

**JOB CHARACTERISTICS, ENGAGEMENT, BURNOUT AND
ORGANISATIONAL COMMITMENT OF MANAGEMENT
STAFF AT A PLATINUM MINE IN THE NORTH-WEST
PROVINCE**

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COMMENTS

The reader is reminded of the following:

- In this mini-dissertation the prescriptions, as set out by the Manual (5th ed.) of the American Psychological Association (APA) were followed regarding the references and the editorial style. This practice is in line with the policy of the Programme in Industrial Psychology and WorkWell: The Research Unit for People, Policy and Performance, North-West University, Potchefstroom, South Africa.
- The mini-dissertation is submitted in the form of a research article. The name of the study leader appears on the article as it was sent for consideration for publication.

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TABLE OF CONTENTS

	Page
List of Tables	iv
Abstract	v
Opsomming	vii
CHAPTER 1: INTRODUCTION	
1.1 Problem statement	1
1.2 Research objectives	6
1.2.1 General objective	6
1.2.2 Specific objectives	6
1.3 Research method	7
1.3.1 Research design	7
1.3.2 Participants	7
1.3.3 Measuring instruments	7
1.3.4 Statistical analysis	10
1.4 Chapter division	10
1.5 Chapter summary	11
References	12
CHAPTER 2: ARTICLE	16
CHAPTER 3: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS	
3.1 Conclusion	54
3.1.1 Conclusions in terms of specific theoretical objectives	54
3.1.2 Conclusions in terms of specific empirical objectives	56
3.2 Limitations of this research	58
3.3 Recommendations	59
3.3.1 Recommendations for the organisation	60
3.3.2 Recommendations for future research	61
References	63

LIST OF TABLES

Table	Description	Page
Table 1	Characteristics of the Participants ($N = 202$)	26
Table 2	Goodness-of-Fit Statistics for the Hypothesised MBI-GS Model	31
Table 3	Goodness-of-Fit Statistics for the Hypothesised UWES Model	32
Table 4	Factor Loadings for Principal Factor Extraction and Varimax Rotation on JDRS items	34
Table 5	Descriptive Statistics, Alpha Coefficients and Product-Moment Correlation Coefficients of the Scales	37
Table 6	Multiple Regression Analyses with Exhaustion, Cynicism, Vigour and Dedication as Dependent Variables	39
Table 7	Multiple Regression Analyses with Ill Health as Dependent Variable	40
Table 8	Multiple Regression Analyses with Organisational Commitment as Dependent Variable	41

ABSTRACT

Title: Job characteristics, engagement, burnout and organisational commitment of management staff at a platinum mine in the North-West Province.

Key terms: Job demands, job resources, engagement, burnout, organisational commitment, management, mine.

In the new world economy the key differentiator of competitive advantage is an organisation's human resources. Increasingly, employees have to cope with multiple demands arising from various roles, often with limited resources and no guarantee of job security. In monitoring and improving employee effectiveness in coping with multiple new demands, stimulating their growth and enhancing their well-being as well as organisational performance, burnout and engagement are specific research areas.

The objectives of this study were to investigate the relationships between burnout, engagement, job demands, job resources and organisational commitment of management staff at a platinum mine in the North-West Province, and to determine which variables best predict burnout, engagement and organisational commitment.

A cross-sectional survey design was used. The study population consisted of management staff at a platinum mine in the North West Province ($N = 202$). The Job Demands-Resources Scale, Utrecht Work Engagement Scale, Maslach Burnout Inventory - General Survey, a Health Questionnaire, and an Organisational Commitment scale were administered. Descriptive statistics, product-moment correlation coefficients and multiple regression analyses were used to analyse the data.

The results indicated that burnout correlated significantly with job demands, job resources, engagement, health and organisational commitment. Engagement correlated significantly with job resources, health, and organisational commitment. Exhaustion was best predicted by workload, job insecurity and lack of resources whilst cynicism was predicted by poor organisational support and advancement opportunities. Engagement was best predicted by organisational support, and organisational commitment was predicted by both burnout and engagement. Ill health was predicted by exhaustion.

Recommendations were made for future research.

OPSOMMING

Onderwerp: Werkseienskappe, begeestering, uitbranding en organisasieverbondenheid van bestuurders by 'n platina-myn in die Noordwes Provinsie.

Sleutelwoorde: - Werkseise, werkhulpbronne, begeestering, uitbranding, organisasieverbondenheid, bestuurders, myn.

In die nuwe wêreld ekonomie is 'n organisasie se enigste kompeterende voordeel sy menslike hulpbronne. Werknemers moet toenemend voldoen aan veelvoudige werkseise wat voortspruit uit meervoudige rolle - dikwels met beperkte hulpbronne en geen waarborg van werksekuriteit nie. Uitbranding en werksbegeestering is 'n spesifieke navorsingsarea rakende die monitering en verbetering van werknemer-doeltreffendheid, die stimulering van werknemer-groei, die verbetering van werknemer-welsyn asook die verbetering van organisasie-prestasie.

Die doelstellings van hierdie studie was om die verband tussen uitbranding, begeestering, werkseise, werkhulpbronne en organisasieverbondenheid van bestuurders by 'n platina-myn in die Noordwes Provinsie te bepaal, en vas te stel watter veranderlikes uitbranding, begeestering en organisasieverbondenheid die beste voorspel.

'n Dwarssnee opname-ontwerp is gebruik. Die studiepopulasie het bestaan uit bestuurders by 'n platina-myn in die Noordwes Provinsie ($N = 202$). Die Werkseise-hulpbronn skaal, Utrecht Werksbegeesteringskaal, Maslach-uitbrandingsvraelys - Algemene Opname, 'n Gesondheidsvraelys en 'n Organisasieverbondenheid-skaal is afgeneem. Beskrywende statistiek, produk-moment-korrelasiekoëffisiënte en meervoudige regressie-analises is gebruik om die data te ontleed.

Die resultate het aangetoon dat uitbranding verband hou met werkseise, werkhulpbronne, begeestering, gesondheid en organisatoriese verbondenheid. Begeestering het verband gehou met werkhulpbronne, gesondheid en organisatoriese verbondenheid. Uitputting is die beste voorspel deur werkslading, werksonsekerheid en 'n tekort aan hulpbronne voorspel, terwyl sinisme deur gebrekkige organisatoriese ondersteuning en gebrekkige vorderingsgeleenthede voorspel is. Begeestering is voorspel deur organisasie-ondersteuning, en

organisasieverbondenheid deur beide uitbranding en begeestering. Swak gesondheid is deur uitputting voorspel.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This mini-dissertation focuses on the relationships between job demands, job resources, engagement, burnout and organisational commitment of management staff at a platinum mine in the North-West Province.

In this chapter the research is motivated in terms of the problem statement and the research objectives (including a general objective and specific objectives). The research method is explained and the division of chapters is given.

1.1 PROBLEM STATEMENT

Globalisation and international competition stimulate continuous economic, political, technological and social changes with a profound impact on the world of work, people and their careers. As global pressure increases, organisations worldwide are changing structures, labour composition, reward systems, service contracts, technology and information to increase output with the same or reduced levels of resources (Schreuder & Theron, 2001). These changes in the global organisational context are reflected in changed psychological contracts between employers and employees. Employees are expected to give more in terms of time, effort, skills, and flexibility, whilst they receive less in terms of career opportunities, lifetime employment, and job security (Maslach, Schaufeli, & Leiter, 2001).

South Africa is no exception. The country is currently ranked 49th of 60 countries in the World Competitiveness Yearbook on criteria that include economic performance, government efficiency, business efficiency, and infrastructure. Specific dimensions of business efficiency include productivity, the labour market, finance, management practices, and attitudes and values (<http://www01.imd.ch/wcy/>). Among other things, this ranking reflects, the need to improve South Africa's productivity level.

The economic and strategic importance of South Africa's mining industry is beyond dispute. The country is the world's largest producer of platinum group metals among other minerals, and has 90% of the world's platinum group metal reserves (Gastrow, 2001). The industry

contributes significantly to economic activity, the development of sustainable job opportunities, and foreign exchange earnings. In the wave of globalisation, major companies are increasingly moving their primary listings to New York and London (http://www.southafrica.info/doing_business/economy/key_sectors/mining.htm).

The company that forms the interest of study in this research is the third largest producer of platinum group metals in the world. It is situated in the North-West Province and is listed on the London stock exchange. South Africa's socio-economic transformation process presents a specific legal challenge to the organisation in the form of the Employment Equity Act, no. 55 of 1998 (South Africa, 1998) which aims to achieve full equity in the workplace through promotion of equal opportunities and fair treatment, elimination of discrimination, and implementation of affirmative action measures. Specific objectives include the promotion and/or appointment of Historically Disadvantaged South Africans (HDSAs) into managerial positions. The organisation's specific target in this regard is 40% black persons in managerial positions by the end of 2009 (http://www.dme.gov.za/minerals/mining_charter.htm). However, in an industry that competes for the same pool of human resources, retention of black managers is problematic. Furthermore, white males are expected to coach and mentor HDSAs in spite of their own employment and learning opportunities being threatened. Improved productivity, organisational performance, organisational commitment and engagement are now more critical than ever, due to the challenges being posed by both the Employment Equity Act and international competition.

