die Utrecht Werkbegeesteringskaal, 'n Gesondheidsvraelys, die Organisasietoewydingsvraelys, die Lewensoriëntasietoets – hersiene weergawe, die Werkse-werkhulpbronnenskaal en 'n biografiese vraelys. Resultate het aangetoon dat werkseise tot uitputting lei, wat tot swak gesondheid lei. Werkhulpbronne het tot werkverwante welstand bygedra, wat weer tot organisasieverbondenheid gelei het. Disposisionele optimisme het 'n matigende effek op die verhoudinge tussen veranderlikes in die model van werkverwantwe welstand.

Significant democratic changes that have taken place in South Africa since 1994 have led to the reintegration of the country into the international community. This, together with globalisation has brought about unprecedented changes in all spheres of society (Boughey, 2004). As a result, the South African higher education system has also undergone a structured transformation process, which led to some major changes to the system. Consequently, issues surrounding the burnout of staff have received growing attention. This is not surprising when one considers the changes prompted by the National Plan on Higher Education. The White Paper of 1997 (DoE, 2001, p. 9) reflects a move towards development rather than equity. This document prioritises three key aspects of the transformation of “higher education in a knowledge-driven world”.

Firstly, South African human resources development should contribute to social, economic, cultural and intellectual life in a rapidly changing society. Secondly, the provision of high-level skills training in order to develop professionals and knowledge workers with globally equivalent skills, who are also socially responsible and conscious of their role in contributing to national development and social transformation. Finally, it promotes the view that the production, acquisition and application of new knowledge in a growing economy are dependent on continuous technological improvement and innovation. These imperatives should be driven by the training capacity of higher education, as well as the needs of industry and social reconstruction (DoE, 1997, p. 1-12).

This agenda will drive higher education institutions for the near future. The effectiveness and health of employees of higher education institutions play a vital role in achieving these objectives and delivering quality service (the measuring tool used in the evaluation of higher education institutions). According to Boshoff and Arnolds (1995), most employers agree that the effectiveness and success of their organisations depends on the effective utilisation of their human resources. Employees’ levels of wellness (and specifically the absence of burnout) are an important indicator of the effectiveness of an organisation (Kreitner & Kinicki, 1998).

According to Myers, Sweeny, and Witmer (2000, p. 252) “Wellness is a way of life oriented toward optimal health and well-being in which body, mind and spirit are integrated by the individual to live more fully within the human and natural community. Ideally it is the optimum state of health and well-being that each individual is capable of achieving.”

Wellness involves a lifestyle with an integrated pattern of living focused on several dimensions, i.e. emotional, intellectual, career, environmental, physical, spiritual and social (MacGuire & Snow, 1994; Robbins, Powers, & Burgess, 1999).

There are a number of specific organisational factors that contribute to burnout, and thus negatively to general wellness. These factors include role demands (Cordes & Dougherty, 1993), autonomy (Lemkau, Purdy, Rafferty, & Rudisill, 1988; Varga, Urdaniz, & Canti, 1996), work overload (Graham & Ramirez, 1997), need for recognition and career development (Pines & Aronson, 1988), role conflict and role ambiguity (Miller, Ellis, Zook, & Lyles, 1990), and insufficient social support (co-worker, supervisory and peer support) (Carroll & White, 1982; Farber, 1983; Iverson, Olekalns, & Erwin, 1998; Ratcliff, 1988; Rogers, 1987). According to Schaufeli and Enzmann (1998), work-related attitudes and high (unrealistic) expectations are also related to burnout. The cost of burned out employees is high, both for employees and for organisations, because these employees do the bare minimum instead of performing to the best of their ability (Maslach, 2001).

Notwithstanding the above, staff of higher education institutions seem to be enthusiastic about their work and manage to obtain a significant degree of satisfaction and challenge from their jobs (Kinman, 2001). In this regard, Cooper, Dewe, and O'Driscoll (2001) mention that one person's stress (distress) can indeed be another's excitement or energizer (eustress). Therefore, it is assumed that staff might also exhibit positive psychological responses to stressors (Nelson & Simmons, 2003) or work engagement (Schaufeli & Bakker, 2004).

In a recent study by Viljoen and Rothmann (2006) a factor analysis was carried out on the Maslach Burnout Inventory – General Survey (MBI-GS) combined with the Cognitive Weariness Scale (CWS) and the Utrecht Work Engagement Scale (UWES) to explore the second-order factor structure of these instruments. The results indicated that the second-order factor of these instruments underlie two distinct components. Component one consisted of Vigour, Dedication and Professional Efficacy. This component was identified as a positive factor, aptly labelled “Engagement” or “Eustress”. Component two was a negative factor and was labelled “Burnout” or “Distress”. This component consisted of Exhaustion, Cynicism and Cognitive Weariness. For the purposes of this study, *burnout* is regarded as an indicator of *distress* and *work engagement* as an indicator of *eustress*.

A review of the literature revealed that one previous study (Barkhuizen & Rothmann, 2006) has tested a structural model of wellness of staff in South African higher education institutions. The findings showed that job demands contributed to burnout, while job resources contributed to work wellness. Burnout mediated the relationship between job demands and ill health whereas work wellness mediated the relationship between job resources and organisational commitment. Work wellness contributed to life satisfaction, while dispositional optimism had both main and interaction effects on ill health and life satisfaction.

In the current study, a comprehensive structural model of work-related well-being of staff in a South African university of technology will be tested. The model encompasses the following dimensions: distress (exhaustion, cynicism, cognitive weariness, and reduced professional efficacy), eustress (vigour, dedication, and increased professional efficacy), situational causes (i.e. job demands and job resources), and the outcomes of commitment (individual and organisational) and health (physical and psychological well-being). Therefore, this research is highly relevant as the findings can be used to plan and implement appropriate interventions, which could in turn lead to improved health and morale of staff; enhanced management of occupational stress factors; reduction in stress-related sickness/absence; reduction in staff turnover and reduction in costs.

Distress and eustress

Eustress has been described in the literature as experiences of pleasure, enjoyment, satisfaction, ecstasy or fulfilment that occur during some stress reactions (Selye & Tache, 1979). Distress, on the other hand, is described as a state of discomforting tension, conflict or psychological pressure (Budzinski & Peffer, 1980). With reference to stress, distress and eustress, Lazarus (1988) defined stress as a relationship between the person and the environment which is perceived by the person as taxing or exceeding his/her resources. He suggested that environmental events and individual characteristics combine to shape cognitive appraisals. Furthermore, he noted that cognitive appraisals classify such events as either a challenge "eustress" or a threat "distress". He states that the difference between the two lies in the perceived opportunity for positive mastery of a situation or in the actual or perceived potential of an event to cause harm.

Burnout, as an indicator of distress (Bourbonnais, Comeau, Vézina, & Dion, 1998), is a negative work-related psychological state that is primarily characterised by mental exhaustion and has received tremendous research attention during the past 25 years (Schaufeli, 2003; Shirom, 1993). Burnout is the result of long-term involvement in demanding situations and a reaction to chronic occupational stress. Distress, in the same sense, refers to baleful effects of stress with long-term negative impacts (Selye, 1974). Burnout is characterised by exhaustion (i.e. the draining of emotional resources), cynicism (i.e. a negative, callous, and cynical attitude to one's job) and lack of professional efficacy (i.e. the tendency to evaluate one's work negatively) (Maslach, 1982, 1993; Maslach, Jackson, & Leiter, 1996; Maslach, Schaufeli, & Leiter, 2001). Exhaustion and cynicism are considered the core dimensions of burnout (Green, Walkey, & Taylor, 1991). Reduced efficacy was added as a constituting element of burnout after it emerged as a third factor from a factor-analysis of a preliminary version of the Maslach Burnout Inventory (MBI) (Maslach, 1993). Cognitive weariness was devised as an analogue to Maslach's (1993) emotional exhaustion concept and can be considered as an extension of the burnout concept. It refers to the lack of capacity to take up new information and loss of concentration at work.

According to Levert, Lucas, and Ortlepp (2000), burnout can be regarded as the end result of consistently unmediated or unsuccessful attempts at mediating stressors in the environment on the part of the individual. The distress concept takes burnout a step further by also explaining the body's negative physical and psychological reactions to stress. This is of particular importance considering the ample evidence in literature that occupational stress has an impact on workers' mental and physical well-being and if left unchecked, it can cause mental and physical (un)well-being, job dissatisfaction, absenteeism, stress-related injuries, increased staff turnover and intention to quit (Kahn & Byosiére, 1992; Siu, 2002; Winefield, Gillispie, Stough, Dua, & Hapuararchchi, 2002).

A major part of the research on burnout has focused on identifying its antecedents and outcomes (Lee & Ashforth, 1996; Schaufeli & Buunk, 2003). In recent years, the emerging "positive paradigm" in Occupational Health Psychology has prompted burnout researchers to pay more attention to the conceptual opposite of burnout, namely work engagement (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, 2003; Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Engagement, as an indicator of eustress (Bourbonnais et al., 1998), is described as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption. It is not a momentary and specific state, but a more persistent and pervasive affective-cognitive state which is not focused on a particular object, event, individual or behaviour (Schaufeli et al., 2002). Vigour is characterised by high levels of energy and mental resilience while working, as well as a willingness to exert effort and to persist even through difficult times. Dedication is characterised by a sense of significance in one's work, feeling enthusiastic, inspired and proud, and by viewing it as a challenge. Absorption comes close to the concept of "flow" - an optimal state of experience where focused attention, a clear mind, unison of body and mind, effortless concentration, complete control, loss of self-consciousness, distortion of time and intrinsic enjoyment are experienced (Csikszentmihalyi, 1990). Vigour and dedication are considered the core dimensions of engagement, and absorption was later added as a relevant aspect of engagement (Schaufeli & Bakker, 2004). Although documented, eustress as phenomenon has, much like engagement, not enjoyed the same attention in research as the concept of distress. Understanding eustress and its relationship with well-being in general, but also presumably with good health (as opposite of distress outcomes), could assist in expanding the engagement concept.

Engagement can be distinguished, though not divorced, from burnout or distress in terms of its structure and operationalisation. Engagement is theoretically viewed as the opposite end of the continuum from burnout, which cannot be effectively measured by the Maslach Burnout Inventory (MBI). Therefore, the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2002) was designed to measure the concept of engagement. Given the fact that burnout and engagement are indicators of wellness of employees at work, Schaufeli and Bakker (2004) suggested a possible combination of these two concepts in a model of well-being.

Based on a theoretical analysis, two underlying dimensions of work-related well-being have been identified: (1) activation (energy), ranging from exhaustion to vigour, and (2) identification, ranging from cynicism to dedication (Schaufeli & Bakker, 2004; Watson & Tellegen, 1985). Theoretically, vigour is conceived as the opposite of emotional exhaustion, and dedication is conceived as the opposite of cynicism (Maslach & Leiter, 1997; Schaufeli et al., 2002). From this point of view, vigour items and exhaustion items measure a single underlying bipolar dimension and, consequently, they should be scalable on a single underlying bipolar dimension. The same applies to the other pair of opposite constructs;

dedication items and cynicism items should also be scalable on a single underlying bipolar dimension. These underlying bipolar dimensions have been labelled energy and identification respectively (Schaufeli et al., 2002). In light of the above, it can be reasoned that eustress includes the positive energy dimension (vigour) and the positive identification dimension (dedication), but also increased professional efficacy. Distress includes the negative energy dimension (exhaustion), the negative identification dimension (cynicism) and cognitive weariness.

Job demands and job resources

Job demands refer to those aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). These include frequent changes from exciting activities to boredom, lack of personal time, being assigned more responsibility, having to deal with crisis situations, too much supervision, deadlines, having to make critical decisions as well as organisational transformation.

Job resources refer to those aspects of the job that may be functional in achieving work goals, reducing job demands and the associated physiological and psychological costs, and stimulating personal growth and development (Demerouti et al., 2001). A lack of job resources includes understaffing with subsequent increases in individual workload, negligence by co-workers, lack of recognition for work well done, lack of supervisor support, inadequate or poor quality equipment, and lacking opportunities for advancement.

Leiter (1993) proposed a process model of burnout that assumes that job demands and resources are positioned to be differentially associated with the three dimensions of burnout, namely exhaustion, cynicism and professional efficacy. Lee and Ashforth (1996), Leiter (1991, 1993), and Taris, Schreurs, and Schaufeli (1999) found that job demands are more strongly related to exhaustion, while job resources are more strongly related to cynicism and professional efficacy. Long (1993), Peeters and Le Blanc (2001) and Schaufeli and Enzmann (1998) found that exhaustion is significantly and most strongly associated with job demands. Cynicism and professional efficacy were strongly associated with job resources, but not more so than exhaustion.

Schaufeli and Bakker (2004) found that burnout is predicted mainly by job demands and a lack of job resources, and that it is related to health problems as well as to turnover intention. Engagement, on the other hand, is predicted exclusively by available job resources. Results further indicated that burnout mediates the relationship between job demands and health problems, whereas engagement mediates the relationship between job resources and turnover intention.

Jackson, Rothmann, and Van de Vijver (2006) reported that job demands and a lack of job resources, applied within the South African context, contributed to burnout, whereas job resources predicted work engagement. Furthermore, burnout mediated the relationship between job demands and ill health, whilst work engagement mediated the relationship between job resources and organisational commitment. Coetzer and Rothmann (2004) and Barkhuizen and Rothmann (2006) found that job demands and a lack of resources increased the levels of burnout, while the availability of resources increased the levels of engagement.

Organisational commitment

Bauer and Green (1998) and Mowday, Porter, and Steers (1982) defined organisational commitment as the relative strength of an individual's identification with and involvement in, or psychological attachment to, a particular organisation. Meyer and Allen (1997) view this identification as a psychological bond between employees and their employing organisations.

According to Allen and Meyer (1990), there are three components of organisational commitment, namely affective, continuous and normative. The affective component of organisational commitment refers to the employee's emotional attachment to, identification with, and involvement in the organisation. The continuance component refers to the commitment based on the costs that the employee associates with leaving the organisation. The normative component refers to the employee's feeling of obligation to remain with the organisation.