In the new world economy, the key differentiator of competitive advantage is the organisation's human resources (Minervini, Meyer, & Rourke, 2003; Veldsman, 2002). *Productivity improvement is only possible through the optimal functioning of employees.* However, employees have to cope with demands arising from various roles, often with limited resources and no guarantee of job security. Employees have to be more multi-skilled, technologically literate, and flexible as they are required to do different things for different people in order to meet diversified needs (Minervini et al., 2003). In monitoring and improving employee effectiveness in coping with multiple new demands, stimulating their growth and enhancing their well being as well as organisational performance, burnout and engagement are specific research areas (Maslach et al., 2001).

This study is approached from a systems perspective. The organisation is dependent on its environment for providing inputs and receiving its final outputs and on its employees for achieving the outputs that facilitate organisational performance. Similarly, the employee as subsystem within the organisation, depends on the organisation for inputs, e.g. resources, and role clarity that enable the delivery of work outputs, and for accepting his/her work outputs as a meaningful contribution to organisational performance. The interdependence of the two systems implies that the performance of the one will impact on that of the other (Ivancevich & Matteson, 1999).

This study focuses on the influence of organisational stressors on the wellness of managers (as reflected by their levels of burnout and engagement), physical and psychological health, and their commitment to their employing organisation.

Schaufeli and Enzmann (1998) categorise organisational stressors as job demands and lack of job resources. According to Rothmann (2002), these demands and lack of resources contribute to burnout. Job demands refer to the “things that have to be done” or work activities to be performed and include the physical, social or organisational aspects of the job that require sustained physical and mental effort (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Job demands include situational factors such as role ambiguity, role conflict, stressful events, heavy workload and work pressure, pressure to make critical and immediate decisions, being assigned more responsibility, and having to meet deadlines (Rothmann, 2002; Schaufeli & Enzmann, 1998). Job resources include all aspects (physical, psychological, social and/or organisational) that reduce job demands, facilitate achievement of work goals, and/or stimulate individual growth (Demerouti et al., 2001; Rothmann, 2002).

Burnout originally was conceptualised in the context of the helping professions (Rothmann, 2002). Schaufeli and Enzmann (1998) have found that employees in almost any job can develop burnout. Burnout is defined as: “a persistent, negative, work-related state of mind in 'normal' individuals that 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, p.36). Maslach et al. (2001) define it as a prolonged response to chronic emotional and interpersonal job stressors. The dimensions of burnout are labelled as exhaustion, cynicism and low professional efficacy (Maslach, Jackson, & Leiter, 1996).

Contrary to the case of burnout, the concept of work engagement does not have a long research history and emerged from a positive psychology perspective that focuses on psychological health and well-being of the individual, rather than on psychological dysfunction and ill health as is the case with burnout (Seligman & Csikszentmihalyi, 2000). According to Schaufeli and Bakker (2004), research has shown that even when exposed to high job demands and working long hours, some individuals do not show symptoms of burnout. Instead, they seem to find pleasure in dealing with these stressors. Such individuals could be described as engaged in their work (Seligman & Csikszentmihalyi, 2000). According to Nelson and Simmons (2003), meaningful work leads to eustress, which can promote engagement even in demanding conditions.

Engagement was initially regarded to be the direct opposite of burnout (Rothmann, 2002). However, Schaufeli, Salanova, González-Romà, and Bakker (2002) consider the two constructs to be opposites that should be measured independently with different instruments. They have defined engagement as a positive, fulfilling, work-related state of mind characterised by vigour, dedication, and absorption. Schutte, Toppinen, Kalimo, and Schaufeli (2000) have defined engagement as an energetic state of employee dedication to work performance and confidence of their effectiveness. Schaufeli and Bakker (2004) believe that two dimensions of engagement are logically related to burnout, namely vigour (to exhaustion) and dedication (to cynicism).

Disagreement exists about how engagement should be measured. Maslach et al. (1996) measure engagement by reversing MBI scores. Schaufeli, Salanova, et al. (2002) propose to measure positive and negative work aspects independently. Exhaustion (depleted energy) and cynicism or mental distancing (poor identification), are the main features of burnout that are assessed by the MBI (Schaufeli, 2003), while the positive aspects of vigour (high energy) and dedication (strong identification) can be measured by the Utrecht Work Engagement Scale (Schaufeli, Salanova, et al., 2002). The first psychometric results obtained with the Utrecht Work Engagement Scale which assesses three characteristics (including vigour, dedication and absorption) of engagement (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova, et al., 2002) are encouraging.

Siu (2002) defines organisational commitment as the relative strength of an individual's identification with and involvement in an organisation. Similarly, Maslach et al. (2001)

define it as an employee's allegiance to the employing organisation. Newstrom and Davis (1997) liken organisational commitment to employee loyalty and add to their definition, the aspect of employee desire to remain employed by the organisation and to continue active participation in it. From these definitions, organisational commitment seems to encompass an employee's belief in the mission and goals of the organisation, willingness to exert effort in their accomplishment, and desire to continue working for the organisation.

A literature search has revealed an absence of previous research in the specific areas of burnout and engagement within the platinum mining industry in South Africa. Also, prior research in the mining context has not focused exclusively on managerial staff. The value of focusing on the platinum mining industry lies in its contribution to creating a broader picture of the burnout and engagement phenomena in South Africa and enabling comparison across different industries. Rothmann (2002) has found that burnout research in South Africa lacks empirical research and systematic investigation, and that it has serious scientific limitations such as small sample sizes and poor research designs. This research can thus add to the pool of empirical studies done in South Africa.

Ivancevich and Matteson (1999) believe that managers are responsible for the effectiveness of individuals, groups and organisations. Managers are usually the initiators or coordinators of organisational change. DuBrin (1990) reports that managers who suffer from burnout harm organisational effectiveness because they spread it to their subordinates. Verhage and Jordaan (2001) have found that employee burnout can be attributed to inadequate leadership, inefficient and dictatorial management, nepotism, lack of transparency, and poor interpersonal relationships. From these findings it is evident that managers impact on the functioning and psychological health of subordinates, teams and thus the effectiveness and productivity of the organisation. The significance of burnout for both the individual and the organisation is found in its link to outcomes, which are related to job performance. Burnout has been associated with various forms of job withdrawal such as absenteeism, intention to leave the job, and actual turnover (Maslach et al., 2001). For those who stay on the job, burnout leads to reduced productivity and effectiveness at work. Consequently, it is associated with decreased job satisfaction and reduced commitment to the job or the organisation (Maslach et al., 2001).

From the problem statement, the following research questions emerge:

- How are the constructs job demands, job resources, burnout, engagement and organisational commitment conceptualised in the literature?
- What are the relationships between job demands, job resources, burnout, engagement and organisational commitment?
- Which of the variables predict burnout, engagement and organisational commitment respectively?
- What recommendations could be made to prevent and/or manage burnout and promote work engagement and organisational commitment of management staff at a platinum mine?

1.2 RESEARCH OBJECTIVES

The research objectives are divided into a general objective and specific objectives.

1.2.1 General objective

The general objective of this study is to investigate the relationships between job demands, job resources, burnout, engagement and organisational commitment of management staff at a platinum mine in the North-West Province.

1.2.2 Specific objectives

The specific objectives of the research include:

- To conceptualise the constructs job demands, job resources, burnout, engagement and organisational commitment from the literature.
- To assess the relationships between job demands, job resources, burnout, engagement and organisational commitment.
- To determine which variables best predict burnout, engagement and organisational commitment.

- To make recommendations to prevent and/or manage burnout and promote work engagement and organisational commitment of management staff at a platinum mine.

1.3 RESEARCH METHOD

The research method consists of a literature review and empirical study that encompasses the research design, the participants, the measuring instruments, and the statistical analysis to be followed.

1.3.1 Research design

A survey design is used to attain the research objectives. The specific design is the cross-sectional design that draws a sample from a population at one point in time (Neuman, 2000; Shaughnessy & Zechmeister, 1997) to describe the population at that time. This design is useful to assess interrelationships between the variables within the population and is ideally suited to the descriptive and predictive purpose of correlational research (Shaughnessy & Zechmeister, 1997).

1.3.2 Participants

A random sample of management staff is drawn from the study population ($N = 202$).

1.3.3 Measuring instruments

Six questionnaires are used in the empirical study, namely the Job Demands-Resources Scale (JDERS) (Demerouti et al., 2001), the Maslach Burnout Inventory-General Survey (MBI-GS) (Maslach et al., 1996), the Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al., 2002), the Health and Organisational Commitment subscales of the ASSET (An Organizational Stress Screening Evaluation Tool) (Cartwright & Cooper, 2002), and a biographical questionnaire.

The *Job Demands-Resources Scale* (JDERS) (Demerouti et al., 2001) has been contextualised for the organisation through focus group interviews, resulting in the addition of items. The contextualised questionnaire consists of 67 items and measures job demands and job

resources for employees. Questions are rated on a 4-point scale ranging from 1 (*always*) to 4 (*never*). The dimensions of the JDRS include pace, amount and variety of work, mental and emotional load, opportunities to learn, work independence, relationships with colleagues and immediate supervisor, ambiguities of work, information, communications, participation, contact possibilities, uncertainty about the future, remuneration, and career possibilities.