Various researchers (Mathieu & Zajac, 1990; Mowday et al., 1982) reported that job satisfaction, motivation and performance relate positively to organisational commitment and negatively with absenteeism and turnover. It also seems that organisational commitment declines in the face of burnout, whilst engagement is a useful indicator of commitment

(Leiter & Maslach, 1988). Maslach (2001) further proposes that although the concepts of organisational commitment and engagement are related, they are not the same. Organisational commitment focuses on the relationship between the individual and the organisation, whereas engagement is more concerned with the work itself.

III health

No discussion on well-being will be complete without referring to health. Health can be defined as complete physical, mental, and social well-being and not merely the absence of disease. To reach a state of complete physical and psychological well-being, an individual or group must be able to identify and to realise aspirations, to satisfy needs, and to change or cope with the environment. Health is a positive concept emphasising social and personal resources, but it goes beyond healthy lifestyles to a state of well-being. Health is created and lived by people within the settings of their everyday life where they learn, work, play and love (WHO, 2000).

The fact that distress is not healthy is well established. Research has concluded that stress can precipitate physiological changes in metabolism, increased heart rate, headaches and heart attacks, although the precise nature of the relationship remains unclear (Savery & Luks, 2001). According to Quick, Quick, Nelson, and Hurrell (1997, p. 77), "Heart attack, stroke, cancer, peptic ulcer, asthma, diabetes, hypertension, headache, back pain, and arthritis are among the many diseases and symptoms that have been found to be caused or worsened by stressful events". Steffy and Jones (1990) note that job-related stress can cause job-related dissatisfaction which, in itself, is the single most obvious psychological effect of stress such as tension, anxiety, depression, aggression, irritability, confusion, boredom and procrastination. Recent evidence suggests that distress is associated with increased reports of medical symptoms and health-damaging behaviour in men (Simmons & Nelson, 2001). With regard to the detrimental effects of stress on the physical and psychological ill health of academics, Gillespie, Walsh, Winefield, Dua, and Stough, (2001) found that three quarters of the respondents in their study suffered from physical health effects such as headaches and migraines, sleep disorders, back and neck pain, constant muscle pain, and weight loss or gain.

Not surprisingly, there is less evidence concerning the relationship between eustress and health. In examining the notion of eustress, Edwards and Cooper (1998) engaged in an

extensive review of the research in this area and suggested that eustress could improve health either directly through hormonal and biochemical changes, or indirectly by facilitating coping mechanisms for “distress”.

While eustress and distress responses are directly linked to stressors, not all aspects of the stress process reflect actual response to the stressor. Other states associated with stress, such as well-being, illness, or fatigue, are more appropriately viewed as products or effects of the stress response (Simmons & Nelson, 2001).

Optimism

Optimism and pessimism seem to be unavoidable kinds of judgments of the future, which we all display and act upon. Individuals who have global expectations that good things will be plentiful in the future and bad things scarce, are said to possess dispositional optimism (Scheier & Carver, 1992). According to a literature review by Peterson (2000), there are benefits of optimism and constant drawbacks of pessimism. Optimism has been linked to positive mood and good moral, to perseverance and effective problem solving, to academic, athletic, military, occupational, and political success, to popularity, to good health, and even to long life and freedom from trauma. Pessimism, in contrast, seems to foreshadow depression, passivity, failure, social estrangement, morbidity, and mortality (Peterson, Maier, & Seligman, 1993; Scheier & Carver, 1992; Weinstein & Klein, 1996).

A positive life orientation is believed to be beneficial to health, as highly optimistic individuals appear to attract supportive social relationships, use adaptive coping strategies, and have different health habits than pessimists, who tend to give up and turn away in stressful situations (Brissette, Scheier, & Carver, 2002; Scheier & Carver, 1992; Smith & Williams, 1992). There is also increasing evidence that dispositional optimism and pessimism have contrasting effects on physical and psychological well-being and adjustment (Peterson & Bossio, 2001; Scheier & Carver, 1992). Research findings reveal that that pessimists, in contrast with optimists, experience aspects of life in a positive and healthy manner. This include fewer positive (Räikkönen, Matthews, Flory, Owens, & Gump, 1999; Scheier, Carver, & Bridges, 1994) and more negative affective states, and in particular, higher levels of depressive symptoms (Bromberger & Matthews, 1996; Chang, 1998; Chang & Farrehi, 2001; Vickers & Vogeltanz, 2000), and lower levels of life satisfaction and more physical

symptoms (Chang, 1998; Chang & Farrehi, 2001). Furthermore, pessimists more often experience interpersonal interactions as conflictual (Räikkönen et al., 1999). When faced with stress, optimists tend to use problem-focused modes of coping (Brissette et al., 2002; Fontaine, Manstead, & Wagner, 1993) and seek social support (Aspinwall & Taylor, 1992; Fry, 1995), whereas pessimists use denial, distance themselves from the problem, and disengage from the goal and social relationships (Brissette et al., 2002; Carver, Lehman, & Antoni, 2003).

Optimism, as a positive outcome expectancy, has been identified as an important factor in physical health, especially for people experiencing stress (Cassidy, 2000). Optimism has also been shown to be a powerful personal variable related to outcomes in organisational settings (Riolfi & Savicki, 2003). These authors found that low levels of optimism have affected both exhaustion and depersonalisation. When optimists confront adversity, they expect to have positive outcomes (which result in a mix of feelings that is relatively positive). Pessimists, on the other hand, expect negative outcomes (which should yield a greater tendency to negative feelings) (Carver & Scheier, 2002). Optimism thus confers a resistance to the development of depressive symptoms and it contributes to an individual's subjective well-being.

Objectives

The objectives of this study were a) to assess the validity and internal consistency of instruments measuring constructs included in the model of work related well-being, b) to test a comprehensive structural model of work related well-being for staff at a university of technology, and c) to investigate whether dispositional optimism moderates the relationship between distress and eustress on the one hand, and health and commitment on the other hand.

The above discussion leads to the following hypotheses:

- H1:** Job demands and (lack of) job resources predict distress, which predicts ill health.
- H2:** Job resources predict eustress, which positively affect commitment.
- H3:** Dispositional optimism has main and moderate effects on ill health and commitment.

METHOD

Research design

A survey design targeting all permanent employees of the higher education institution was used.

Participants

The study population consisted of support ($N=1\ 084$) and academic staff ($N=529$) of a higher education institution in South Africa. All available staff was included in the survey. In total, 1 613 questionnaires were distributed across six campuses, of which 353 were completed and returned. This included responses from 132 academic and 221 support staff members. This gives a total response rate of 21,88% (37,4% for academic staff and 62,6% for support staff).

Females constituted 63,3% of the participants, while males constituted 36,7%. The majority of the participants (65,8%) were married. Different language groups were included in the study. A total of 69,9% of the participants were Afrikaans speaking, 12% English speaking and 18,1% were speaking other indigenous languages.

The age distribution pointed to a reasonably young workforce with only 15,4% older than 50 years. In total, 22,8% of the population obtained a Master's (or related) qualification and/or a higher qualification. 60,5% of the participants had been in service at the institution for 6+ years. 40,2% reported to have had no opportunity to be promoted during their years of service. 80,7% of the respondents indicated that they do not smoke, and 66,9% admitted to drinking alcohol. The characteristics of the participants are shown in Table 1.

Table 1

Characteristics of Participants

Item	Category	Frequency	Percentage
Employment category	Academic	132	37,4
	Support	221	62,6
Gender	Female	221	63,3
	Male	128	36,7
Marital status	Single	61	17,4
	Engaged/in relationship	20	5,7
	Married	231	65,8
	Divorced	32	9,1
Language	Widow/Widower	7	2,0
	Afrikaans	244	69,9
	English	42	12,0
Age distribution	Other	43	18,1
	20 – 30	73	21,7
	31 – 40	118	35,0
	41 – 50	94	27,9
Education	51+	52	15,4
	Grade 12 or lower	91	26,2
	3 year qualification	75	21,6
	4 year qualification	102	29,4
	Masters	63	18,2
Years of service	Doctoral	16	4,6
	0 – 2 years	51	15,4
	3 – 5 years	80	24,1
	6 – 10 years	109	32,8
Opportunity for promotion	11 years +	92	27,7
	none	115	40,2
	1	120	42,0
Smoke	2+	51	17,7
	Yes	67	19,3
Drink alcohol	No	281	80,7
	Yes	232	66,9
	No	115	33,1

Measurement battery

The following measuring instruments were used in the empirical study:

The *Maslach Burnout Inventory - General Survey* (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) was used to measure burnout. The MBI-GS consists of 16 items and has three subscales, namely Exhaustion (five items), Cynicism (five items) and Professional Efficacy (six items). Internal consistencies (Cronbach coefficient alphas) reported by Schaufeli et al. (1996) varied from 0,87 to 0,89 for Exhaustion, 0,73 to 0,84 for Cynicism and 0,76 to 0,84

for Professional Efficacy. Test-retest reliabilities after one year were 0,65 (Exhaustion), 0,60 (Cynicism) and 0,67 (Professional Efficacy) (Schaufeli et al., 1996). All items were scored on a seven-point frequency rating scale ranging from 0 (*never*) to 6 (*daily*). Storm and Rothmann (2003) confirmed the three-factor structure of the MBI-GS in a sample of police members, recommending that Item 13 be dropped from the questionnaire. The structural equivalence of the MBI-GS for different race groups was also confirmed. The following Cronbach alpha coefficients were obtained for the MBI-GS: Exhaustion: 0,88; Cynicism: 0,79; Professional Efficacy: 0,78 (Storm, 2002). Coetzee and Rothmann (2004) confirmed a four-factor structure for the MBI-GS in a study involving 372 academic and support employees at a higher education institution in South Africa.

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli et al., 2002) was used to measure the levels of engagement of participants. The UWES measures levels of engagement on a 17-item seven-point frequency rating scale, ranging from 0 (*never*) to 6 (*every day*). Three dimensions can be distinguished, namely Vigour, Dedication and Absorption. Only two of the subscales of the UWES were used for purposes of this study, namely Vigour and Dedication. Engaged individuals are characterised by high levels of vigour and dedication, as well as by elevated levels of absorption. Steyn (2004) confirmed a one-factor model of work engagement in a South African study. A three-factor model of work engagement as measured by the UWES was confirmed in two other South African studies, one in the SA Police Service (Rothmann & Storm, 2003), and the other in the SA Higher Education sector (Coetzee & Rothmann, 2005). In both these studies, acceptable Cronbach alpha coefficients of >0,70, as proposed by Nunnally and Bernstein (1994), were found.

The *Health subscale* of the *ASSET (An Organizational Stress Screening Tool)*, developed by Cartwright and Cooper (2002), was used to assess participants' level of health. The Health subscale comprises 19 items scored on a four-point scale with 1 (*never*) to 4 (*often*) and is arranged on two subscales, namely Physical health and Psychological well-being. All items on the Physical health subscale relate to physical symptoms of stress. Items on the Psychological well-being subscale point to symptoms of stress-induced mental ill health. Johnson and Cooper (2003) found good convergent validity between the Psychological well-being subscale and the General Health Questionnaire (GHQ-12), which is an existing measure of psychiatric disorders (Goldberg & Williams, 1988).

The *Commitment subscale* of the *ASSET (An Organizational Stress Screening Tool)*, developed by Cartwright and Cooper (2002), was used to assess participants' level of commitment. The Commitment subscale consists of nine items scored on a six-point scale with 1 (*strongly disagree*) to 6 (*strongly agree*). It is arranged on two subscales, namely Organisational commitment and Individual commitment. Cronbach alpha coefficients of 0,83 for Organisational commitment and 0,77 for Individual commitment have been reported (Faragher, Cooper, & Cartwright, 2004).

The *Life Orientation Test – Revised (LOT-R)*, a 10-item measure, was developed by Scheier et al. (1994) to measure dispositional optimism. Six items contribute to the optimism score and four items are fillers. The original Life Orientation Test (Scheier & Carver, 1985), which hypothesised a two-factor structure of optimism (i.e. optimism and pessimism) was questioned (Harju & Bolen, 1998). Follow-up analysis has demonstrated a one-factor structure, indicating that the LOT-R measures a continuum of high, average and low optimism/pessimism (Scheier et al., 1994). The LOT-R measures optimism/ pessimism on a five-point Likert scale, ranging from 1 (*I strongly disagree*) to 5 (*I strongly agree*). The LOT-R was found to have adequate internal consistency (Cronbach's alpha = 0,78), and excellent convergent and discriminant validity (Scheier et al., 1994). Based on a sample of 204 college students, Harju and Bolen (1998) obtained a Cronbach alpha coefficient of 0,75.

The *Job Demands – Resources Scale (JDRS)* was developed by Barkhuizen and Rothmann (2006) to measure job demands and job resources of staff in higher education institutions. The JDRS consists of 48 items. The questions are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JDRS include pace and amount of work, mental load, emotional load, work variety, opportunities to learn, work independence, relationships with colleagues, relationship with immediate supervisor, ambiguities of work, information, communications, participation, contact possibilities, remuneration and career possibilities. In a study conducted with academics from six South African universities, the authors extracted four factors through principal factor analysis with Varimax rotation. The four factors were labelled Organisational Support, Growth Opportunities and Advancement, Overload and Job Insecurity.

A *biographical questionnaire* was designed and used to gather information on various aspects of the population, e.g. gender, marital status, language, and education.

Statistical analysis

The statistical analysis was carried out with the help of the SPSS program (SPSS Inc., 2003) and the Amos program (Byrne, 2001). The SPSS program was used to carry out statistical analysis regarding reliability, validity, construct equivalence and predictive bias of the measuring instruments, descriptive statistics, multivariate analysis of variance, and correlation coefficients. The Amos program (Arbuckle, 1997) was used to test a structural model of work-related well-being.

Hypothesised relationships were tested empirically for goodness of fit with the sample data. The Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), and Comparative Fit Index (CFI), all represent indices of fit and/or variance with the hypothesised model. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). The Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973) measures co-variation explained by the model that has been specifically developed to assess factor models. For these fit indices, it is generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995). Browne and Cudeck (1993) suggest using the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval of the RMSEA that estimate the overall amount of error. The RMSEA point estimate should be 0,05 or less and the upper limit of the confidence interval should not exceed 0,08.

Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to analyse the data. Cronbach alpha coefficients were used to assess the reliability (i.e. internal consistency) of the measuring instruments (Clark & Watson, 1995). Principal Component Analysis with a direct oblimin rotation was used to explore the second-order factor structure of the measuring instruments. The significance of differences in distress, eustress, health and commitment between low and high optimism groups was established by means of MANOVA. Structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1997) were used. In the first step, multigroup structural models, which distinguish between individuals scoring low and high on optimism, were constructed and tested. In the second step, the structural paths between job demands and resources on the one hand, and burnout and work engagement on the other hand were constrained equal across groups, and

then tested. The χ^2 statistic and degrees of freedom provide the basis for comparison with the initial multigroup model in which no equality constraints were imposed.

RESULTS

Construct validity of the measuring instruments

Distress and eustress. A simple component analysis was conducted on six dimensions of distress and eustress (exhaustion, cynicism, professional efficacy, cognitive weariness, vigour, and dedication). Two related components which explained 76,33% of the total variance were extracted. Next, a principal component analysis with a direct oblimin rotation was conducted on these dimensions. The results showed that professional efficacy (0,98), vigour (0,80) and dedication (0,85) constituted the first component (labelled *Eustress*). The second component (labelled *Distress*) comprised exhaustion (0,96), cynicism (0,75) and cognitive weariness (0,67).

Ill health. Two hypothesised structural models were tested for the health questionnaire using structural equation modelling as implemented by AMOS (Arbuckle, 1997). The second two-factor model tested, consisting of physical and psychological health, was found to fit the data adequately as indicated by the following fit indices: $\chi^2 = 310,31$; ($\chi^2/df = 103$, $p = 0,00$); GFI = 0,90; NFI = 0,89; TLI = 0,91; CFI = 0,92 and RMSEA = 0,07.

Commitment. A simple principal component analysis that was carried out on the nine items of the organisational commitment subscale of the ASSET resulted in two components being extracted. This explained 63,36% of the total variance. The components were labelled Organisational Commitment and Individual Commitment. The item loadings on the organisational commitment component varied from 0,71 to 0,92, and on the individual commitment component from 0,36 to 0,86. The correlation between the components was 0,42.

Optimism. Two hypothesised structural models were also tested for the Life Orientation Test – Revised (LOT-R) using structural equation modelling as implemented by AMOS (Arbuckle, 1997). The second model tested, a two-factor model consisting of pessimism and

optimism, was found to fit the data adequately as indicated by the following fit indices: $\chi^2 = 34,08$; ($\chi^2/df = 4,26$, $p = 0,00$); GFI = 0,97; NFI = 0,92; TLI = 0,88; CFI = 0,93 and RMSEA = 0,10.

Job Demands - Resources Scale (JDRS). Factor analysis conducted on the JDRS indicated that the communalities between factors were reasonably high, ranging from 0,46 to 0,92. Item 3 “Do you find that you do not have enough work?”, Item 10 “In your work, do you repeatedly have to do the same things?” and Item 32 were left out of the final analysis. Items 3 and 10 were left out on statistical grounds.

Inspection of the scree plot indicated the existence of five factors. A principal component analysis carried out on the 48 items of JDRS revealed five factors that could be extracted, which explained 51,10% of the total variance. Factors were identified if the loading on the factor is $> 0,30$. The first factor (labelled *Overload*) included the items relating to pace and amount of work, emotional demands and quantitative demands. The second factor (labelled *Organisational Support*) included items relating to relationship with the supervisor, role clarity, information, communication, participation in the decision-making process and opportunities for contact with others. The third factor (labelled *Social Support*) included items relating to the social relationships and contact with colleagues. The fourth factor (labelled *Job Insecurity*) included items relating to security about keeping one’s job in the future. The fifth factor (labelled *Advancement*) included items relating to variety in the job, learning opportunities, job autonomy and independence, remuneration and promotion opportunities (See Table 2 below).

Table 2

Factor Analysis with Rotated Component Matrix for the Job Demands – Resources Scale (JDRS)

Nr	Item	Component				
		1	2	3	4	5
1	Do you have too much work to do?	-0,04	-0,21	-0,15	0,65	0,08
2	Do you work under time pressure?	-0,07	-0,02	-0,12	0,68	-0,01
4	Do you have to be attentive to many things at the same time?	0,02	0,04	-0,07	0,66	-0,16
5	Do you have to give continuous attention to your work?	0,21	0,15	-0,11	0,61	0,05
6	Do you have to remember many things in your work?	0,21	0,21	-0,03	0,63	0,00
7	Are you confronted in your work with things that affect you personally?	-0,20	-0,25	0,10	0,52	0,00
8	Do you have contact with difficult learners/students or parents in your work?	-0,15	0,07	0,07	0,42	-0,05
9	Does your work put you in emotionally upsetting situations?	-0,27	-0,03	0,05	0,54	0,08
11	Does your work make sufficient demands on all your skills and capacities?	0,21	0,14	0,33	0,44	0,01
12	Do you have enough variety in your work?	0,31	0,18	0,35	0,37	0,07
13	Does your job offer you opportunities for personal growth and development?	0,37	0,14	0,54	0,23	-0,03
14	Does your work give you the feeling that you can achieve something?	0,41	0,16	0,43	0,31	-0,03
15	Does your job offer you the possibility of independent thought and action?	0,40	0,37	0,32	0,32	-0,04
16	Do you have freedom in carrying out your work activities?	0,48	0,41	0,16	0,12	0,28
17	Do you have influence in the planning of your work activities?	0,44	0,33	0,22	0,16	-0,05
18	Can you participate in the decision about when a piece of work must be completed?	0,42	0,41	0,24	0,06	-0,03
19	Can you count on your colleagues when you come across difficulties in your work?	0,24	0,63	0,14	-0,14	0,03
20	If necessary, can you ask your colleagues for help?	0,23	0,66	0,04	-0,09	0,03
21	Do you get on well with your colleagues?	0,23	0,61	0,02	0,09	-0,01
22	Can you count on your supervisor when you come across difficulties in your work?	0,68	0,20	0,09	-0,15	0,02
23	Do you get on well with your supervisor?	0,70	0,30	-0,03	-0,09	0,03
24	In your work, do you feel appreciated by your supervisor?	0,81	0,12	0,14	-0,13	-0,05
25	Do you know exactly what other people expect of you in your work?	0,39	0,45	0,08	-0,02	0,04
26	Do you know exactly for what you are responsible and which areas are not your responsibility?	0,33	0,48	0,05	0,04	0,10
27	Do you know exactly what your direct supervisor thinks of your performance?	0,74	0,14	0,06	-0,10	-0,08
28	Do you receive sufficient information on the purpose of your work?	0,65	0,30	0,15	0,00	-0,01
29	Do you receive sufficient information on the results of your work?	0,70	0,33	0,17	-0,04	-0,03
30	Does your direct supervisor inform you about how well you are doing your work?	0,79	0,18	0,11	-0,04	-0,08
31	Are you kept adequately up to date about important issues within your department/faculty/technikon?	0,52	0,35	0,23	0,03	-0,09
33	Is it clear to you whom you should address within the department/faculty/technikon for specific problems?	0,34	0,52	0,05	0,01	0,12
34	Can you discuss work problems with your direct supervisor?	0,78	0,18	0,03	-0,06	0,01
35	Can you participate in decisions about the nature of your work?	0,67	0,30	0,15	0,15	-0,02
36	Do you have a direct influence on your department/faculty/technikon's decisions?	0,49	0,12	0,27	0,22	-0,07
37	Do you have contact with colleagues as part of your work?	0,18	0,58	0,08	0,23	-0,12
38	Can you have a chat with colleagues during working hours?	0,09	0,65	0,18	0,03	-0,12
39	Do you find that you have enough contact with colleagues during working hours?	0,15	0,62	0,16	0,00	-0,09
40	Do you need to be more secure that you will still be working in one year's time?	-0,05	0,01	0,02	-0,02	0,92
41	Do you need to be more secure that you will keep your current job in the next year?	-0,07	-0,03	0,01	-0,02	0,94
42	Do you need to be more secure that next year you will keep the same function level as currently?	-0,05	-0,07	-0,02	0,01	0,89
43	Do you think that your technikon pays good salaries?	0,05	0,14	0,73	-0,02	0,06
44	Can you live comfortably on your pay?	0,00	0,24	0,76	-0,04	-0,03
45	Do you think you are paid enough for the work that you do?	0,00	0,13	0,80	-0,19	0,04
46	Does your job offer you the possibility to progress financially?	0,14	-0,01	0,80	-0,10	-0,02
47	Does your technikon give you opportunities to follow training courses?	0,24	0,26	0,46	0,04	0,05
48	Does your job give you the opportunity to be promoted?	0,34	-0,06	0,62	-0,06	-0,09

* Item loaded if >0,30

Subsequently, these five factors of the JDRS were subjected to a second-order principal component analysis. Table 3 below shows the two extracted components with eigenvalues larger than unity, which explained 73,30% of the variance. The components were labelled *Job Demands* with one factor (loading = 0,98) and *Job Resources* with three factors loading on it, namely organisational support (0,88), social support (0,81) and advancement (0,69). The correlation between the components was 0,42. Job security loaded negatively on both factors and was therefore not included in the subsequent analyses.

Table 3

Factor Analysis and Rotated Principle Component Matrix for the Job Demands - Resources Scale (JDRS)

Dimension	Component	
	1	2
1. Job Demands	-0,01	0,98
2. Organisational Support	0,88	0,05
3. Social Support	0,81	0,09
4. Advancement	0,69	-0,21

Descriptive statistics

The descriptive statistics and alpha coefficients of the MBI-GS, CWS, UWES, the Health subscales, Commitment subscales, LOT-R and JDRS are presented in Table 4.

Table 4

Descriptive Statistics, Alpha Coefficients and Correlations of the MBI-GS, CWS, UWES, Health and Commitment Subscales, LOT-R and JDERS

Dimension	Mean	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Exhaustion	11,82	7,29	0,87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Cynicism	6,90	5,25	0,72	0,56 ⁺⁺⁺	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Professional Efficacy	29,95	5,11	0,78	-0,17 ⁺	-0,36 ⁺	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Cognitive Weariness	9,71	6,98	0,88	0,52 ⁺⁺⁺	0,52 ⁺⁺⁺	-0,43 ⁺	-	-	-	-	-	-	-	-	-	-	-	-
5. Vigour	26,28	6,08	0,77	-0,41 ⁺	-0,47 ⁺	0,69 ⁺⁺⁺	0,51 ⁺⁺⁺	-	-	-	-	-	-	-	-	-	-	-
6. Dedication	24,20	5,45	0,88	-0,34 ⁺	0,53 ⁺⁺⁺	0,72 ⁺⁺⁺	-0,44 ⁺	0,74 ⁺⁺⁺	-	-	-	-	-	-	-	-	-	-
7. Job Demands	22,33	3,90	0,76	0,38 ⁺	0,13	0,19 [*]	0,09	0,06	0,06	-	-	-	-	-	-	-	-	-
8. Organisational Support	64,76	11,14	0,93	-0,37 ⁺	-0,49 ⁺	0,49 ⁺	-0,37 ⁺	0,50 ⁺⁺⁺	0,54 ⁺⁺⁺	0,01	-	-	-	-	-	-	-	-
9. Social Support	18,95	3,34	0,80	-0,32 ⁺	-0,32 ⁺	0,30 ⁺	-0,31 ⁺	0,35 ⁺	0,30 ⁺	0,06	0,61 ⁺⁺⁺	-	-	-	-	-	-	-
10. Advancement	13,84	3,84	0,84	-0,25 [*]	-0,22 [*]	0,17 [*]	-0,12	0,26 [*]	0,28 [*]	-0,08	0,46 ⁺	0,30 ⁺	-	-	-	-	-	-
11. Job Insecurity	8,01	2,91	0,92	0,04	0,09	-0,08	0,09	-0,04	0,01	-0,02	-0,08	-0,04	-0,04	-	-	-	-	-
12. Optimism (Total)	15,54	2,53	0,69	-0,05	0,04	0,05	-0,03	0,03	0,11	-0,05	0,05	-0,03	0,04	0,15 [*]	-	-	-	-
13. Physical Ill Health	13,62	4,20	0,80	0,53 ⁺⁺⁺	0,23 [*]	-0,15 [*]	0,29 [*]	-0,32 ⁺	-0,18 [*]	0,23 [*]	-0,22 [*]	-0,17 [*]	-0,21 [*]	0,11	0,00	-	-	-
14. Psychological Ill Health	20,71	6,66	0,91	0,64 ⁺⁺⁺	0,40 ⁺	-0,24 [*]	0,49 ⁺	-0,45 ⁺	-0,35 ⁺	0,22 [*]	-0,33 ⁺	-0,30 ⁺	-0,26 [*]	0,13	-0,10	0,73 ⁺⁺⁺	-	-
15. Organisational Commitment	23,32	4,17	0,80	-0,34 ⁺	-0,47 ⁺	0,41 ⁺	-0,33 ⁺	0,49 ⁺	0,53 ⁺⁺⁺	-0,08	0,51 ⁺⁺⁺	0,36 ⁺	0,36 ⁺	-0,06	0,07	-0,19 [*]	-0,35 ⁺	-
16. Individual Commitment	19,25	3,17	0,74	-0,20 [*]	-0,36 ⁺	0,42 ⁺	-0,32 ⁺	0,47 ⁺	0,48 ⁺	0,03	0,44 ⁺	0,26 [*]	0,29 [*]	-0,05	0,04	-0,08	-0,23 [*]	0,73 ⁺⁺⁺

* Statistically significant - $p < 0,01$

+ Practically significant - $r > 0,30$ (medium effect)

++ Practically significant - $r > 0,50$ (large effect)

Table 4 reveals that acceptable alpha coefficients, ranging from 0,72 to 0,93, were obtained for the different scales. This is in line with the guideline provided by Nunnally and Bernstein (1994). From the α values, it is evident that with regard to internal consistency, all dimensions of the MBI-GS, UWES, ASSET and JDRS are acceptable.