The *Maslach Burnout Inventory-General Survey* (MBI-GS) (Maslach et al., 1996) is used to measure burnout. The publication of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) makes it possible to study burnout outside the service sector and to draw comparisons between different occupational groups. According to Maslach et al. (2001) the MBI-GS, as a third general version of the Maslach Burnout Inventory, evaluates burnout among professionals with and without the direct client contact that characterises human service professionals. The MBI-GS consists of 16 items that produce scores on: Exhaustion (with five items e.g. “I feel used up at the end of the workday”), Cynicism (with five items e.g. “I have become less enthusiastic about my work”) and Professional Efficacy (six items e.g. “In my opinion, I am good at my job”) respectively. Together, the subscales provide a three-dimensional perspective of burnout related to the broader job and not just the personal relationships that are part of the job (Maslach et al., 2001). Internal consistencies (Cronbach alpha coefficients) vary from 0,87 to 0,89 for Exhaustion, 0,73 to 0,84 for Cynicism and 0,76 to 0,84 for Professional Efficacy (Schaufeli, Van Diederendonck, & Van Gorp, 1996). Test-retest reliabilities after one year were 0,65 (Exhaustion), 0,60 (Cynicism) and 0,67 (Professional Efficacy). Items are scored on a 7-point frequency rating scale ranging from 0 (*never*) to 6 (*everyday*). High scores on Exhaustion and Cynicism and low scores on Professional Efficacy are indicative of burnout.

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli et al., 2002) is applied to measure participants' levels of engagement. The UWES measures three dimensions, namely vigour, dedication and absorption, all scored on a 7-point scale with the same range as the MBI-GS. It includes statements such as “I am bursting with energy in my work”; “I find my work full of meaning and purpose” and “I get carried away by my work”. The alpha coefficients for the three subscales vary between 0,78 and 0,89. Rothmann and Storm (2003) obtained alpha coefficients of 0,78 for Vigour, 0,89 for Dedication, and 0,78 for Absorption in a sample of 2 396 SAPS members.

The *Health Subscale of the ASSET* (An Organisational Stress Screening Tool) has been developed by Cartwright and Cooper (2002) and is used to assess the respondents' level of health. It consists of 19 items arranged on two subscales, namely Physical health and Psychological well-being. All items on the Physical health subscale relate to physical symptoms of stress. This subscale provides insight into physical health rather than a clinical diagnosis. Examples of physical symptoms mentioned in the questionnaire include a change in eating habits, indigestion or heartburn, insomnia, and panic or anxiety attacks. The items on the Psychological well-being subscale are symptoms of stress-induced mental ill health. Examples of psychological symptoms mentioned in the questionnaire include tendencies to smoke or drink more than usual, loss of sense of humour, constant irritability or tiredness, and mood swings. Johnson and Cooper (2003) have found that this questionnaire has good convergent validity with an existing measure of psychiatric disorders, namely the General Health Questionnaire.

The *Organisation Commitment Subscale of the ASSET* (Cartwright & Cooper, 2002) is used to measure organisational commitment. This subscale consists of nine items divided into two scales, namely commitment of the organisation to the employee, and commitment of the employee to the organisation. This questionnaire reflects the non-economic reciprocal obligations that exist between employer and employee (Cartwright & Cooper, 2002). The items are scored on a scale varying from 1 (*strongly disagree*) to 6 (*strongly agree*). Commitment of the organisation to the employee is a five-item factor that measures the extent to which individuals feel that their organisation is committed to them and that it is worth "going the extra mile" for their organisation. It includes items such as: "I feel valued and trusted by my organisation". The Cronbach alpha value is 0,84. Commitment of the employee to the organisation is a four-item factor that measures employee commitment towards the organisation as demonstrated by their willingness to do their jobs as best they can, loyalty, and dedication to the organisation. It includes items such as: "I feel that it is worthwhile to work hard for this organisation". The Cronbach alpha reliability coefficient is 0,77.

A questionnaire is developed to gather information concerning the demographic characteristics of the participants. The questionnaire will afford participants the option of anonymous participation. Information gathered will include age, gender, race, marital status, home language, highest education level, job level, years service in the current job, years

service in the organisation, department within which participant is employed, and operational unit the participant is working in.

1.3.4 Statistical analysis

The statistical analysis is carried out with the SPSS Programme (SPSS Inc., 2003) and the Amos Programme (Arbuckle, 2003). Cronbach alpha coefficients and factor analysis are used to assess the reliability and validity of the measuring instruments (Clark & Watson, 1995). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) are used to analyse the data. Pearson correlation coefficients are computed to determine the relationships between variables. In the case where the distribution of scores is skew, Spearman correlation coefficients are computed. A cut-off point of $p \leq 0,05$ is set for the statistical significance of the results. Effect sizes (Cohen, 1988) are used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect, Cohen, 1988) is set for the practical significance of correlation coefficients.

Among the fit indices produced by the AMOS Programme is the Chi-square statistic (χ^2), which is the test of absolute fit of the model. However, the χ^2 value is sensitive to sample size. Therefore, additional goodness-of-fit indices, such as the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Means Square Error of Approximation (RMSEA) are used in this study.

Standard multiple regression analysis is used to determine which combination of job demands and job resources best predict burnout and work engagement. Furthermore, standard multiple regression analyses are also used to assess whether burnout and work engagement predict ill health and organisational commitment (Tabachnick & Fidell, 2001).

1.4 CHAPTER DIVISION

The chapters in the mini-dissertation are presented as follows:

Chapter 1: Introduction

Chapter 2: Research article

Chapter 3: Conclusion, limitations and recommendations.

1.5 CHAPTER SUMMARY

Chapter 1 provides a motivation for this research in the form of the problem statement. In addition to the problem statement, the objectives of the study and the research method are outlined, and the division of chapters is provided.

Chapter 2 encompasses the complete study. The results of the statistical analysis are reported, indicating the practical significance thereof. The findings of the study are discussed briefly.

Chapter 3 provides a comprehensive analysis and discussion of the literature and the research results. Conclusions are drawn with reference to the specific research objectives, recommendations are made for the organisation, and limitations of the study are discussed.

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CHAPTER 2

RESEARCH ARTICLE

JOB CHARACTERISTICS, ENGAGEMENT, BURNOUT AND ORGANISATIONAL COMMITMENT OF MANAGEMENT STAFF AT A PLATINUM MINE IN THE NORTH-WEST PROVINCE

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ABSTRACT

The objective of this study was to investigate the relationships between burnout, engagement, job demands, job resources, and organisational commitment of management staff at a platinum mine in the North West Province. A cross-sectional survey design was used. The study population ($N = 202$) consisted of management staff members. The Maslach Burnout Inventory – General Survey, Utrecht Work Engagement Scale, Job Demands-Resources Scale, and the Health and Organisational Commitment subscales of the ASSET were administered. The results revealed that exhaustion was predicted by workload, job insecurity and lack of resources while cynicism was predicted by lack of organisational support and advancement opportunities. Engagement was best predicted by organisational support, and organisational commitment was predicted by both burnout and engagement. Ill health was predicted by exhaustion.

OPSOMMING

Die doel van hierdie studie was om die verband tussen uitbranding, begeestering, werkseise, werkhulpbronne, en organisasieverbondenheid van bestuurders by 'n platina-myn in die Noordwes Provinsie te ondersoek. 'n Dwarssnee-opnameontwerp is gebruik. Die studiepulasie ($N = 202$) het bestaan uit bestuurspersoneel. Die Maslach-uitbrandingsvraelys - Algemene Opname, Utrecht Werksbegeesteringskaal, Werkseise-hulpbroneskaal en beide die Gesondheid- en Organisasieverbondenheidssubskale van die ASSET is afgeneem. Uitputting is voorspel deur werkslading, werksonsekerheid en onvoldoende hulpbronne terwyl sinisme deur gebrekkige organisasie-ondersteuning en gebrekkige vorderingsgeleenthede voorspel is. Begeestering is voorspel deur organisasie-ondersteuning, en organisasieverbondenheid deur beide uitbranding en begeestering. Swak gesondheid is deur uitputting voorspel.

Globalisation and continued international pressure on organisations to perform better with fewer resources are reflected in the changing psychological contracts between employers and employees. Employees are expected to give more in terms of time, effort, skills and flexibility whilst job security, career opportunities and lifetime employment are diminishing (Maslach, Schaufeli, & Leiter, 2001). South Africa and its mining industry are not excluded from these pressures and impacts. The need to improve the country's productivity is reflected in its poor ranking (49th of 60 countries) in the World Competitiveness Yearbook (<http://www01.imd.ch/wcy>). The South African mining industry has 90% of the world's platinum group metals among other minerals. Its contribution to the country's economic activity and productivity is beyond dispute (Gastrow, 2001).

The key differentiator of competitive advantage in the new world economy is the organisation's employees (Minervini, Meyer, & Rourke, 2003; Veldsman, 2002). However, employees have to cope with increasing demands from various and diverse roles and organisational stakeholders, often with limited resources (Minervini et al., 2003). In monitoring and improving employee effectiveness in coping with multiple new demands, stimulating their growth and enhancing their well-being as well as organisational performance, burnout and engagement are specific research areas (Maslach et al., 2001).

Ivancevich and Matteson (1999) believe that managers are responsible for the effectiveness of individuals, groups and organisations. DuBrin (1990) reports that managers who suffer from burnout harm organisational effectiveness because they spread it to their subordinates. Employees who experience burnout can impact negatively on their colleagues by causing personal conflict and disrupting job tasks. Burnout can thus be "contagious" and perpetuate itself through the informal interactions on the job. Verhage and Jordaan (2001) have found that employee burnout can be attributed to inadequate leadership, inefficient and dictatorial management, nepotism, lack of transparency and poor interpersonal relations. Rothmann (2002) reports that burnout contributes to low morale, job dissatisfaction, staff turnover and absenteeism and can lead to deterioration in the quality of service rendered by staff. From these findings it can be deduced that managers can impact directly or indirectly on employee effectiveness and organisational outcomes such as turnover.