The distress factor of Exhaustion shows a practically significant correlation with Job Demands (medium effect). Exhaustion, Cynicism and Cognitive Weariness show practically significant (medium effect) negative correlations with Organisational Support, Social Support and Advancement. The distress factors of Cynicism and Cognitive Weariness correlate practically significantly with Psychological Ill Health (medium effect). Exhaustion correlates practically significantly with Physical and Psychological Ill Health (large effect).

Social Support and Organisational Support correlate practically significantly with Vigour (medium and large effects respectively), Dedication (medium and large effects respectively) and Professional Efficacy (both medium effects). Dedication correlate practically significantly with Organisational Commitment (large effect). Vigour, Dedication and Professional Efficacy also correlate practically significantly with Organisational and Individual Commitment (all medium effects). Optimism shows no practically significant correlation with any of the factors investigated in this study. The results pertaining to optimism provide support for the rejection of Hypothesis 3.

Structural model of work wellness

Next, the main and interaction effects of low and high optimism groups on burnout (distress), engagement (eustress), job demands and job resources, health and commitment were tested. In order to prepare the data for the analyses of main and interaction effects, the sample was divided into two groups consisting of dispositional optimism scores lower than the 50th percentile and scores higher than the 50th percentile. The results showed that there was not a statistically significant effect of dispositional optimism on the combined dependent variable consisting of burnout, work engagement, ill health, and organisational commitment, and life satisfaction ($F_{(5, 347)} = 1.40, p > 0,05$; Wilks' Lambda = 0,98). No main effect of dispositional optimism on the variables was found.

Five of the six dimensions (distress, eustress, health, commitment, and job resources) were covered by at least two scales. For each of the five dimensions a latent variable was specified on which the corresponding scales loaded, separating random measurement error from true score variance. Only one indicator was found for job demands (overload), meaning that in this case there was a one-to-one correspondence between the manifested variable (scale) and the underlying latent dimension. Usually no distinction is made in such a case between random error variance and true score variance, so that the correlations among the one-indicator latent variable and another latent variable may be biased (Little, Cunningham, Shahar, & Widaman, 2002). This problem was overcome by means of a procedure proposed by Bagozzi and Heatherton (1994). First, a one-factor model was fitted for all items belonging to this scale. Second, separate indicators were formed by selecting items on the basis of their loadings, alternating items with high and low loadings. Thus, three parcels of items were created for job demands.

A model including the hypothesised relationships was tested in a path model (correlations are given in Table 4). The latent variables included "Distress" (consisting of three observed variables, namely Exhaustion, Cynicism, and Cognitive Weariness), "Eustress" (consisting of two observed variables, namely Vigour and Dedication), Job Resources (consisting of three observed variables, namely Organisational Support, Social Support and Advancement), Job Demands (Overload 1, Overload 2 and Overload 3), Health (consisting of two observed variables Physical Ill Health and Psychological Ill Health), and Commitment (consisting of two observed variables, namely Organisational Commitment and Individual Commitment).

Next, the hypothesised structural model (unconstrained) for low and high optimism groups was tested, using structural equation modelling as implemented by AMOS (Arbuckle, 1997). The first hypothesis stated that job demands (overload) and a lack of job resources lead to distress (burnout), which results in ill health, while job resources lead to eustress (work engagement), which results in organisational commitment. However, a relatively strong correlation was found between Distress and Eustress. Therefore, in line with the procedure followed by Jackson et al. (2006), it was decided to model the covariance between Distress and Eustress by adding a latent variable (called Work Wellness). Results indicated that the model fitted the data adequately: $\chi^2 = 349,59$; $\chi^2/df = 12,83$; GFI = 0,88; CFI = 0,93; IFI = 0,93 and RMSEA = 0,06. The final model is given in Figure 1.

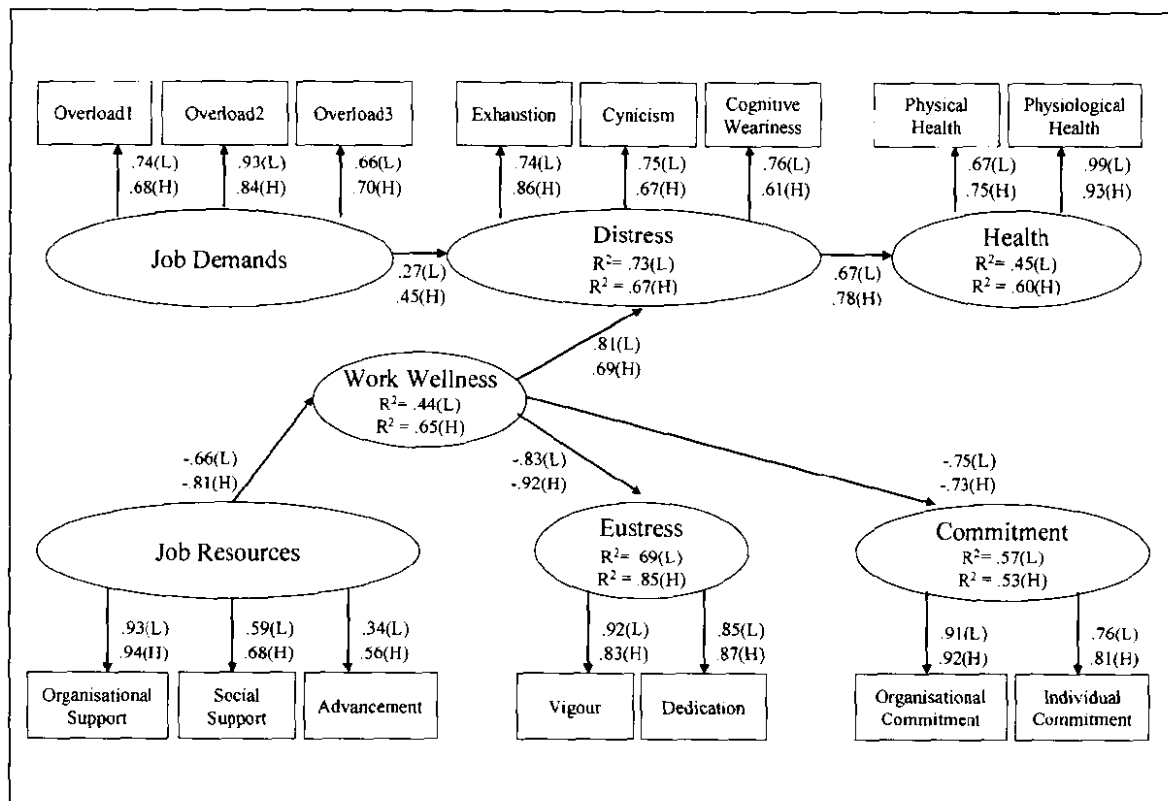


Figure 1. A maximum likelihood estimate for the unconstrained model of work wellness, $N = 353$ (standardised solution)

As can be seen in Figure 1, the path from Job Demands to Distress (Exhaustion, Cynicism and Cognitive Weariness) is positive. Distress mediates the relationship between Job Demands and Ill Health. This means that employees who experience high workloads are likely to develop high levels of distress, which, in turn, may lead to health problems. The path from Job Resources to Work Wellness (i.e. low distress and high eustress) is significant but negative. This means that the unavailability of job resources decreases the employee's work wellness (a second-order factor consisting of low distress and high eustress). Work wellness mediates the relationship between Job Resources and Organisational Commitment.

In the unconstrained model (see Figure 1), job resources predicted 65% of the variance in work wellness in the high optimism group. Furthermore, work wellness predicted 67% of the variance in distress and 53% of the variance in commitment, while distress predicted 60% of the variance in health in the high optimism group. In the low optimism group, job resources predicted 44% of the variance in work wellness. Furthermore, work wellness predicted 73% of the variance in distress and 57% of the variance in organisational commitment, while

distress predicted 45% of the variance in health. These results provide support for Hypothesis 1 and Hypothesis 2.

To test for possible interaction effects between dispositional optimism on the one hand, and burnout, work wellness, ill health, and organisational commitment were constrained equal for the low and high optimism groups (see Table 5).

Table 5

Moderating Effects of Dispositional Optimism on Work Wellness

Model	χ^2	df	p
Unconstrained	349,59	168	0,00
Measurement weights (Model 1)	368,44	177	0,00
Structural weights (Model 2)	372,63	182	0,00

Firstly, the measurements weights were constrained equal for the two groups (model 1). Model 1 was statistically significantly different from the unconstrained model ($\Delta\chi^2 = 18,85$; $\Delta df = 9$; $p < 0,01$). Secondly, the structural weights were also constrained equal for the two groups (model 2). Model 2 was statistically significantly different from model 1 ($\Delta\chi^2 = 4,19$; $\Delta df = 5$; $p < 0,01$). Therefore, although dispositional optimism did not have a main effect on the variables in the model, it had moderating effects on the relationships.

DISCUSSION

The objective of this study was to test a comprehensive structural model of work-related well-being for staff at a university of technology, and to investigate whether dispositional optimism moderates the relationship between distress and eustress on the one hand, and health and commitment on the other hand. The results showed that job demands contributed to distress (exhaustion, cynicism and cognitive weariness), while job resources (organisational support, social support and advancement) contributed to work wellness (low distress and high eustress). This supports recent findings of a South African study by Barkhuizen and Rothmann (2006). Work wellness mediated the relationship between (lack of) job resources and distress. Distress mediated the relationship between job demands and health. Work wellness mediated the relationship between job resources and eustress as well as commitment.

With regard to the organisational causes of distress and eustress, two main factors, namely job demands and job resources, were extracted by using factor analysis. Job demands included overload (i.e. having too much work to do, working under time pressure and emotional demands). Job resources included three categories namely organisational support, social support and advancement. Organisational support included aspects relating to relationship with supervisor, role clarity, information, communication, participation in the decision-making process and opportunities for contact with others. Social Support included aspects relating to social relationships and social contact with others. Advancement included aspects such as variety in the job, learning opportunities, job autonomy and independence, remuneration and career opportunities. These factors also correspond with the two factors distinguished by Schaufeli and Enzmann (1998).

Correlations were found between one of the distress factors (exhaustion) and job demands. All the distress factors, including cognitive weariness, showed a positive correlation with psychological well-being, while only exhaustion correlated with physical health. It was also found that job resource factors, including organisational support and social support, correlate positively with the eustress dimension (vigour and dedication). On the distress dimension, only the exhaustion and cognitive weariness factors showed a negative correlation with optimism. The organisational commitment and individual commitment factors were negatively associated with all three the distress dimensions (exhaustion, cynicism and cognitive weariness). In the university under study, distress of staff seems to be linked to a lack of job resources and increased job demands. This can be ascribed to three factors, namely the merger process the university has undergone, the increased student numbers and the change in the nature of the institution from a technikon to a university of technology with all the accompanying demands.

Interestingly, no practically or statistically significant correlations were found between the optimism factor and any of the other factors in this study. Optimism showed a negative correlation with four factors: exhaustion and cynicism (two of the factors in the distress dimension), job demands and social support (one of the factors in the job resources dimension). However, none of these were either practically or statistically significant. The assumption can therefore be made that optimism will slightly moderate the effects of an increase in job demands and lack of social support as well as levels of exhaustion and cynicism. This is contrary to the findings of a study conducted by Barkhuizen and Rothmann

(2006) in higher education institutions in South Africa where it was found that dispositional optimism has a main effect on life satisfaction, ill health and organisational commitment. Furthermore, no practically significant correlation was found between optimism and ill health or either of the commitment dimensions. These findings prompt the rejection of Hypothesis 3.

The structural model that was designed for the purpose of this study showed that job demands (overload) had a direct impact on distress. The results confirmed the general notion that distress is a response to overload (Maslach et al., 2001). Distress further mediated the relationship between job demands and ill health. This means that the staff members who experience high levels of workload are likely to develop high levels of distress, which in turn leads to health problems (Kahill, 1988; Lee & Ashforth, 1990). It seems that excessive job demands will lead to increased levels of distress and eventually ill health of staff. This should be a serious concern for this institution, given the devastating impact it could have on the physical health and psychological well-being of its staff (Daniels & Guppy, 1994). This is a cumbersome aspect considering the costs associated with ill health e.g. absence from work, health benefit costs, increased staff turnover and diminished productivity. These findings support the adoption of Hypothesis 1.

The structural analysis also showed that job resources have a direct impact on work wellness (high distress and low eustress). This seem to indicate that a lack of job resources, including resources needed for growth and advancement and organisational support, will lead to increased levels of distress among staff, including higher levels of exhaustion, cynicism and cognitive weariness. With a combination of these factors, and supporting both the Conservation of Resources theory (Hobfoll & Freedy, 1993) and Job Demands-Resources model (Demerouti et al., 2001), it could be argued that staff in this institution are likely to become victims of distress whenever there is an increase in job demands without any corresponding increase in job resources. In so far as this university is concerned, the recent increased student to lecturer ratio, academic pressures related to a multi-campus institution, and matters related to the merger process, have increased the demands on staff considerably. The above factors combined with a continuous lack of financial resources leads to higher levels of distress. With these findings the adoption of Hypothesis 2 is supported.

On the other hand, the availability of resources (organisational support, social support and advancement) will promote work wellness, which will positively influence eustress and levels of commitment in the institution. The structural model showed that work wellness (low distress, high eustress) mediated the relationship between job resources and organisational commitment. Thus, in line with the COBE model (Schaufeli & Bakker, 2004), it can be argued that the availability of job resources will lead to higher eustress of staff at this institution, which in turn can enhance their levels of commitment to the institution (Roberts & Davenport, 2002). It can be argued that the availability of resources will result in lower levels of distress, which will lead to higher levels of organisational commitment (Leiter & Maslach, 1988). The fact that increased job resources leads to increased eustress and organisational commitment is an aspect to be considered by the university concerned as well as the Department of Education in South Africa. If universities, like the one under study, are resourced adequately it could have a positive impact on eustress, good health and ultimately organisational commitment of staff.

This study used dispositional optimism as a possible moderator of the effects of job demands and job resources on work-related well-being. Results indicated that dispositional optimism impacted on the measurement model as well as the structural relationships between variables. This means that the relationships between the variables differed depending on the levels (high versus low) of dispositional optimism.

The findings in this study is of importance because South African higher education institutions have a very important duty to contribute to democracy, growth, and development of the economy by developing high level human resources. The consequences of academic and support staff that are experiencing high levels of distress and ill health can be devastating to individual institutions, the sector, as well as the economy as a whole. From this perspective, it is imperative that adequate resourcing of higher education institutions be placed high on the agenda of government.

A limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzmann, and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variances between measures can be attributed to method variance. Another limitation is the size of the sample,

which has significant limitations in terms of the generalisation of the findings to the total population.

RECOMMENDATIONS

The findings of this study suggest that the staff of this university of technology are experiencing high levels of distress and that their experiences are linked to an increase in job demands without a corresponding increase in job resources. There is adequate proof in the literature that staff's health and general well-being will suffer as a result. Taking into consideration the importance of stable and productive higher education institutions (Khosa, 1996) and the fact that it will determine to a large extent the future success of the high-level human resource development in South Africa, this aspect should receive due attention. Therefore, it is recommended that interventions should be developed to increase job resources and address overload in the form of job demands. This will create institutions where staff can grow and be productive and will ultimately lead to improved eustress and general well-being.

The first step in addressing any problem in an organisation is the acknowledgement of its existence and the understanding of its nature. It is recommended that in this specific university, the existence of the distress phenomenon, its etiology, development, outcomes and possible implications for the staff and ultimately for the institution, be brought to the attention of the senior management. It is of importance to remember that the effectiveness and success of an organisation depends on the effective utilisation of its human resources (Boshoff & Arnolds, 1995) and that, according to Kreitner and Kinicki (1998), employees' wellness is one indicator of such effectiveness.

Secondly, the extent of the problem needs to be quantified. In order to achieve this, the findings of this study as well as data and information from organisational sources (e.g. information from the employee assistance program, statistics on absenteeism, accidents and injuries at work, staff turnover figures, medical aid scheme statistics, etc.) can be investigated. Following this, appropriate interventions aimed at both the individual and organisational level can be developed and implemented. At the individual level, skills development should focus on developing staff to deal effectively with stress, change and transformation, as well as assisting staff to find and maintain a balance between work and

private life (work-life balance) and follow healthy lifestyles. Furthermore, interventions can be implemented to prevent employees who are already showing signs of stress from getting ill. Examples of this would include developing skills such as cognitive restructuring, time management and conflict resolution techniques. At the organisational level, interventions aimed at increasing job resources can contribute to enhance employees' general wellness and lead to higher levels of work engagement and organisational commitment. In this context, specific interventions should be directed at facilitating positive work relationships, providing adequate job resources and communication as well as addressing identified job demands that lead to distress.

Future research into the work wellness of staff at higher education institutions in South Africa should aim to include larger samples as well as multiple institutions. The wellness concept also warrants further investigation, specifically in terms of understanding its relationship with eustress and the effect of this relationship on organisational commitment.

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REFERENCES

- Allen, N., & Meyer, J. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology*, 63, 1-18.
- Arbuckle, J. L. (1997). *Amos user's guide version 4.0*. Chicago, IL: Smallwaters Corporation.
- Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, 63, 989-1003.
- Bagozzi, R. P., & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling*, 1, 35-67.
- Barkhuizen, E. N., & Rothmann, S. (2006, April). *Occupational stress, health and commitment of academic staff in South African higher education institutions*. Paper presented at South African Positive Psychology Conference: Individual, Social and Work Wellness, Potchefstroom.
- Bauer, T. N., & Green, S. G. (1998). Testing the combined effects of newcomer information seeking and manager behaviour on socialization. *Journal of Applied Psychology*, 83, 72-83.
- Boshoff, C., & Arnolds, C. (1995). Some antecedents of employee commitment and their influence on job performance. *South African Journal of Business Management*, 26(4), 125.
- Boughey, C. (2004). Higher education in South Africa: Context, mission and legislation. In S. Gravett & H. Geysers (Eds.), *Teaching and learning in higher education* (pp.1-31). Pretoria, South Africa: Van Schaik.
- Bourbonnais, R., Comeau, M., Vézina, M., & Dion, G. (1998). Job strain, psychological distress, and burnout in nurses. *American Journal of Industrial Medicine*, 34(1), 20-28.
- Brissette, I., Scheier, M. F., & Carver, C. S. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology*, 82, 102-111.
- Bromberger, J. T., & Matthews, K. A. (1996). A longitudinal study of the effects of pessimism, trait anxiety, and life stress on depressive symptoms in middle-aged women. *Psychology and Aging*, 11, 207-213.

- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). London: Sage.
- Budzinski, T., & Peffer, K. (1980). Biofeedback Training. In I. Kutash, L. Schlesinger & Associates (Eds.), *Handbook on stress and anxiety* (pp. 413-427). San Francisco, CA: Jossey-Bass.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.
- Carroll, J. F., & White, W. L. (1982). Theory building: Integrating individual and environmental factors within an ecological framework. In W.S. Paine (Ed.), *Job stress and burnout*. Beverly Hills, CA: Sage.
- Cartwright, S., & Cooper, C. L. (2002). *ASSET: An Organizational Stress Screening Tool – The Management Guide*. Manchester, RCL Ltd.
- Carver, C. S., Lehman, J. M., & Antoni, M. H. (2003). Dispositional pessimism predicts illness-related disruption of social and recreational activities among breast cancer patients. *Journal of Personality and Social Psychology*, *84*, 813-821.
- Carver, S., & Scheier, M. F. (2002). Optimism. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 715-728). Oxford, UK: Oxford University Press.
- Cassidy, T. (2000). Social background, achievement motivation, optimism and health: A longitudinal study. *Counseling Psychology Quarterly*, *13*, 399-413.
- Chang, E. C. (1998). Dispositional optimism and primary and secondary appraisal of a stressor: Controlling for confounding influences and relations to coping and psychological and physical adjustment. *Journal of Personality and Social Psychology*, *74*, 1109-1120.
- Chang, E. C., & Farrehi, A. S. (2001). Optimism/pessimism and information-processing styles: Can their influences be distinguished in predicting psychological adjustment. *Personality and Individual Differences*, *31*, 555-562.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, *7*, 309-319.
- Coetzee, S. E., & Rothmann, S. (2004). An adapted model of burnout for employees at a higher education institution in South Africa. *SA Journal of Industrial Psychology*, *30*(3), 29-40.
- Coetzee, S. E., & Rothmann, S. (2005). Work engagement of employees at a higher education institution in South Africa. *Southern African Business Review*, *9*(3), 23-34.

- Coetzer, W. J., & Rothmann, S. (2004, August). *A model of work wellness of employees in an insurance company*. Poster presented at 28th International Congress of Psychology, Beijing, China.
- Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research and applications*. Thousand Oaks, CA: Sage.
- Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review*, *18*, 621-656.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimum experience*. New York: Basic Books.
- Daniels, K., & Guppy, A. (1994). An exploratory study of stress in a British University. *Higher Education Quarterly*, *48*, 135-144.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*, 499-512.
- Department of Education (DoE). (1997). *Education White Paper 3: A Programme for the Transformation of Higher Education*. Pretoria, SA: Government Printers.
- Department of Education (DoE). (2001). *National Plan for Higher Education*. Pretoria, SA: Government Printers.
- Edwards, J., & Cooper, C. (1988). The impacts of positive psychological states on physical health: A review and theoretical framework. *Social Science Medicine*, *27*, 1147-1459.
- Faragher, E. B., Cooper, C. L., & Cartwright, S. (2004). A shortened stress evaluation tool (ASSET). *Stress and Health*, *20*, 189-201.
- Farber, B. (1983). *Stress and burnout in the human service professions*. New York: Permagon Press.
- Fontaine, K. R., Manstead, A. S. R., & Wagner, H. (1993). Optimism, perceived control over stress, and coping. *European Journal of Personality*, *7*, 267-281.
- Fry, P. S. (1995). Perfectionism, humor, and optimism as moderators of health outcomes and determinants of coping styles of women executives. *Genetic, Social, and General Psychology Monographs*, *121*, 211-245.
- Gillespie, N. A., Walsh, M., Winefield, A. H., Dua, J., & Stough, C. (2001). Occupational stress in universities: Staff perceptions of the causes, consequences and moderators of stress. *Work & Stress*, *15*, 53-72.
- Goldberg, D. P., & Williams, P. (1988). *A user's guide to the GHQ*. London: NFER, Nelson.
- Graham, J., & Ramirez, A. J. (1997). Mental health of hospital consultants. *Journal of Psychosomatic Research*, *43*, 227-231.

- Green, D. E., Walkey, F. H., & Taylor, A. J. W (1991). The three-factor structure of the Maslach Burnout Inventory. *Journal of Social Behavior and Personality*, 6, 453-472.
- Harju, B., & Bolen, L. M. (1998). The effects of optimism on coping and perceived quality of life of college students. *Journal of Social Behaviour & Personality*, 13, 185-200.
- Hobfoll, S. E., & Freedy, J. (1993). Conservation of resources: A general stress theory applied to burnout. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 115-129). Washington, DC: Taylor & Francis.
- Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 1-15). Thousand Oaks, CA: Sage.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Iverson, R. D., Olekalns, M., & Erwin, P. J. (1998). Affectivity, organizational stressors, and absenteeism: A causal model of burnout and its consequences. *Journal of Vocational Behaviour*, 52, 1-23.
- Jackson, L. T. B., Rothmann, S., & Van de Vijver, A. J. R. (2006). A model of work-related well-being for teachers in the North West Province. *Stress and Health*.
- Johnson, S., & Cooper, C. (2003). The construct validity of the ASSET stress measure. *Stress and Health*, 19, 181-185.
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kahill, S. (1988). Symptoms of professional burnout: A review of the empirical evidence. *Canadian Psychology*, 29, 284-297.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 571-648). Chicago, IL: Rand McNally.
- Khosa, M. M. (1996). Leaders or followers? Transforming South African universities. *Indicator South Africa*, 13(4), 73-77.
- Kinman, G. (2001). Pressure points: A review of research on stressors and strains in UK academics. *Educational Psychology*, 21, 473-492.
- Kreitner, R., & Kinicki, A. (1998). *Organizational behaviour* (4th ed.). Chicago, IL: Irwin.
- Lazarus, R. S. (1988). The psychology of stress and coping. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and Anxiety* (pp. 399-418). New York: Hemisphere Publishing.

- Lee, R. T., & Ashforth, B. E. (1990). On the meaning of Maslach's three dimensions of burnout. *Journal of Applied Psychology, 75*, 743-747.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.
- Leiter, M. P. (1991). Coping patterns as predictors of burnout. The functions of control and escapist coping patterns. *Journal of Occupational Behavior, 12*, 123-144.
- Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research*. Washington DC: Taylor & Francis.
- Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior, 9*, 297-308.
- Lemkau, J. P., Purdy, R. R., Rafferty, J. P., & Rudisill, J. R. (1988). Correlates of burnout among family practice residents. *Journal of Medical Education, 63*, 682-691.
- Levert, T., Lucas, M., & Ortlepp, K. (2000). Burnout in psychiatric nurses: Contributions of the work environment and a Sense of Coherence. *South African Journal of Psychology, 30*, 36-43.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9*, 151-173.
- Long, B. C. (1993). Coping strategies of male managers: A prospective analysis of predictors of psychosomatic symptoms and job satisfaction. *Journal of Vocational Behavior, 42*, 184-199.
- MacGuire, J. G., & Snow, B. M. (1994). Wellness and mental health: Characteristics and thoughts for educators. *Thresholds in Education, 20*(1), 13-16.
- Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.
- Maslach, C. (1993). Burnout: A multidimensional perspective. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19-32). Washington, DC: Taylor & Francis.
- Maslach, C. (2001). What have we learned about burnout and health? *Psychology & Health, 16*, 607-611.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it*. San Francisco, CA: Jossey-Bass.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *The Maslach Burnout Inventory* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.
- Mathieu, J. E., & Zajac, D. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, *108*, 171-194.
- Meyer, J. P., & Allen, N. J. (1997). *Commitment in the Workplace. Theory, Research and Application*. Thousand Oaks, CA: Sage Publications.
- Miller, K. I., Ellis, B. H., Zook, E. G., & Lyles, J. S. (1990). An integrated model of communication, stress, and burnout in the workplace. *Communication Research*, *17*, 200-326.
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organisational linkages: The psychology of commitment, absenteeism and turnover*. New York: Academic Press.
- Myers, J. E., Sweeney, T. J., & Witmer, J. M. (2000). The wheel of wellness counselling for wellness: A holistic model for treatment planning. *Journal of Counselling and Development*, *78*, 251-266.
- Nelson, D. L., & Simmons, B. L. (2003). Health psychology and stress: A more positive approach. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 97-117). Washington, DC: American Psychological Association.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Peeters, M. C. W., & Le Blanc, P. M. (2001). Towards a match between job demands and sources of social support: A study among oncology care providers. *European Journal of Work and Organizational Psychology*, *10*(1), 53-72.
- Peterson, C. (2000). The future of optimism. *American Psychologist*, *55*(1), 44-55.
- Peterson, C., & Bossio, L. M. (2001). Optimism and physical well-being. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 127-145). Washington, DC: American Psychological Association.
- Peterson, C., Maier, S. F., & Seligman, M. E. P. (1993). *Learned helplessness: A theory for the age of personal control*. New York: Oxford University Press
- Pines, A. M., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York: Free Press.
- Quick, J. C., Quick, J. D., Nelson, D. L., & Hurrell, J. J. (1997). *Preventative stress management in organisations*. Washington, DC: American Psychological Association.