According to Jackson, Rothmann, and Van de Vijver (in press), empirical studies have confirmed that burnout is related to health problems and turnover intentions, and that it

mediates the relationship between job demands and health problems. Also, engagement mediates the relationship between job resources and turnover intentions.

The objectives of this study were firstly to determine the relationships between job demands, job resources, burnout, engagement, and organisational commitment at a platinum mine in the North-West Province where no research of this kind has been conducted before, and secondly, to determine whether organisational commitment can be predicted by burnout and work engagement.

Burnout and engagement

Although burnout has originally been conceptualised in the context of the helping professions (Rothmann, 2002), it has recently expanded to all types of professions and occupational groups (Schaufeli & Enzmann, 1998). Schaufeli and Enzmann (1998, p. 36) define burnout as “a persistent, negative, work-related state of mind in normal individuals that 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”. Burnout is a pathogenically defined construct that is characterised by emotional exhaustion, cynicism and reduced professional efficacy (Maslach et al., 2001). More recently, in using adapted versions of the MBI, burnout has been conceptualised in terms of exhaustion, mental distance (cynicism and depersonalisation), and reduced professional efficacy (Barkhuizen, 2005; Jackson & Rothmann, 2005).

Seen from a theoretical perspective, exhaustion and mental distancing (cynicism or depersonalisation) constitute the core of burnout (Schaufeli, 2003). Exhaustion represents the individual stress component of burnout (Maslach et al., 2001) and refers to feelings of being overextended and depleted of emotional and physical resources, i.e. incapable of work performance because all energy has been drained. In the development of burnout, exhaustion emerges first in response to an overly demanding work environment (Leiter, 1993). Cynicism entails a general indifferent, callous or cynical attitude towards the work. To cope with excessive job demands and feelings of exhaustion, the individual psychologically withdraws from the work (mental distancing) (Maslach et al., 2001). Mental distancing can thus be described as an employee's unwillingness to perform because of an increased intolerance to make any effort (Schaufeli, 2003). When this coping strategy becomes habitual – as is the

case with cynicism and depersonalisation – it becomes dysfunctional and disrupts work performance. In turn, this leads to an increase in job demands and exhaustion that completes the vicious circle.

Professional efficacy refers to an individual's negative self-evaluation of competence, achievement and productiveness, as well as feelings of insufficiency (Schaufeli & Buunk, 1996). Reduced professional efficacy results primarily from cynicism (sequential link), is the weakest burnout dimension in terms of significant relationships with other variables, and is often referred to as the “least specific” or “unnecessary” dimension of burnout (Lee & Ashforth, 1996; Schaufeli, 2003). Professional inefficacy appears to develop parallel to exhaustion and cynicism, and originates from a lack of resources whilst exhaustion and cynicism emerge from work overload and social conflict (Maslach et al., 2001). Several authors argue that professional efficacy reflects a personality characteristic rather than a genuine burnout dimension (Cordes & Dougherty, 1993; Shirom, 1989).

Seiler and Pearson (1984-5) noted that the consequences of dysfunctional stress (burnout) include two forms of withdrawal: The employee may resign (physical withdrawal) or the employee may remain in employment but continue to do the bare minimum (psychological withdrawal). Maslach, Jackson, and Leiter (1996) hypothesised that burnout, as a result of job demands and lack of job resources, can lead to negative outcomes such as physical illness, staff turnover and absenteeism. Research has linked burnout to a variety of mental and physical health problems (Lee & Ashforth, 1990; Maslach, 1982), increased absenteeism (Leiter & Harvie, 1998), and decreased quality and quantity of work performance (Blix, Cruise, Mitchell, & Blix, 1994; Maslach & Jackson, 1984). Eventually, individuals may leave the job or profession as a culmination of burnout (Jackson & Simpson, 2001; Watts, Cox, Wright, Garrison, Herkimer, & Howze, 1991).

Empirical studies revealed that some individuals, in comparison with others, do not develop burnout regardless of high job demands and excessive working hours. To the contrary, they seem to find pleasure in working hard and dealing with job demands (Nelson & Simmons, 2003; Schaufeli & Bakker, 2001). This discovery saw the emergence of theoretical and empirical studies on the concept of engagement. Initially, engagement was regarded to be the direct opposite of burnout (Rothmann, 2002). However, Schaufeli, Salanova, González-Romà, and Bakker (2002) have operationalised engagement as a construct in its own right.

Research on engagement has adopted a positive psychology perspective that focuses on psychological health and well-being rather than psychological ill health, as is the case with burnout (Seligman & Csikszentmihalyi, 2000).

Schaufeli and Bakker (2002) define engagement as a persistent, positive, fulfilling work-related state of mind, characterised by vigour, dedication and absorption. It is not focused on a specific object, event, individual or behaviour (Schaufeli & Bakker, 2002). Vigour refers to high levels of energy and resilience, willingness to invest effort in one's work, and perseverance in the face of difficulties. Dedication refers to strong involvement in one's work accompanied by feelings of enthusiasm and significance, and a sense of pride and inspiration (Maslach et al., 2001). Absorption refers to a satisfactory state of complete emersion in one's work that is characterised by focused attention, time distortion, loss of self-consciousness, effortless concentration, absolute control, and intrinsic enjoyment (Csikszentmihalyi, 1990).

According to Schaufeli and Bakker (2004), burnout and engagement are indicators of employees' wellness. A theoretical analysis done by these authors identify two underlying dimensions of work wellness, namely: (1) activation, ranging from exhaustion to vigour, and (2) identification, ranging from cynicism to dedication. Theoretically speaking, burnout is thus characterised by a combination of exhaustion (low activation) and mental distance (poor identification), whereas engagement is characterised by vigour (high activation) and dedication (strong identification). Accordingly, vigour and dedication are considered to be direct opposites of exhaustion and mental distance respectively.

With the increased interest in positive psychology, burnout and work engagement should be integrated as one model (Rothmann, 2002). According to Maslach et al. (2001), the study of work-related experiences should include the entire continuum of work-related experiences, ranging from negative (burnout) to positive (work engagement). However, burnout and engagement are best measured with different instruments (Schaufeli, Salanova, et al., 2002). The Maslach Burnout Inventory-General Survey (MBI-GS) measures burnout across occupational settings whilst the Utrecht Work Engagement Scale (UWES) measures engagement more effectively (Schaufeli, Salanova, et al., 2002).

Job demands and resources

Several theories and models have been developed to explain the effects of job demands (e.g. work overload) and lack of resources (e.g. job control) on burnout. These include the Conservation of Resources (COR) theory (Hobfoll & Freedy, 1993; Lee & Ashforth, 1996), the Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and the Comprehensive Burnout and Engagement (COBE) model, an extension of the JD-R model with engagement, health impairment and organisational withdrawal as additional components (Schaufeli & Bakker, 2004). The theory underlying these models, proposes that burnout develops in response to excessive job demands and diminished job resources.

The COBE model assumes two job-related psychological processes, namely an energetic and a motivational process (Jackson, et al., in press). The energetic process links job demands with health problems via burnout. The motivational process links job resources with organisational outcomes via work engagement. Jackson, et al. (in press) report that the model has been confirmed in the Netherlands by Schaufeli and Bakker (2004) in an empirical study, with job demands being associated with exhaustion, and job resources with work engagement respectively. Burnout is mainly predicted by job demands and lack of resources, it is related to health problems and turnover intentions, and mediates the relationship between job demands and health problems. Engagement is exclusively predicted by availability of job resources, relates only to turnover intentions, and mediates the relationship between job resources and turnover intentions.

COR theory (Hobfoll & Freedy, 1993) suggests that burnout is likely to develop when valued resources are lost or threatened, or are inadequate to meet the demands. Major demands include role ambiguity, work pressure and workload. Major resources include control, participation in decision-making and job autonomy (Lee & Ashforth, 1996). According to Leiter (1993), demands and resources are related. A work environment which is overly demanding usually also offers insufficient resources.

The Job Demand-Control (DC) model developed by Karasek (1979) specifies two independent inputs which influence strain or stress: job demands and control of the work situation. Strain or stress refers to psychological stress such as time pressure and having too much work to do (Cooper & Payne, 1978). Job demands involve the organisation of work in

terms of employees' authority to make decisions about their own work activities and skill usage (decision authority or job decision latitude). According to the model job strain and related health problems occur in situations where high demands coincide with low control. The second hypothesis of the DC model is that high demand together with high decision latitude lead to positive learning of new behaviours, skills or procedures, and possibly improved health through long-term positive changes in coping abilities. The importance of job control as a health protecting factor has repeatedly been demonstrated (Landsbergis, Schnall, Warren, Pickering, & Schwartz, 1994).

The effect of control remains even after adjusting for the confounding effects of demographics, biological risk factors, health habits and psychosocial factors such as personality traits, negative life events, social support, job insecurity, and downsizing (Kivimaki, Vahtera, Thomson, Griffiths, Cox, & Pentti, 1997). According to Iacovides, Fountoulakis, Kaprinis, and Kaprinis (2003), inadequate control over one's work, frustrated hopes and the feeling of losing meaning in life seems to be important causes of burnout. A large number of studies have showed that job control, and sometimes job demands, are critical components in a healthy work environment as indicated by various health outcomes (Elovainio, Forma, Kivimaki, Sinervo, Sutinen, & Laine, 2005).