- Räikkönen, K., Matthews, K. A., Flory, J. D., Owens, J. F., & Gump, B. B. (1999). Effects of optimism, pessimism, and trait anxiety on ambulatory blood pressure and mood during everyday life. *Journal of Personality and Social Psychology*, *76*, 104-113.
- Ratcliff, N. (1988). Stress and burnout in the helping professions. *Social Casework: Journal of Contemporary Social Work*, *69*, 147-154.
- Riulli, L., & Savicki, V. (2003). Optimism and coping as moderators of the relationship between chronic stress and burnout. *Psychological Reports*, *92*, 1215-1226.
- Robbins, G., Powers, D., & Burgess, S. (1999). *A wellness way of life* (4th ed). Toronto: McGraw-Hill.
- Roberts, D. R., & Davenport, T. O. (2002). Job engagement: Why it's important and how to improve it. *Employment Relations Today*, *29*(3), 21-29.
- Rogers, E. R. (1987). Professional burnout: A review of a concept. *Clinical Supervisor*, *5*(3), 91-106.
- Rothmann, S., & Storm, K. (2003). A psychometric analysis of the Utrecht Work Engagement Scale in South African police service. *SA Journal of Industrial Psychology* *29*(4), 62-70.
- Savery, L. K., & Luks, J. A. (2001). The relationship between empowerment, job satisfaction and reported stress levels: some Australian evidence. *Leadership & Organization Development Journal*, *22*(3), 97-104.
- Schaufeli, W. B. (2003). Past performance and future perspectives of burnout research. *SA Journal of Industrial Psychology*, *29*(4), 1-15.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293-315.
- Schaufeli, W. B., & Buunk, B. P. (2003). Burnout: An overview of 25 years of research and theorizing. In M. J. Schabracq, J. A. M. Winnubst & C. L. Cooper (Eds.), *The Handbook of work and health psychology* (pp. 383-425). Chichester, UK: Wiley.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., Enzmann, D., & Girault, N. (1993). The measurement of burnout: A review. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 199-215). Washington, DC: Taylor & Francis.

- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). Maslach Burnout Inventory – General Survey. In C. Maslach, S. E. Jackson & M. P. Leiter, *The Maslach Burnout Inventory: Test manual*. Palo Alto, CA: Consulting Psychologists Press.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping and health: Assessment and implications of generalised outcome expectancies. *Health Psychology*, 4, 219-247.
- Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research*, 16, 201-228.
- Scheier, M. F., Carver, C. S., & Bridges. M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67, 1063-1078.
- Selye, H. (1974). *Stress without distress*. New York: J.B. Lippincott.
- Selye, H., & Tache, J. (1979). The stress concept and some of its implications. In V. Hamilton & D. M. Warburton (Eds.), *Human stress and cognition* (pp. 11-31). Salisbury, UK: John Wiley.
- Shirom, A. (1993). Burnout in work organisations. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 25-48). Washington, DC: Taylor & Francis.
- Simmons, B., & Nelson, D. (2001). Eustress at work: The relationship between hope and health in hospital nurses. *Health Care Management Review*, 26(4), 7-19.
- Siu, O. L. (2002). Occupational stressors and well-being among Chinese employees: The role of organizational commitment. *Applied Psychology: An International Review*, 5, 527-544.
- Smith, T. W., & Williams, P. G. (1992). Personality and health: Advantages and limitations of the five-factor model. *Journal of Personality*, 60, 395-423.
- SPSS Inc. (2003). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Steffy, B., & Jones, J. (1990). Differences between full-time and part-time employees in perceived role strain and work satisfaction. *Journal of Organizational Behavior*, 11, 321-330.

- Steyn, L. J. (2004). *Sense of coherence, job stress, coping and burnout in an electricity supply organisation*. Unpublished master's dissertation, North-West University, Potchefstroom.
- Storm, K. (2002). *Burnout and work engagement in the South African Police Service*. Unpublished doctoral thesis, PU for CHE, Potchefstroom.
- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Maslach Burnout Inventory: general survey in the South African police service. *South African Journal of Psychology, 33*, 219-226.
- Taris, T. W., Schreurs, P. J. G., & Schaufeli, W. B. (1999). Construct validity of the Maslach Burnout Inventory - General Survey: A two-sample examination of its factor structure and correlates. *Work and Stress, 13*, 223-237.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*, 1-10.
- Varga, E. D., Urdaniz, A. P., & Canti, G. F. (1996). Burnout syndrome in general hospital doctors. *European Journal of Psychiatry, 10*, 207-213.
- Vickers, K. S., & Vogeltanz, N. D. (2000). Dispositional optimism as a predictor of depressive symptoms over time. *Personality and Individual Differences, 28*, 259-272.
- Viljoen, J. P., & Rothmann, S. (2006). *A model of work-related well-being for employees at a university of technology*. Unpublished article in unpublished doctoral thesis, North-West University, Potchefstroom.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*, 219-235.
- Weinstein, N. D., & Klein, W. M. (1996). Unrealistic optimism: Present and future. *Journal of Social and Clinical Psychology, 15*, 1-8.
- Winefield, A. H., Gillespie, N., Stough, C., Dua, J., & Hapuararchchi, J. (2002). *Occupational stress in Australian universities: A national survey*. Melbourne, Victoria: National Tertiary Education Union.
- World Health Organization. (2000). *Definitions of health*. Official Records of the World Health Organization, 2,100. Retrieved 20 April, 2005, from the World Wide Web: <http://www.who.int/en>.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter, conclusions are drawn regarding the specific objectives of this study. The limitations of the research are discussed, followed by recommendations for the institution and suggestions for future research.

5.1 CONCLUSIONS

The general objective of this research was to assess the work-wellness of staff at a university of technology in South Africa, and to understand the relationships between factors contributing to the experience of distress/burnout and eustress/engagement and how these relate to employees' levels of commitment and ill health. To these ends, six specific objectives were formulated.

The *first objective* of this study was to test a model of work-related well-being for employees of a South African university of technology.

Investigations related to this objective yielded some positive results. The results obtained by means of structural equation modelling confirmed the hypothesised four-factor structure of the Maslach Burnout Inventory-General Survey (MBI-GS), the Cognitive Weariness Scale (CWS) and the subscales of exhaustion, cynicism, professional efficacy and cognitive weariness. This is only the second time a four-factor model is confirmed in South African research on burnout and this supports the findings of Coetzee and Rothmann (2004). This is also in line with international findings (Van Horn, Taris, Schaufeli, & Schreurs, 2004). Based on both empirical and conceptual grounds, the MBI-GS Item 13 ("I just want to do my job and not be bothered") was eliminated from the data. The first four-factor model tested thus consisted of 21 items, including 15 items from the MBI-GS and six items from the CWS.

The omission of Item 13 might be caused by the ambivalent nature of the item, as confirmed by previous research (Rothmann, Jackson, & Kruger, 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2002; Schutte, Toppinen, Kalimo, & Schaufeli, 2000). Post-hoc analysis revealed that paring Errors 14 and 15 on the cynicism factor further improved the fit

of the model. It was also found that the core dimensions of burnout, namely exhaustion and cynicism, correlate with cognitive weariness and presuppose that burnout is related to and will lead to a diminished capacity to concentrate and deal with new information at work. The negative correlation that was found between professional efficacy and the burnout dimensions of exhaustion, cynicism and cognitive weariness confirmed the four-dimensional construct of burnout.

A two-factor structure of work engagement was confirmed by means of structural equation modelling. This is contrary to other reported research findings (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova, González-Romá, & Bakker, 2002; Naude & Rothmann, 2003; Coetzee & Rothmann, 2004) which all confirmed a three-factor structure of the Utrecht Work Engagement Scale (UWES).

In terms of the relationship between burnout and engagement, a strong correlation was found between the UWES factors of vigour and dedication. These factors also correlate positively with professional efficacy. The core dimensions of burnout, namely exhaustion and cynicism, as measured by the MBI-GS correlated with cognitive weariness and a negative correlation was found between the factors predicting burnout and those predicting engagement.

The results of the Principal Component Analysis to explore the second-order factor structure of the MBI-GS, CWS and UWES indicated that the second-order factors underlie two distinct components. Component one consists of professional efficacy, vigour and dedication. This component can be identified as a positive factor, aptly labelled “engagement” or “eustress”. Component two is a negative factor and was labelled “burnout” or “distress”. This component correlated strongly with the exhaustion, cynicism and cognitive weariness dimensions.

Work-related well-being would thus be characterised by high levels of vigour (energy) and dedication (identification). High scores on these dimensions would propose a syndrome of eustress or engagement. On the opposite side of the matrix, high levels of cynicism accompanied by high levels of exhaustion would propose a syndrome of distress or burnout. With this conclusion, objective *one* is achieved.

The *second objective* was to investigate the relationship between background variables such as employment category, gender, marital status, language, age, education level and years of

service at the institution, and work-related well-being of employees at a university of technology.

The results showed that only language could be highlighted as a valid predictor for differences in levels of wellness. It was found that the Afrikaans-speaking group (69,9%) in comparison with the Other languages group (18,1%), excluding English-speaking staff (12%), experience more burnout as reflected in the elevated scores on exhaustion and dedication. The Other languages group exhibited lower levels of exhaustion and higher levels of dedication. This seems to support in part the national findings of Coetzee and Rothmann (2004), except that higher levels of exhaustion, accompanied with lower levels of dedication were found. This results seems to point to a syndrome of over-commitment on the part of the Afrikaans-speaking group. These findings contradict other international findings (Enzmann, Schaufeli, & Girault, 1994; Schutte et al., 2000) that significant differences of burnout patterns and burnout levels have not yet been established on the basis of the language variable. With these findings, objective *two* is achieved

The *third objective* was to investigate the relationship between occupational stressors and employees' levels of commitment and ill health at a university of technology.

As far as the relationship between occupational stressors and organisational commitment is concerned, the results indicate a negative relationship between all the occupational stressors and organisational commitment. Furthermore, it seems that work relations, the availability of resources and the amount of autonomy that staff has, are especially relevant to the levels of stress they experience. Multiple regression analysis also showed that 34% of the variance in organisational commitment of staff at this university was predicted by the occupational stressors. It further revealed that control and resources were the only statistically significant predictors of organisational commitment.

Individual commitment, on the other hand, was significantly negatively related to a group of more specific occupational stressors, namely work relations, control, resources and aspects of the job. Multiple regression analysis on this dimension indicated that 22% of the variance in individual commitment was predicted by occupational stressors. The stressors of work-life balance, overload, control, job aspects and pay were the only statistically significant predictors of individual commitment.

In relation to psychological ill health, all the occupational stressors except pay and work-life balance seem to be related. This confirms findings by Kahn and Byosiere (1992) that high levels of occupational stress, left unchecked, can lead to psychological ill health. The work relationships and accompanying social support experienced by staff of this university, aspects of the job (e.g. time pressures, learner discipline, system of promotion, role overload), lack of autonomy, overload and lack of resources seem to be the major stressors related to their psychological ill health. Multiple regression analysis of the psychological health dimension showed that a variance of 26% in psychological ill health was predicted by the overload, job security and job aspects stressors.

The relationship between occupational stress and physical ill health seems to be a little more unclear. Only limited relationships could be established in this study between the occupational stressors and physical ill health. However, it is important to note that there is ample evidence in the literature that psychological ill health leads to physical ill health (Siu, 2002; Winefield, Gillispie, Stough, Dua, & Hapuararchchi, 2002). In this regard, the significant relationship shown in this study between physical and psychological ill health confirms this notion, but could also be a precursor of the development of future physical ill health problems for staff at the university. Furthermore, multiple regression analysis conducted on the physical ill health dimension revealed that 15% of the variance in physical ill health is predicted by occupational stressors. Job security was found to be the only statistically significant stressor. With this finding, objective *three* is achieved.

The *fourth objective* was to assess the validity and internal consistency of instruments measuring specific constructs included in a model of work related well-being for employees at a university of technology.

Reliability analysis of the Maslach Burnout Inventory-General Survey (MBI-GS) (Schaufeli, Salanova, et al., 2002) and the Cognitive Weariness Scale (CWS) (Van Horn et al., 2004) confirmed sufficient internal consistency of all the MBI-GS subscales, namely exhaustion, cynicism, professional efficacy as well as that of the cognitive weariness scale. All subscales showed alpha coefficients above the 0,70 guideline provided by Nunnally and Bernstein (1994). This seems to be an improvement on previous findings by Storm and Rothmann (2003), Rothmann et al. (2003) and Coetzee and Rothmann (2004). Reliability and construct validity of the Utrecht Work Engagement Scale (UWES) showed acceptable internal

consistency in the subscales of vigour and dedication and both were above the 0,70 guideline. The reliability findings for the vigour and dedication subscales are in line with previous findings by Schaufeli, Martinez et al. (2002), Schaufeli, Salanova, et al. (2002) and Coetzee and Rothmann (2004).

Analysis conducted on the six dimensions of distress and eustress (exhaustion, cynicism, professional efficacy, cognitive weariness, vigour and dedication) indicated that wellness consists of two distinct parts. The first part, consisting of professional efficacy, vigour and dedication, was labelled *Eustress*. The second part, labelled *Distress*, comprised the factors of exhaustion, cynicism and cognitive weariness. Eustress can be regarded as experiences of pleasure, enjoyment, satisfaction, ecstasy or fulfilment that occur during some stress reactions, whereas distress implies a state of discomforting tension, conflict or psychological pressure. This further implies that wellness is a dualistic construct and that eustress/engagement will be indicated by low distress and high eustress, whilst distress/burnout will be indicated by high distress and low eustress.

The physical ill health and psychological ill health dimensions of the Organizational Stress Screening Tool (ASSET) both demonstrate acceptable internal consistency. Two hypothesised structural models were tested for the health questionnaire using structural equation modelling. It was found that the health construct comprises two components rather than one. The components are physical (ill) health and psychological (ill) health. Physical (ill) health refers to physical symptoms often associated with stress (e.g. insomnia/sleep loss and headaches.) Psychological (ill) health on the other hand is clinical symptoms indicative of stress-induced mental ill health (e.g. constant tiredness and irritability). If untreated, psychological distress can cause more serious reversible health problems (psychosomatic illnesses, arterial hypertension, severe depression, alcoholism), and over time, it can lead to irreversible damage (permanent disability, premature deaths, suicide, cardiovascular and neuropsychiatric diseases). Poor employee health can be seen as a potential indicator of excessive workplace pressure and hence of high stress levels in employees.