Taris, Schreurs, and Schaufeli (1999) reported that a strong correlation exists between burnout and job stress (situational or organisational factors). Schaufeli & Enzmann (1998) categorise organisational stressors as job demands and lack of job resources. Job demands refer to the things that have to be done or activities to be performed and include the physical, social or organisational aspects of the job that require sustained physical and mental effort (Demerouti et al., 2001). Job demands include situational factors such as role ambiguity, role conflict, stressful events, heavy workload and work pressure, pressure to make critical and immediate decisions, being assigned more responsibility and having to meet deadlines (Rothmann, 2002; Schaufeli & Enzmann, 1998).

Many burnout researchers have studied quantitative job demands (e.g. too much work for the available time). The findings generally indicate that burnout is a response to overload. Heavy workload and time pressure are strongly and consistently related to burnout, particularly the exhaustion dimension (Maslach et al., 2001). Studies of qualitative job demands have focused primarily on role conflict and role ambiguity, both of which consistently show a moderate to

high correlation with burnout. Role conflict occurs when conflicting demands at the job have to be met, whereas role ambiguity occurs when there is a lack of adequate information to do the job well (Maslach et al., 2001).

Job resources refer to all aspects (physical, psychological, social and/or organisational) that reduce job demands, facilitate achievement of work goals, and/or stimulate individual growth (Demerouti et al., 2001; Rothmann, 2002). Job resources include social support (supervisory and collegial), job enhancement opportunities in the form of increased control and autonomy, participation in decision-making, reinforcement contingencies (Burke & Richardsen, 1993) as well as recognition, opportunities for advancement and rewards (Rothmann, 2002).

Burnout researchers have also investigated the absence of job resources. Consistent and strong evidence exists of a correlation between lack of social support and burnout, with lack of supervisory support being more important than support from co-workers (Maher, 1983; Maslach et al., 2001; Peeters & Le Blanc, 2001). Correlations have also been confirmed between lack of feedback and all three dimensions of burnout, and between lack of autonomy and burnout. Verhage and Jordaan (2001) have found that burnout is caused by poor incentives, lack of recognition and inadequate professional support, among other things. People who enjoy little participation in decision-making seem to experience higher levels of burnout (Maslach et al., 2001). Schaufeli and Bakker (2002) report that job demands, including physical demands, time pressure and shift work, are associated with exhaustion, whereas insufficient job resources, e.g. feedback, control, participative decision-making and supervisory support, are associated with disengagement.

Based on the above discussion, the following hypotheses are formulated:

Hypothesis 1: Burnout is predicted by job demands (i.e. work overload) and a lack of job resources.

Hypothesis 2: Work engagement (vigour and dedication) is predicted by job resources.

Ill health

Research evidence consistently links occupational stress with physical and psychological ill health. According to Maslach et al. (2001), perceived stressors lead to emotional reactions that, in turn, lead to ill health. Physical ill health manifests in symptoms such as migraine, heart disease, ulcers, allergies, and back problems. Psychological ill health manifests in stress-induced symptoms such as depression, mood swings, irritability, etcetera, and behaviours such as a tendency to smoke or drink more than usual, loss of sense of humour, etcetera. Both physical and psychological ill health have been associated with stress and burnout (Ho, 1997; Ryff & Singer, 1998; Sethi & Schuler, 1990).

Based on the above discussion, the following hypothesis is formulated:

Hypothesis 3: Exhaustion and cynicism predict physical and psychological ill health.

Organisational commitment

Siu (2002) defines organisational commitment as the relative strength of an individual's identification with and involvement in an organisation. Similarly, Maslach et al. (2001) define it as an employee's allegiance to the organisation that provides employment. Organisational commitment refers to employee loyalty, employee desire to remain employed by the organisation and to continue actively participating in it (Newstrom & Davis, 1997). From these definitions, organisational commitment can be described as an employee's psychological attachment to the organisation.

Cartwright and Cooper (2002) identified two aspects of organisational commitment, namely commitment of the organisation towards the employee (i.e. the degree to which employees feel trusted, valued and respected by the organisation) and commitment of the employee towards the organisation (i.e. the extent to which employees are loyal and dedicated to the organisation).

Organisational commitment can be relatively strong because it is too costly for an individual to leave the organisation or because the individual shares goals with the organisation and wishes to maintain his or her membership (Blau & Boal, 1987). It interacts with sources of

stress at work to determine the outcomes thereof. Organisational commitment relates positively with desirable work outcomes, including employee job satisfaction, motivation and performance, and negatively with absenteeism and turnover (Mathieu & Zajac, 1990). Organisational commitment seems to diminish in the presence of burnout (Leiter & Maslach, 1988). Organisational commitment and work engagement are related concepts but not identical. Organisational commitment focuses on the organisation whereas engagement concerns the work itself (Maslach et al., 2001).

Work engagement may be regarded as an antecedent to organisational commitment in that individuals who experience high levels of work engagement identify with their organisations (Jackson et al., in press). Taris, et al., (1999) have interviewed engaged workers and concluded that their values are aligned with those of their organisations. Aktouf (1992) has confirmed that disengagement leads to lack of organisational commitment.

Based on the above discussion, the following hypothesis is formulated:

Hypothesis 4: Vigour and dedication predict organisational commitment.

METHOD

Research design

A cross-sectional survey design, by means of which a sample is drawn from a population at a particular point in time (Shaughnessy & Zechmeister, 1997). was used to achieve the research objectives.

Participants

Of the study population ($N = 310$) a sample of 202 management level employees across the different operational units of a platinum mine in the North-West Province was taken. The characteristics of the participants are shown in Table 1.

Table 1

Characteristics of the Participants (N = 202)

Variable	Category	Percentage
Age (years)	25-30	7,90
	31-40	32,20
	41-50	45,00
	>51	14,40
	Missing values	0,50
Language	Afrikaans	61,90
	English	25,70
	Setswana	4,00
	Other African languages	8,50
Gender	Male	88,60
	Female	10,40
	Missing values	1,00
Race	White	84,70
	Black	11,90
	Other	3,00
	Missing values	0,50
Education	Grade 12 or below	22,30
	Technical College Certificate	11,40
	Technikon Diploma	26,20
	Degree	14,40
	Postgraduate qualification	22,80
	Missing values	3,00
Management Level/Job Grading	D-level	67,40
	E-level	24,30
	F-level (include executive team)	6,50
	Missing values	2,00
Years in current job	<1	20,30
	1-5	27,30
	5-10	26,70
	>10	25,70
Years in service	<1	5,00
	1-5	25,00
	5-10	30,70
	>10	38,10
Health	Physical health	8,90
	Psychological health	87,10
	Missing values	4,00

The sample consisted mainly of Afrikaans-speaking (61,90%) and of English-speaking participants (25,70%). They were mostly within the age group 41 to 50 (45%), mostly white (84,70%) and mostly men (88,60%). Most are employed at the first level of management, namely D-Level Paterson Grading (67,40%) and most have attained a technikon diploma (26,20%).

Measuring instruments

The follow instruments were used in this study:

The *Maslach Burnout Inventory-General Survey* (MBI-GS) (Maslach et al., 1996) was used to measure burnout. The MBI-GS consists of 16 items that produce scores on: Exhaustion (five items, e.g. "I feel used up at the end of the workday"), Cynicism (five items, e.g. "I have become less enthusiastic about my work") and Professional Efficacy (six items, e.g. "In my opinion, I am good at my job") respectively. Together, the subscales provide a three-dimensional perspective of burnout that relates to the broader job and not only to the personal relationships that are part of the job (Maslach et al., 2001). Schaufeli, Van Diederendonck, and Van Gorp (1996) reported Cronbach coefficient alphas varying 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). The items are scored on a 7-point frequency rating scale ranging from 0 (*never*) to 6 (*always/everyday*). In South African studies, Cronbach alpha coefficients ranged from 0,86 to 0,88 for Exhaustion, and 0,79 to 0,80 for Cynicism (Coetzer & Rothmann, 2004; Storm & Rothmann, 2003a).

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli, Salanova, et al., 2002) was applied to measure participants' levels of engagement. The UWES consists of 17 items that produce scores on: Vigour (5 items, e.g. "I am bursting with energy in my work"), Dedication (5 items, e.g. "I find my work full of meaning and purpose") and Absorption (7 items, e.g. "I get carried away by my work"). Items are scored on a 7-point scale ranging from 0 (*never*) to 6 (*always/everyday*). The alpha coefficients for the three subscales varied between 0,68 and 0,91 (Schaufeli, Salanova, et al., 2002). Alpha coefficients varied between 0,78 and 0,89 for the three subscales by eliminating a few items without substantially decreasing the scale's

internal consistency. Storm and Rothmann (2003b) obtained alpha coefficients of 0,78 for Vigour, 0,89 for Dedication and 0,78 for Absorption in a sample of 2396 SAPS members.

The *Job Demands-Resources Scale* (JDRS) was developed for the organisation through focus group interviews. The contextualised questionnaire consists of 67 items and measures job demands and job resources for employees. Questions are rated on a 4-point scale ranging from 1 (*always*) to 4 (*never*). The dimensions of the JDRS include pace, amount and variety of work, physical, mental and emotional workload, opportunities to learn, work independence, relationships with colleagues and immediate supervisor, ambiguities of work, information, communications, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities.

The *Health subscale of the ASSET* (an Organisational Stress Screening Tool), which was developed by Cartwright and Cooper (2002), was used to assess the respondents' level of health. It consists of 19 items arranged on two subscales: Physical health and Psychological well-being. All items on the Physical health subscale relate to physical symptoms of stress. This subscale provides insight into physical health rather than a clinical diagnosis. Examples of physical symptoms mentioned in the questionnaire include a change in eating habits, indigestion or heartburn, insomnia, panic or anxiety attacks, etcetera. The items on the Psychological well-being subscale include symptoms of stress-induced mental ill health. Examples of psychological symptoms mentioned in the questionnaire include tendencies to smoke or drink more than usual, loss of sense of humour, constant irritability or tiredness, mood swings, etcetera. This subscale gives an insight into psychological health, also not an in-depth clinical diagnosis. Johnson and Cooper (2003) found Guttman split-half reliability coefficients of 0,74 for Physical Health and 0,91 for Psychological Health respectively, and that this questionnaire has good convergent validity with an existing measure of psychiatric disorders, the General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988).

The *Organisation Commitment Subscale of the ASSET* (Cartwright & Cooper, 2002) was used to measure organisational commitment. This subscale consists of 9 items divided into two scales, namely Commitment of the organisation to the employee, and Commitment of the employee to the organisation. This questionnaire reflects the non-economic reciprocal obligations that exist between employer and employee (Cartwright & Cooper, 2002). The items are scored on a scale varying from 1 (*strongly disagree*) to 6 (*strongly agree*). Johnson

and Cooper (2003) found a Guttman split-half reliability coefficient of 0,74 for the scale. Commitment of the organisation to the employee is a five-item factor that measures the extent to which individuals feel that their organisation is committed to them and that it is worth “going the extra mile” for their organisation. It includes items such as: “I feel valued and trusted by my organisation”. The Cronbach alpha value is 0,84. Commitment of the employee to the organisation is a four-item factor that measures employee commitment towards the organisation as demonstrated by their willingness to do their jobs as best they can, loyalty and dedication to the organisation. It includes items such as: “I feel that it is worthwhile to work hard for this organisation”. The Cronbach alpha reliability coefficient is 0,77.

Statistical analysis

The statistical analysis was carried out with the SPSS Programme (SPSS Inc., 2003) and the Amos Programme (Arbuckle, 2003). Cronbach alpha coefficients and factor analysis were used to assess the reliability and validity of the measuring instruments (Clark & Watson, 1995). Descriptive statistics (e.g. means and standard deviations) were used to analyse the data. Pearson correlation coefficients were computed to determine the relationships between variables. A cut-off point of $p \leq 0,05$ was set for the statistical significance of the results. Effect sizes (Cohen, 1988) were used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

Exploratory factor analyses were carried out to investigate the construct validity of the Health and Commitment Scales, as well as the JDRS following a two-step procedure. First, a simple principal components analysis was conducted on the constructs that form part of the measurement model, including burnout and work engagement, and ill health. The eigen values and scree plots were studied to determine the number of factors. Second, a principal components analysis with a direct oblimin rotation was conducted if factors were related, and a principal component analysis with a varimax rotation was used if the obtained factors were not related (Tabachnick & Fidell, 2001).

Structural equation modelling was used to assess the factorial validity of the measuring instruments of burnout, work engagement, and organisational commitment. Among the fit

indices produced by the AMOS Programme is the Chi-square statistic (χ^2), which is the test of absolute fit of the model. However, the χ^2 value is sensitive to sample size. Therefore additional goodness-of-fit indices, such as the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Means Square Error of Approximation (RMSEA) were used in this study.

Standard multiple regression analysis was used to determine which combination of job demands and job resources best predict burnout and work engagement. Furthermore, standard multiple regression analyses were also used to assess whether work wellness (burnout and work engagement) predict ill health and organisational commitment (Tabachnick & Fidell, 2001).

RESULTS

Structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1999) were used to test the factorial models of the MBI-GS, and the UWES. Data analysis was conducted in two consecutive steps. Firstly, quick overviews of the model fits were done by inspecting the overall χ^2 values, together with the degrees of freedom and probability values. Several goodness-of-fit statistics (GFI, AGFI, NFI, TLI, CFI and RMSEA) were used to globally assess the model fits. Secondly, given findings of poorly fitting initially hypothesised models, the focus shifted from model testing to model development (exploratory factor analysis). Exploratory analyses were done for the JDRS as well as the Health and Organisational Subscales of the ASSET. To fit revised, re-specified models to the data, possible misspecifications, as suggested by the so-called modification indices, were looked for.

Hypothesised model: MBI-GS

The full hypothesised three-factor model consisting of all 16 items was tested. Table 2 presents fit statistics for the test of the original and other models.

Table 2

The Goodness-of-fit Statistics for the Hypothesised MBI-GS Model

Model	χ^2	χ^2/df	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
Model 1	652,48	6,27	0,61	0,49	0,56	0,60	0,54	0,60	0,16
Model 2	320,63	3,11	0,81	0,75	0,79	0,84	0,82	0,84	0,10
Model 3	194,72	1,93	0,90	0,86	0,87	0,93	0,92	0,93	0,07
Model 4	182,26	2,10	0,90	0,86	0,88	0,93	0,92	0,93	0,07
Model 5	172,74	2,01	0,91	0,87	0,88	0,94	0,92	0,94	0,07
Model 6	165,25	1,94	0,91	0,87	0,89	0,94	0,93	0,94	0,07

Table 2 indicates that the statistically significant χ^2 value of 652,48 ($df = 104$; $p = 0,00$) revealed a relatively poor overall fit of the hypothesised 1-factor MBI model. The same applies to the hypothesised 2-factor MBI model ($\chi^2 = 320,63$). Seen from a practical perspective, both Models 1 and 2 were also not good. The NFI, TLI and CFI values lower than 0,95, and RMSEA values higher than 0,05 are indicative of failure to confirm to hypothesised models. It is thus apparent that some modification in specification is needed in order to determine a model that fits the sample data better.

To pinpoint possible areas of misfit, modification indices (MI) were examined. Looking at the regression weights, one parameter which represents the cross-loading of Item 13 indicated a considerably lower regression weight compared to other MBI items.

Post hoc analysis

Based on the regression weights and standardised residual covariances, the hypothesised 3-factor model labelled here as Model 3 was re-estimated with Item 13 removed. With Model 4 (Item 13 removed), the data fit improved (χ^2 improved from 194,72 to 182,26). In Model 5 the errors of item pair 1 and 2 ($MI = 8,54$) were allowed to correlate. In the final model, which is labelled Model 6, the errors of Items 11 and 12 ($MI = 7,30$) were further allowed to correlate, which resulted in a better Chi-square value of 165,25. The subsequent analysis is therefore based on the 15-item revision (Model 6), including both error correlations. After testing Model 6, the χ^2 value of 165,25 ($df = 85$; $p < 0,0001$) and other indices ($CFI > 0,90$; $\chi^2/df = 1,94$) improved, compared to those in the other models. Although the χ^2 value of

165.25 is still high, it is considerably lower than those in the other models. The other fit statistics indicate a good fit for the re-specified model.

Similar procedures were followed to determine the fit statistics for the UWES.

Table 3

The Goodness-of-fit Statistics for the Hypothesised UWES Model

Model	χ^2	χ^2/df	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
Model 1	70,05	2,00	0,93	0,90	0,93	0,97	0,96	0,97	0,07
Model 2	53,24	1,57	0,95	0,92	0,95	0,98	0,98	0,98	0,05

Both one-factor and two-factor models were tested. Table 3 shows that a two-factor model labelled here as Model 2, better fits the data set with a lower statistically significant χ^2 value of 53,24 ($df = 34$; $p = 0,02$), and NFI, TLI and CFI values all higher than 0,95, and RMSEA value of 0.05 lower than the RMSEA value of 0,07 for Model 1. In order to determine a model that better represents the sample data, modification indices (MI) were examined to identify possible areas of misfit. Item 15 was retained in spite of a relatively low standardised regression weight of 0,38.

Post hoc analysis

As with other South African studies, the items on the Absorption factor were problematic (due to either low internal consistencies or poor loadings) and were therefore excluded from Model 2 (Rothmann, 2005). This improved the χ^2 value to 53.24 ($df = 34$; $p = 0,02$). The subsequent analysis is therefore based on a 2-factor model of the UWES, with Items 1, 4, 8, 12 and 15 loading on Vigour, and Items 2, 5, 7, 10 and 13 loading on Dedication.

A simple principal component analysis which was conducted on the nine items of the Organisational Commitment Subscale of the ASSET showed two factors, which explained 71,13% of the total variance. The scree plot also confirmed two extracted factors. Next, a principal component analysis with a direct oblimin rotation was conducted on the items. Two factors, namely *Affective Commitment* and *Behavioural Commitment* were extracted. The two factors were relatively strongly related ($r = 0,53$).

A simple component analysis which was conducted on the 19 items of the Health Subscale showed that four factors, which explained 60,32% of the total variance could be extracted. However, the scree plot suggested two factors. Next, a principal component analysis with a direct oblimin rotation was conducted on the items. Two related factors ($r = 0,61$), namely *Physical Ill health* and *Psychological Unwell-being* were extracted.

A simple component analysis that was conducted on the 67 items of the JDRS resulted in five factors, which explained 42,16% of the variance. Next, a principal component analysis with a varimax rotation was conducted on the items. The results of the factor analysis on the JDRS are shown in Table 4. The loading of variables on factors is shown. Labels for each factor are suggested in the footnote.