The organisational commitment and individual commitment dimensions of the ASSET also both demonstrated acceptable internal consistencies. The results confirmed two dimensions of organisational commitment, namely organisational commitment and individual commitment. Organisational commitment refers to employees' expectations to be trusted and

respected and feeling that it is worth “going the extra mile” for the organisation. It is related to their feelings of loyalty and obligation to stay with the organisation, identification with and involvement in a particular organisation, willingness to invest effort, participate in decision-making processes and internalise organisational values. Individual commitment on the other hand implies expectations of the organisation that its employees will do their job to the best of their ability and that they will be loyal and dedicated to the organisation.

The Life Orientation Test-Revised (LOT-R) (Scheier, Carver, & Bridges, 1994) measures dispositional optimism and displayed a Cronbach alpha coefficient slightly below the 0,70 guideline of Nunally and Bernstein (1994). This result, however, compares poorly to that obtained by Scheier et al. (1994) and Harju and Bolen (1998). Two hypothesised structural models were also tested for the LOT-R by using structural equation modelling as implemented by AMOS (Arbuckle, 1997). It was found that dispositional optimism consists of two components, namely pessimism and optimism that represent judgements about the future, which we all display and act upon. Individuals who have global expectations that good things will be plentiful in the future and bad things scarce, are said to possess dispositional optimism. Optimism has been linked to positive mood and good moral, to perseverance and effective problem-solving skills, to academic, athletic, military, occupational, and political success, to popularity, to good health, and even to long life and freedom from trauma. Pessimism, in contrast, seems to foreshadow depression, passivity, failure, social estrangement, morbidity, and mortality.

The Job Demands-Resources Scale (JDRS) (Barkhuizen & Rothmann, 2006) measures the effect of job demands and job resources on staff at higher education institutions. Factor analysis conducted on the JDRS indicated that the communalities between factors were reasonably high. Item 3 “Do you find that you do not have enough work?”, Item 10 “In your work, do you repeatedly have to do the same things?” and Item 32 were left out of the final analysis. Items 3 and 10 were omitted on statistical grounds.

Inspection of the scree plot indicated the existence of five factors. A principal component analysis revealed five factors, which explained 51,10% of the total variance. The factors were labelled *overload*, *organisational support*, *social support*, *job insecurity* and *advancement*. Second-order principal component analysis showed two components which explained 73,30% of the variance. The components were labelled *Job Demands* with one factor and *Job*

Resources with three factors contributing to it namely organisational support, social support and advancement. Job security loaded negatively on job resources and job demands and was therefore not included in the subsequent analyses.

Job demands refer to those aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs. These include frequent changes from exciting activities to boredom, lack of personal time, being assigned more responsibility, having to deal with crisis situations, too much supervision, deadlines, having to make critical decisions as well as organisational transformation. Job resources refer to those aspects of the job that may be functional in achieving work goals, reducing job demands and the associated physiological and psychological costs, and stimulating personal growth and development. A lack of job resources includes understaffing with subsequent increases in individual workload, negligence by co-workers, lack of recognition for work well done, lack of supervisor support, inadequate or poor quality equipment, and lacking opportunities for advancement.

Internal consistency of the four extracted scales was high with acceptable Cronbach alphas well above the 0.70 guideline for job demands, organisational support, social support and advancement.

Based on these results, it is concluded that the instruments used to measure specific constructs included in a model of work related well-being are reliable and valid. With this finding, the *fourth* objective is achieved.

The *fifth objective* planned to develop and test a comprehensive structural model of work-related well-being and thereby determine the effect of job demands and (lack of) job resources on distress, eustress, work wellness, ill health and commitment of employees at a university of technology.

Development of the model entailed testing of main and interaction effects of low and high optimism groups in a path model on the specified dimensions of burnout (distress), engagement (eustress), job demands and job resources, health and commitment. The latent variables included “distress” (consisting of three observed variables, namely exhaustion, cynicism, and cognitive weariness), “eustress” (consisting of two observed variables, namely

vigour and dedication), job resources (consisting of three observed variables, namely organisational support, social support and advancement), job demands (overload 1, overload 2 and overload 3), health (consisting of two observed variables, namely physical ill health and psychological ill health), and commitment (consisting of two observed variables, namely organisational commitment and individual commitment).

Structural equation modelling as implemented by AMOS (Arbuckle, 1997) was used to test the hypothesised structural model. Testing of the unconstrained model revealed that the path from job demands to distress (exhaustion, cynicism and cognitive weariness) is positive. Distress mediates the relationship between job demands and ill health. The path from job resources to work wellness (i.e. low distress and high eustress) is significant but negative, and work wellness mediates the relationship between job resources and organisational commitment. Furthermore, job resources predicted 65% of the variance in work wellness, while work wellness predicted 67% of the variance in distress and 53% of the variance in commitment. Distress predicted 60% of the variance in health in the high optimism group. In the low optimism group, job resources predicted 44% of the variance in work wellness, while work wellness predicted 73% of the variance in distress, and 57% of the variance in commitment. Distress predicted 45% of the variance in health.

In summary, the structural model thus showed that job demands (overload) had a direct impact on distress. It confirmed the general notion that distress is a response to overload (Maslach, Schaufeli, & Leiter, 2001). Distress further mediated the relationship between job demands and ill health. This implies that the staff members who experience high levels of workload are likely to develop high levels of distress, which in turn leads to health problems (Kahill, 1988; Lee & Ashforth, 1990). It seems that excessive job demands will lead to increased levels of distress and eventually ill health of staff. Furthermore, the model also showed that job resources have a direct impact on work wellness (high distress and low eustress). This seem to indicate that a lack of job resources, including resources needed for growth and advancement and organisational support, will lead to staff experiencing increased levels of distress, including higher levels of exhaustion, cynicism and cognitive weariness. With a combination of these factors, and supporting both the Conservation of Resources theory (Hobfoll & Freedy, 1993) and the Job Demands-Resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), it could be argued that staff of this institution are

likely to become victims of distress whenever there is an increase in job demands without any corresponding increase in job resources.

On the other hand, the availability of resources (organisational support, social support and advancement) will promote work wellness that will have a positive effect on eustress and employees levels of commitment to the institution. The structural model showed that work wellness (low distress, high eustress) mediated the relationship between job resources and organisational commitment. Thus, in line with the COBE model (Schaufeli & Bakker, 2004), it can be argued that the availability of job resources will lead to higher eustress of staff at this institution, which in turn can enhance their levels of commitment towards the institution (Roberts & Davenport, 2002). It can be argued that the availability of resources will result in lower levels of distress, which will lead to higher levels of organisational commitment (Leiter & Maslach, 1988). With these conclusions, the *fifth* objective is achieved.

The *sixth objective* intended to investigate whether dispositional optimism of employees at a university of technology moderates the relationship between distress and eustress on the one hand, and ill health and commitment on the other hand.

No practically significant correlations were found between the optimism factor and any of the other factors in this study. Optimism showed a negative correlation with four factors: exhaustion and cynicism (two of the factors in the distress dimension), job demands and social support (one of the factors in the job resources dimension). However, none of these were either practically or statistically significant. The assumption can therefore be made that optimism will slightly moderate the effects of an increase in job demands and lack of social support as well as levels of exhaustion and cynicism. In the model of work wellness dispositional optimism only had a moderating effect on the relationships between variables. This is contrary to the findings of Barkhuizen and Rothmann (2006). In this study, which was also conducted in the higher education sector in South Africa, it was found that dispositional optimism has a main effect on life satisfaction, ill health and organisational commitment. Furthermore, no practically significant correlation was found between optimism and ill health or either of the commitment dimensions. This finding completes objective *six*.

5.2 LIMITATIONS OF THIS RESEARCH

Firstly, the use of a cross-sectional design in the present research constitutes a limitation. As a result, despite the use of advanced statistical techniques such as structural equation modelling, no causal inferences could be made with regard to the relationships between the constructs used in the research. At best, these relationships could only be analysed and described, not established. Therefore, the identification of relationships in the present study serves only to establish certain patterns consistent with previous theoretical research regarding the chronological relationships of the different variables studied. Strictly speaking, the reference to causal relationships, as suggested in the present study, would be incorrect. It is therefore possible that the independent variables in the present study could be classified as symptoms of burnout, work engagement and occupational stress, rather than their antecedents. However, longitudinal research seems to point to the fact that certain job characteristics such as job demands and (lack of) job resources seem to demonstrate mainly a causal relationship in health outcomes with the associated outcomes appearing only after the appraisal process of the situation (Schaufeli & Buunk, 2002). Consequently, future longitudinal and quasi-experimental designs are required - not only to validate hypothesised causal relationships between antecedents and possible consequences of constructs such as distress/burnout and eustress/engagement, but also to expand our knowledge in terms of the inclusion of other variables in the study of human well-being.

A second limitation of the present research was the sample size. Although questionnaires were distributed to the total population, the response rate of 21,88% (37,4% for academic staff and 62,6% for administrative and support staff) might limit the generalisation of findings to the total population. One of the reasons for the low response might be "the time of the year" (late in the second semester) that the study was conducted. At that time of the year academics normally face an increased workload because of final preparations for examinations, an increase in subject-related enquiries from students, compilation of examination papers and final evaluations. Despite several calls made at institutional level, the response rate did not increase significantly. The support staff on the other hand had a significantly higher response rate. This could probably be linked to a decreased workload during the specific time of the year or might also be indicative of the willingness of staff in that category to participate. Nevertheless, it is proposed that limitations of this nature be combated by the utilisation of a stratified randomised sampling method where adequate

subgroup representation in the sample could be ensured, thereby significantly increasing the likelihood of describing the characteristics of a valid subsample of the total population. In this way, more accurate and meaningful inferences could be made with regard to the characteristics of the total population. Future studies should also consider expanding samples to include staff from more than one higher education institution in South Africa. This would enable researchers to establish a more comprehensive industry-specific wellness profile, especially during the current period of rapid transformation of higher education in South Africa. Lastly, consideration as to the time of the year to conduct a future study of this nature might also prove to be beneficial.

A third limitation of the current research is its reliance solely on self-report measures. Schaufeli, Enzmann, and Girault (1993) note that this approach is often associated with so-called "method variance". This implies that the exclusive use of self-report measures in validation studies increase the likelihood that at least part of the shared variances between measures may be attributed to method variance. However, a review of self-report measures regarding perceptions and affective reactions to jobs and work environments revealed little evidence of common method variance (Spector, 1987). Similarly, other researchers have demonstrated that even if interactions between the constructs are found, it poses no real threat with regard to the findings obtained (Dollard & Winefield, 1998; Wall, Jackson, Mullarkey, & Parker, 1996).

A further complication is the unavailability of suitable alternative data gathering methods to supplement the use of self-report measures. Research should however aim to develop objective means of measuring job characteristics, environmental aspects and the perceptions surrounding these aspects. In this regard, Dolan (1995) proposes that a multivariate approach be taken in the study of burnout and engagement by including numerous associated variables inherent to the job, the environment and the individual (e.g. individual traits).

A further limitation of this study relates to confidentiality and anonymity. It is possible that some participants in this research did not entirely trust the confidentiality and anonymity statement set out in the covering letter that accompanied the questionnaires. The fact that a colleague of the same institution conducted the research could also have aggravated this matter. This may have had an influence on some of the results.

5.3 RECOMMENDATIONS

5.3.1 Recommendations for the institution

Higher education institutions execute their plans and reach their objectives primarily through the individual and collective efforts of their human resource component. Employee wellness and eustress/engagement, or the lack thereof and specifically distress/burnout, are important aspects of an institutions' human resources component. Distress with accompanying burnout is a disease and has the inherent potential to have a detrimental effect on individuals and subsequently the institutions for which they work. Acknowledgement of its existence and understanding the phenomenon and its components and its opposite, namely eustress/engagement, is widely regarded as a first step in dealing with this complex issue. At institutional level, management should comprehend and facilitate understanding through concerted staff development interventions. As part of these interventions, information should be made available on wellness, eustress and engagement as well as the symptoms of distress and burnout and how this is related to general (un)well-being. More specifically, staff and managers should be empowered with the necessary skills to identify distress and burnout and its components of exhaustion, cynicism, and cognitive weariness in themselves and others with whom they work.

The responsibility for advocating the existence of distress and burnout in an institution primarily rests with the human resources function. As professionals supporting line managers, they ought to have adequate knowledge and understanding of distress, burnout, eustress, and engagement and the effect thereof on work wellness in general. Suitable representative (including all stakeholders) forums for discussion of the topic should be the point of departure. The next step would be the development of policy for further discussion and formalisation of the institution's strategy in dealing with the phenomenon.

In terms of interventions (individual and institutional) to combat distress and burnout, there are two key areas to address, namely knowledge and skills. Lee and Ashforth (1993) and Kompier and Kristensen (2001) recommend that interventions be planned and designed for the long term, focus on the root cause of burnout rather than the symptoms, and target the prevalence of occupational stress, distress and burnout. According to Schaufeli and Bakker

(2004), the effectiveness of individual interventions will depend on the support of institutional-based interventions.

Schaufeli and Enzmann (1998) mentioned self-monitoring, self-assessment, didactic stress management, promotion of a healthy lifestyle and relaxation techniques as appropriate interventions to address distress and burnout on the individual level. Furthermore, individual level interventions should facilitate alignment of individual and organisational objectives. If physical and psychological stressors are not addressed soon enough, it could have negative consequences for both the individual and the institution. At the institutional level, organisational development interventions such as job redesign, flexible work hours and goal setting could be implemented. Interventions aimed at influencing the values and culture of the institution could also prove to be beneficial. In this regard, Golembiewski, Hiles, and Daly (1987) recommend organisational development approaches where participatory consensus for change could be facilitated by means of the strengthening of social networks, problem confrontation and group approaches to problem solving. According to Karasek and Theorell (1990), this approach essentially reduces job demands and increases employee control over outcomes affecting their lives. As distress and burnout firstly manifest on the individual level, the institution should also consider incorporating psychological measurement instruments to assess the coping abilities of prospective employees in selection procedures. This could serve as valid predictors of an individual's ability to deal effectively with transformation and change.