Table 4

Factor Loadings for Principal Factor Extraction and Varimax Rotation on JDRS Items

Item	F ₁	F ₂	F ₃	F ₄	F ₅
I feel that my manager appreciates my work	0,79	0,00	0,00	0,00	0,00
I can discuss work problems with my manager	0,77	0,00	0,00	0,00	0,00
My manager informs me about how well I am doing my work	0,75	0,00	0,00	0,00	0,00
I get on well with my manager	0,74	0,00	0,00	0,00	0,00
The department's decision-making process is clear to me	0,73	0,00	0,00	0,00	0,00
I can count on my manager when I come across difficulties in my work	0,73	0,00	0,00	0,00	0,00
I know exactly what my manager thinks of my performance	0,72	0,00	0,00	0,00	0,00
I am kept adequately up-to-date about important issues in the department	0,71	0,00	0,00	0,00	0,00
I can participate in decisions about the nature of my work	0,66	0,00	0,00	0,00	0,00
I receive information on the results of my work	0,64	0,00	0,00	0,00	0,00
I receive information on the purpose of my work	0,64	0,00	0,00	0,00	0,00
I know exactly what I am responsible for	0,58	0,00	0,00	0,00	0,00
I have a direct influence on the department's decisions	0,55	0,00	0,00	0,00	0,00
I receive up-to-date information about the changes and transformation in the company	0,54	0,00	0,00	0,00	0,00
It is clear to me who I should address within the department about specific problems	0,54	0,00	0,00	0,00	0,00
I know exactly what is expected of me in my work	0,54	0,00	0,00	0,00	0,00
I am allowed to influence the planning of my work activities	0,52	0,00	0,00	0,00	0,00
I can participate in the decision about when a job must be completed	0,50	0,00	0,00	0,00	0,00
My job offers me the opportunity of independent thought and action	0,47	0,00	0,00	0,00	0,00
I have freedom in carrying out my work activities	0,47	0,00	0,00	0,00	0,00
I clearly understand my role in the change process of the company	0,45	0,00	0,00	0,00	0,00
I feel that I can achieve something in my work	0,43	0,00	0,00	0,00	0,00
I have contact with colleagues as part of my work	0,36	0,00	0,00	0,00	0,00
I have to give attention to many things at the same time	0,00	0,69	0,00	0,00	0,00
I work under time pressure	0,00	0,66	0,00	0,00	0,00
I have too much work to do	0,00	0,60	0,00	0,00	0,00
I have to remember many things in my work	0,00	0,55	0,00	0,00	0,00
I receive an overload of information in my work	0,00	0,54	0,00	0,00	0,00
Different people expect different things of me in my work	0,00	0,53	0,00	0,00	0,00
In my job I am confronted with things that affect me personally	0,00	0,50	0,00	0,00	0,00
My work requires continuous attention from me	0,00	0,48	0,00	0,00	0,00
In my work I have to deal with power struggles between people from different groups	0,00	0,47	0,00	0,00	0,00
My work puts me in emotionally upsetting situations	0,00	0,47	0,00	0,00	0,00
I have contact with difficult people in my work	0,00	0,44	0,00	0,00	0,00
I have variety in my work	0,00	0,41	0,00	0,00	0,00
My work uses my skills and capacities to their full potential	0,00	0,39	0,00	0,00	0,00
My responsibilities have increased beyond my area of technical expertise	0,00	0,38	0,00	0,00	0,00
I have to solve my subordinates' personal problems	0,00	0,00	0,00	0,00	0,00
I am able to effectively use technology in my workplace	0,00	0,00	0,68	0,00	0,00
I have people at the right time to get the work done	0,00	0,00	0,66	0,00	0,00

Table 4

Factor Loadings for Principal Factor Extraction and Varimax Rotation on JDRS Items (continued)

Item	F1	F2	F3	F4	F5
My subordinates are skilled to get the work done	0,00	0,00	0,60	0,00	0,00
If necessary I can ask my colleagues for help	0,00	0,00	0,57	0,00	0,00
I have the necessary equipment to get my work done	0,00	0,00	0,52	0,00	0,00
I can count on my colleagues for help when I come across difficulties in my work	0,00	0,00	0,51	0,00	0,00
My work objectives can be achieved within the approved budget	0,00	0,00	0,49	0,00	0,00
I get on well with my colleagues	0,00	0,00	0,46	0,00	0,00
I have contact with colleagues during working hours	0,00	0,00	0,39	0,00	0,00
I am able to keep up with the pace at which new technology is introduced in my work	0,00	0,00	0,35	0,00	0,00
My job offers me the possibility to progress financially	0,00	0,00	0,00	0,68	0,00
The company pays good salaries	0,00	0,00	0,00	0,66	0,00
I can live comfortably on my pay	0,00	0,00	0,00	0,66	0,00
I think I am paid enough for the work I do	0,00	0,00	0,00	0,64	0,00
My budget can be changed to accommodate unforeseen circumstances	0,00	0,00	0,00	0,51	0,00
I have opportunities to be promoted	0,00	0,00	0,00	0,50	0,00
My job offers me opportunities for personal growth and development	0,00	0,00	0,00	0,48	0,00
My company gives me opportunities to attend training courses	0,00	0,00	0,00	0,42	0,00
I can influence the budget allocation for my work	0,00	0,00	0,00	0,41	0,00
I need to be more secure that I will still be on the same job level in 6 months' time	0,00	0,00	0,00	0,00	0,83
I need to be more secure that I will keep my current job in the next year	0,00	0,00	0,00	0,00	0,83
I need to be more secure that I will still be working for the company in 6 months' time	0,00	0,00	0,00	0,00	0,83
I need to be more secure about what my future role or job in the company will be	0,00	0,00	0,00	0,00	0,67

Factor labels: F₁: Organisational Support, F₂: Workload, F₃: Resources, F₄: Advancement Opportunities, F₅: Job Security

The five factors that were extracted accounted for 42,16% of the total variance in the data. With a cut-off of 0,35 for inclusion of a variable in interpretation of a factor, 7 of the 67 items did not load on the five factors. Items 42, 43, 44 and 61 did not load strongly (< 0,35) on any of the factors and were removed from the questionnaire. Items 4, 21 and 34 could not be grouped into a meaningful factor and were also removed from the questionnaire.

The first factor was labelled *Organisational Support*. Items loading on this factor relate to managerial support, communication, role clarity, and the extent of work autonomy. The second factor was labelled *Workload* and encompasses physical, cognitive and emotional load. Items loading on this factor relate to time pressure, attentiveness to many things at the same time, too much work to do, and dealing with power struggles. The third factor was

labelled *Resources* and involves a variety of resources including collegial support, physical resources such as staff and equipment, as well as financial resources. The fourth factor was labelled *Advancement Opportunities*. Items loading on this factor relate to growth and development, promotion and financial progress. The fifth factor was labelled *Job Security*. This factor reflects respondents' indications about being secure in keeping their current jobs in the next year, and about keeping their current job levels in the next year.

ⁿ

Table 5 reports the descriptive statistics. Cronbach alpha coefficients and product-moment correlation coefficients of the measuring instruments, namely the MBI-GS, UWES, JDRS, the Health subscales of the ASSET and the Organisational Commitment subscales of the ASSET.

Compared to the guideline of 0.70 provided by Nunnally and Bernstein (1994) for Cronbach coefficient alpha levels, Table 5 shows acceptable Cronbach alpha coefficients varying from 0.71 to 0.94 for all the scales. In conclusion, it can be said that all the instruments showed sufficient reliability to be used for the subsequent analysis.

Inspection of Table 5 illustrates that Exhaustion is practically significantly related to Physical Ill health (medium effect) and Psychological Ill health (large effect). Vigour, and Dedication are also practically significantly related to Physical and Psychological Ill health (all medium effects). Cynicism is practically significantly related to Psychological Ill health. Affective Commitment is positively related to Vigour and Dedication and negatively related to Cynicism (all medium effects).

Exhaustion is practically significantly positively related to Workload and negatively related to Organisational Support (both medium effects). Cynicism is practically significantly negatively related to Organisational Support and Advancement (both medium effects). Vigour (medium effect) and Dedication (large effect) are practically significantly related to Organisational Support.