Transformation of higher education institutions is a reality and an absolute necessity to address various shortcomings in the system as well as the legacy of apartheid. However, the word transformation has become synonymous with negative experiences for staff such as restructuring of the workplace, changes in leadership, changing institutional cultures, redress and affirmative action (Viljoen & Rothmann, 2002). Management of the institution needs to take cognisance of the insecurities staff has developed as result of these negative experiences. In effect, the psychological contracts of individuals are being changed. Furthermore, job-related work stressors such as job demands and (lack of) job resources (Schaufeli & Enzmann, 1998) play a central role in the development of distress and burnout and associated health problems. These stressors include understaffing, increased workload, negligence by co-workers, lack of recognition, lacking supervisor support, inadequate or poor quality equipment and lacking opportunities for advancement.

Management should consider interventions aimed at eliminating, reducing or altering these real and perceived stressors. These could include creating a supportive environment, participative management and decision-making practices, effective communication, equitable and transparent resource distribution and implementing an equitable system of reward and recognition. Previous research proved that increasing the job resources (e.g. through participative management, increasing social support, and recognition structures) could lead to more eustress and thus assist the development of work engagement.

As much as distress, burnout, and its negative consequences need to be addressed, employee wellness, eustress and engagement will not necessarily follow as a result. Concerted efforts from the institution are required to facilitate the prevalence of eustress and engagement. In this regard, Roberts and Davenport (2002) list three areas to be targeted, namely career development, identification with the organisation and a rewarding work environment. Career development includes providing opportunities for employees' self-development and building their skills as well as advancement opportunities assisting staff to effectively manage their careers. Sharing in the financial success of the organisation, individual internalisation of organisational goals and participative decision-making processes will enhance identification with the organisation. Making work enjoyable and fun, delegation of authority to the group and individuals, recognition for achievements and innovation, and encouragement by supervisors could all contribute to improvement of the work environment. If one considers a state of eustress and (re)engagement to be the state of recovery from distress and burnout. In order to recover, Cherniss (1995) mentions that organisational support and support from colleagues and supervisors is essential. In addition, employees should be assisted in striking a balance between work, family and leisure to contribute to their recovery from distress and burnout.

5.3.2 Recommendations for future research

Notwithstanding the limitations already mentioned, this study might have important implications for future research and practice in higher education as well as other industries. This study focused on higher education, which is regarded as one of the so-called human service professions. From the results obtained in this research, the use of the MBI-GS combined with the Cognitive Weariness Scale is recommended to assess the levels of distress and burnout experienced by staff of higher education institutions. This recommendation is

supported by the findings of Coetzee and Rothmann (2004). Furthermore, this research could stimulate future research in a wide range of occupations (Schutte et al., 2000). It is perceivable that certain occupations will experience higher levels of distress and burnout than others, based on the job-related stressors of the occupation. In order to make a meaningful comparison between the different groups in the South African context, norms for different occupations, organisations and even industries could be established. Given the pace of transformation currently experienced in South African higher institutions, studies into the effects of transformation and change and the relationship with distress and burnout also warrants close scrutiny.

Operationalisation of all the measures included in this study justifies further research. The recent inclusion of the Disengagement subscale of the Oldenburg Burnout Inventory (OLBI) in the existing scales of the MBI-GS enhanced its psychometric properties (Demerouti, Bakker, Vardakou, & Kantas, 2002). Criticism has also been levelled at the predominant use of negatively phrased items and the inclusion of positively phrased items is suggested.

The distinction between burnout and other clinical conditions is currently still problematic since burnout is not classified in the DSM-IV. The establishment of a clinical profile with validated cut-off points would make such a distinction possible. To address this shortcoming, Schaufeli, Bakker, Hoogduin, Schaap, and Kladler (2001) have proposed the use of the ICD-10 diagnostic label of *neurasthenia* with the additive criteria of work-relatedness. *Neurasthenia* is characterised by distress symptoms such as sleep disturbance, inability to relax, emotional and physical exhaustion, irritability and tension headaches, and cognitive impairment. These cognitive symptoms typically occur when one feels exhausted. The inclusion of the Cognitive Weariness Scale (Van Horn et al., 2004) was done to supplement the burnout concept with the cognitive weariness phenomenon. The positive results obtained in this study and research by Coetzee and Rothmann (2004), have hopefully now established the inclusion of this scale in future burnout research. The inclusion of job-related stressors such as job demands and (lack of) job resources in the present research yielded some positive results. These factors also warrant further investigation.

In relation to eustress and work engagement, the conceptualisation and operationalisation of the construct and its available measures are important. Current problems experienced when administering the UWES, e.g. item phrasing, generation of positive response sets and

comprehensibility by different language groups should be addressed. In the current study, an attempt was made in at least partially addressing some of these problems. The items of the MBI-GS, UWES and CWS were combined into one questionnaire to minimise the effects of positive and negative phrasing. Based on the results of the present study and other studies such as Coetzee and Rothmann (2004), the use of the UWES, as measure of eustress and engagement, is thus recommended in higher education in South Africa. It is also proposed that more than one higher education institution be targeted in future research to increase the possibility of generalising the findings to the entire sector. Researchers contemplating future validation of the UWES are urged to utilise statistical programs that can yield a measure of multivariate normality, and provide appropriate estimation procedures, given findings of non-normal data.

The ASSET as organisational stress screening tool also needs further operationalisation in the South African context. The validity established in the present study and the study by Coetzee and Rothmann (2004) is promising. The limitation of a one-institution study is relevant here and the recommendation is that future research includes more than one higher education institution in the sample. Randomised sampling could also contribute in this regard. Cooper, Dewe, and O'Driscoll (2001) promote a holistic approach to stress research. Given that the ASSET has been found to be a comprehensive instrument providing a multidimensional view to occupational stress, it seems to satisfy this requirement.

As far as the Job Demands-Resources Scale (Barkhuizen & Rothmann, 2006) is concerned, it has proven itself a reliable measure that can be used in the identification of occupational stressors in this South African higher education institution. It is proposed that the scale be included in measurement batteries in future research into distress and burnout as well as eustress and engagement at higher education institutions in South Africa. Furthermore, it needs to be validated in other industries in the South African context and hopefully in future, also internationally.

The multicultural setting in South Africa poses unique challenges to measurement and statistical analysis associated with studies such as this. Therefore, internal consistency, test-retest reliability and construct validity should be expanded to include equivalence and bias. Furthermore, sample size determines the levels of confidence in making generalisations and it is recommended that large, stratified, random samples should be considered as far as

possible. To address the “11 official languages” phenomenon in South Africa, it might be necessary to translate the MBI-GS, CWS, UWES, ASSET, LOT-R and JDRS into other languages commonly used in South Africa.

A major challenge remains the overemphasis on the negative (distress and burnout) rather than the positive pole (eustress and engagement) of wellness, as found in previous studies, and the legacy thereof. Full comprehension of the intricate interactions between distress and burnout, ill health, organisational commitment and job-related stressors is undeniable and should be pursued relentlessly. However, studies focusing on wellness, eustress and engagement, good health and commitment might facilitate the accumulation of knowledge in the opposite direction. The consequences of distress and burnout as well as eustress and engagement for institutions should also receive attention. In this regard, studies into the effects of distress and burnout and its opposite, eustress and engagement, on the psychological contract and organisational commitment could prove valuable. Furthermore, studies into the relationships between psychological strengths (e.g. locus of control, sense of coherence, hardiness, and dispositional optimism) and eustress/work engagement and whether it can be related to organisational outcomes such as taking sick leave, productivity, job satisfaction, quality of goods and services, staff retention and turnover, should be considered.

As far as the comprehensive concept of employee wellness is concerned, the results of this study needs to be validated and the study duplicated within the higher education sector in South Africa. In future, attention needs to shift from determining the causes of distress/burnout and ill health to the development of suitable interventions to decrease levels of distress/burnout whilst enhancing eustress/engagement.

REFERENCES

- Arbuckle, J. L. (1997). *Amos user's guide version 4.0*. Chicago, IL: Smallwaters Corporation.
- Barkhuizen, E. N., & Rothmann, S. (2006, April). *Occupational stress, health and commitment of academic staff in South African higher education institutions*. Paper presented at South African Positive Psychology Conference: Individual, Social and Work Wellness, Potchefstroom.
- Cherniss, C. (1995). *Beyond burnout: Helping teachers, nurses, therapists and lawyers recover from stress and disillusionment*. New York: Routledge.
- Coetzee, S. E., & Rothmann, S. (2004). An adapted model of burnout for employees at a higher education institution in South Africa. *SA Journal of Industrial Psychology, 30*(3), 29-40.
- Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research and applications*. Thousand Oaks, CA: Sage.
- Demerouti E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.
- Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2002). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Personality Assessment, 18*, 296-307.
- Dolan, S. L. (1995). Individual, organizational and social determinants of managerial burnout: theoretical and empirical update. In R. Crandall & P.L. Perrewe (Eds.), *Occupational stress: A handbook* (pp. 223-237). Washington, DC: Taylor & Francis.
- Dollard, M. F., & Winefield, A. H. (1998). A test of the demand-control/support model of work stress in correctional officers. *Journal of Occupational Health Psychology, 3*, 243-264.
- Enzmann, D., Schaufeli, W. B., & Girault, N. (1994). The validity of the Maslach Burnout Inventory in three national samples. In L. Bennet, D. Miller & M. Ross (Eds.), *Health workers and AIDS: Research, interventions and current issues* (pp. 131-150). London: Harwood.
- Golembiewski, R. T., Hiles, R., & Daly, R. (1987). Some effects of multiple OD interventions on burnout and work site features. *Journal of Applied Behavioral Sciences, 23*, 295-313.
- Harju, B., & Bolen, L. M. (1998). The effects of optimism on coping and perceived quality of life of college students. *Journal of Social Behaviour & Personality, 13*, 185-200.

- Hobfoll, S. E., & Freedy, J. (1993). Conservation of resources: A general stress theory applied to burnout. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 115-129). Washington, DC: Taylor & Francis.
- Kahill, S. (1988). Symptoms of professional burnout: A review of the empirical evidence. *Canadian Psychology, 29*, 284-297.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette (Ed.), *Handbook of industrial and organisational psychology* (pp. 571-648). Chicago, IL: Rand McNally.
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York: Basic Books.
- Kompier, M. A. J., & Kristensen, T. S. (2001). Organisational work stress interventions in a theoretical, methodological and practical context. In J. Dunham (Ed.), *Stress in the workplace: Past, present and future* (pp. 164-190). London: Whurr Publishers.
- Lee, R. T., & Ashforth, B. E. (1990). On the meaning of Maslach's three dimensions of burnout. *Journal of Applied Psychology, 75*, 743-747.
- Lee, R. T., & Ashforth, B. E. (1993). A longitudinal study of burnout among supervisors and managers: Comparisons between the Leiter and Maslach (1988) and Golembiewski et al. (1986) models. *Organizational Behavior and Human Decision Processes, 54*, 369-398.
- Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior, 9*, 297-308.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422.
- Naudé, J. L. P., & Rothmann, S. (2003). Occupational stress of emergency workers in Gauteng. *South African Journal of Industrial Psychology, 29*(4), 92-100.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Roberts, D. R., & Davenport, T. O. (2002). Job engagement: Why it's important and how to improve it. *Employment Relations Today, 29*(3), 21-29.
- Rothmann, S., & Jansen van Vuuren, J. A. (2002, March). *Sense of coherence, self-efficacy, locus of control, coping and burnout of senior managers in a manufacturing industry*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.

- Rothmann, S., & Malan, H. (2002, March). *Koherensies in selfdoeltreffendheid, lokus van beheer en uitbranding by maatskaplike werkers*. Poster session presented at the 1st South African Burnout Conference, Potchefstroom.
- Rothmann, S., Jackson, L. T. B., & Kruger, M. M. (2003). Burnout and job stress in a local government: The moderating effect of sense of coherence. *SA Journal of Industrial Psychology, 29*(4), 52-60.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293-315.
- Schaufeli, W. B., & Buunk, B. P. (2002). Burnout: An overview of 25 years of research and theorising. In M. J. Schabracq, C. L. Cooper & J. A. M. Winnubst (Eds.), *Handbook of work and health psychology* (pp. 383-425). Chichester, UK: Wiley.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., Bakker, A. B., Hoogduin, K., Schaap, C., & Kladler, A. (2001). On the clinical validity of the Maslach Burnout Inventory and the burnout measure. *Psychology and Health, 16*, 565-583.
- Schaufeli, W. B., Enzmann, D., & Girault, N. (1993). The Measurement of burnout: A review. In W. B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 199-215). Washington, DC: Taylor & Francis.
- Schaufeli, W. B., Martinez, I., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-Cultural Psychology, 33*, 464-481.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71-92.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A re-evaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063-1078.
- Schutte, N., Toppinen, S., Kalimo, R., & Schaufeli, W. B. (2000, March). The factorial validity of the Maslach Burnout Inventory-General Survey (MBI-GS) across occupational groups and nations. *Journal of Occupational and Organisational Psychology, 73*, 53-66.

- Siu, O. L. (2002). Occupational stressors and well-being among Chinese employees: The role of organizational commitment. *Applied Psychology: An International Review*, 5, 527-544.
- Spector, P. E. (1987). Method variance as an artifact in self-reported affect and perceptions at work: Myth or significant problem? *Journal of Applied Psychology*, 72, 438-443.
- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Maslach Burnout Inventory: general survey in the South African police service. *South African Journal of Psychology*, 33(4), 219-226.
- Van Horn, J. E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365-375.
- Viljoen, J. P., & Rothmann, S. (2002). Transformation in a tertiary education institution: A case study. *Management Dynamics*, 11(2), 2-9.
- Wall, T. D., Jackson, P. J., Mullarkey, S., & Parker, S. K. (1996). The demands-control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology*, 69, 153-166.
- Winefield, A. H., Gillespie, N., Stough, C., Dua, J., & Hapuararchchi, J. (2002). *Occupational stress in Australian universities: A national survey*. Melbourne, Victoria: National Tertiary Education Union.