Table 5

Descriptive Statistics, Alpha Coefficients, and Product-Moment Correlation Coefficients of the Scales

Item	Mean	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Exhaustion	13.44	5.84	0.84	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Cynicism	7.80	5.25	0.83	0.54**	-	-	-	-	-	-	-	-	-	-	-	-
3. Vigour	21.13	4.77	0.78	-0.48**	-0.52**	-	-	-	-	-	-	-	-	-	-	-
4. Dedication	23.10	5.12	0.88	-0.37**	-0.59**	0.76**	-	-	-	-	-	-	-	-	-	-
6. Organisational Support	46.33	12.41	0.94	-0.30*	-0.42**	0.43**	0.55**	-	-	-	-	-	-	-	-	-
7. Workload	27.77	5.38	0.80	0.39*	0.05	0.11	0.23*	0.08	-	-	-	-	-	-	-	-
8. Resources	19.96	4.49	0.79	-0.28*	-0.20*	0.25*	0.29*	0.54**	-0.03	-	-	-	-	-	-	-
9. Advancement	22.06	4.80	0.79	-0.29*	-0.36**	0.29*	0.30*	-0.49**	0.02	-0.29*	-	-	-	-	-	-
10. Job Security	9.25	3.57	0.90	-0.25*	-0.22*	0.14*	0.09	-0.11	0.11	0.08	-0.11	-	-	-	-	-
11. Physical ill health	16.50	5.09	0.80	0.48*	0.22*	-0.33**	-0.30*	0.22*	-0.14*	0.16*	0.16*	0.07	-0.14*	-	-	-
12. Psychological ill health	20.91	6.38	0.91	0.57**	0.37**	-0.31**	-0.35**	0.30*	-0.14*	0.16*	0.21*	-0.24*	0.72**	-	-	-
13. Affective Commitment	14.75	2.38	0.92	-0.19*	-0.36**	0.44*	0.45**	-0.30*	-0.12	-0.15*	-0.26*	0.17*	-0.03	-0.15*	-	-
14. Behavioural Commitment	27.57	5.95	0.74	-0.33**	-0.53**	0.48*	0.56**	-0.54**	-0.03	-0.22*	-0.45**	0.15*	-0.20*	-0.29*	0.57**	-

* Statistically significant: $p \leq 0.01$
 + Practically significant: $r > 0.30$ (medium effect)
 ++ Practically significant: $r > 0.50$ (large effect)

Next, multiple regression analyses were carried out with exhaustion and cynicism (as measured by the MBI-GS), vigour and dedication (as measured by the UWES) as dependent variables, and job demands and resources (as measured by the JD-RS) as independent variables (see Table 6). The multiple regression analyses were carried out by entering the independent variables in blocks in two steps. In the case of exhaustion, overload and job insecurity (as demands) were entered in the first step, while organisational support, resources and advancement (as job resources) were entered in the second step. The change in R^2 between the two steps is indicated in the table.

Table 6

Multiple Regression Analyses with Exhaustion, Cynicism, Vigour and Dedication as Dependent Variables

Model	Non-standardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
	B	SE							
Exhaustion									
(Constant)	16,30	2,73		5,97	0,00	19,43*	0,58	0,33	0,13*
Workload	0,41	0,06	0,38	6,45	0,00*				
Job security	0,32	0,10	0,20	3,24	0,00*				
Organisational Support	-0,07	0,04	-0,14	-1,81	0,07				
Resources	-0,24	0,09	-0,19	-2,64	0,01*				
Advancement Opportunities	-0,17	0,08	-0,14	-2,06	0,04				
Cynicism									
(Constant)	0,87	2,62		0,33	0,74	12,35*	0,49	0,24	0,03
Organisational support	0,14	0,04	0,33	3,97	0,00*				
Resources	-0,02	0,09	-0,02	-0,22	0,83				
Advancement opportunities	0,21	0,08	0,19	2,62	0,01*				
Workload	-0,05	0,06	-0,06	-0,87	0,39				
Job security	-0,23	0,10	-0,16	-2,43	0,02				
Vigour									
(Constant)	31,38	2,43		12,94	0,00	10,34*	0,46	0,21	0,02
Organisational support	-0,13	0,03	-0,35	-3,97	0,00*				
Resources	-0,05	0,08	-0,04	-0,57	0,57				
Advancement opportunities	-0,10	0,07	-0,10	-1,42	0,16				
Workload	-0,09	0,06	-0,10	-1,55	0,12				
Job security	0,14	0,09	0,11	1,63	0,11				
Dedication									
(Constant)	38,56	2,38		16,23	0,00	20,48*	0,59	0,34	0,04*
Organisational support	-0,21	0,03	-0,51	-6,61	0,00*				
Resources	0,00	0,08	0,00	0,03	0,97				
Advancement opportunities	-0,05	0,07	-0,05	-0,75	0,46				
Workload	-0,19	0,06	-0,20	-3,43	0,00*				
Job security	0,07	0,09	0,05	0,82	0,42				

* $p < 0,01$

Table 6 shows that 33% of the variance in exhaustion (as measured by the MBI-GS) is predicted by workload, job insecurity and lack of resources ($F = 19,43, p \leq 0,01$). Adding the three job resources to the multiple regression significantly increased the R^2 -value from 0,19 to 0,31. Furthermore, 24% of the variance in cynicism is predicted by a lack of organisational support and poor advancement opportunities ($F = 17,68, p \leq 0,01$). Vigour was best predicted

by best predicted by organisational support (21% of the variance) and dedication by both organisational support and workload (34% of the variance).

Next, multiple regression analyses were carried out with physical and psychological ill health (as measured by the Health Scales) as dependent variables and exhaustion, cynicism, vigour and dedication as independent variables (see Table 7).

Table 7

Multiple Regression Analyses with Ill health as Dependent Variable

Model	Non-standardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
	B	SE	Beta						
Physical Ill health as Dependent Variable									
(Constant)	17.67	2.45		7.21	0.00	17.53*	0.51	0.26	0.03
Exhaustion	0.42	0.07	0.48	6.27	0.00*				
Cynicism	-0.17	0.08	-0.17	-2.08	0.04				
Vigour	-0.05	0.11	-0.04	-0.43	0.67				
Dedication	-0.19	0.10	-0.20	-1.94	0.05				
Psychological Ill health as Dependent Variable									
(Constant)	16.342	2.88		5.68	0.00	27.10*	0.60	0.36	0.02
Exhaustion	0.60	0.08	0.55	7.65	0.00*				
Cynicism	-0.00	0.10	-0.00	-0.01	0.99				
Vigour	0.19	0.13	0.14	1.51	0.13				
Dedication	-0.32	0.12	-0.26	-2.72	0.01*				

**p* < 0.01

Table 7 shows that physical ill health is best predicted by exhaustion. Exhaustion explained 26% of the variance in physical health ($F = 29,51$, $p < 0,01$). Exhaustion and Low dedication predicted 36% of the variance in psychological unwell-being ($F = 27,10$, $p < 0,01$).

The results of a multiple regression analysis with organisational commitment (as measured by the Commitment Scale) as dependent variable and exhaustion and cynicism (as measured by the MBI-GS) and vigour and dedication (as measured by the UWES) as independent variables are reported in Table 8.

Table 8

Multiple Regression Analyses with Organisational Commitment as Dependent Variable

Model	Non-standardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
	B	SE	Beta						
Affective Commitment as Dependent Variable									
(Constant)	15,97	0,40		40,25	0,00	15,06*	0,36	0,13	0,13
Exhaustion	0,01	0,03	0,02	0,20	0,84				
Cynicism	-0,17	0,04	-0,37	-4,71	0,00*				
(Constant)	10,08	1,16		8,66	0,00	15,72*	0,40	0,24	0,11
Exhaustion	0,04	0,03	0,10	1,25	0,21				
Cynicism	-0,08	0,04	-0,17	-2,00	0,05				
Vigour	0,13	0,05	0,25	2,50	0,01*				
Dedication	0,09	0,05	0,19	1,89	0,06				
Behavioural Commitment as Dependent Variable									
(Constant)	32,82	0,90		36,55	0,00	40,17*	0,54	0,29	0,29
Exhaustion	-0,06	0,07	-0,06	-0,85	0,40				
Cynicism	-0,57	0,08	-0,50	-7,02	0,00*				
(Constant)	20,04	2,63		7,62	0,00	30,02*	0,62	0,38	0,09
Exhaustion	-0,02	0,07	-0,02	-0,30	0,77				
Cynicism	-0,34	0,09	-0,30	3,87	0,00*				
Vigour	0,08	0,11	0,06	0,69	0,49				
Dedication	0,38	0,11	0,33	3,53	0,00*				

**p* < 0,01

Table 8 reveals that vigour accounted for 24% of the variance in affective commitment. With the addition of vigour and dedication to the regression, the *R*² value increased significantly from 0,13 to 0,24. Cynicism and dedication accounted for 38% of the variance in behavioural commitment (*F* = 30,02, *p* < 0,01). Adding vigour and dedication to the multiple regression significantly increased the *R*²-value from 0,29 to 0,38.

DISCUSSION

This study set out to investigate the relationships between job demands, job resources, burnout, engagement, and organisational commitment at a platinum mine in the North-West Province.

In support of the COBE model (Schaufeli & Bakker, 2004), the Pearson correlation analysis confirmed that burnout (consisting of exhaustion and cynicism) was negatively related to engagement (consisting of vigour and dedication). Low levels of burnout were related to high levels of engagement, i.e. high levels of energy related to high levels of identification, confirming the findings of Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002).

Exhaustion was positively related to job demands because of workload (which encompassed physical, emotional and cognitive workload) and negatively to job resources because of insufficient organisational support (which focused mainly on management support, communication, performance feedback, participative decision-making, work autonomy and role clarity). Maslach et al. (2001) found strong correlations between job demands (heavy workload and time pressure) and exhaustion. The findings of this study confirmed the theory underlying the JD-R model (Demerouti et al., 2001) that job demands are primarily related to exhaustion.

Cynicism correlated negatively with job resources because of lack of organisational support and advancement opportunities (which included growth, development and promotional opportunities). Barkhuizen (2004) reported similar findings. Both burnout dimensions were negatively related to organisational commitment, i.e. turnover intentions, and positively related to both physical and psychological ill health. Barkhuizen (2004) also reported exhaustion to be related to ill health (physical and psychological). Research has linked burnout with various physical and psychological health problems (Lee & Ashforth, 1990; Maslach, 1982). Jonker (2004), Maslach (1998) and Wiese, Rothmann, and Storm (2003) found a strong correlation between exhaustion and high job demands. Kleyn, Rothmann, Louw, and Makgala (2003) as well as Storm and Rothmann (2003b) confirmed the association between exhaustion and lack of job resources.

Regarding the positive outcomes of wellness, vigour and dedication were positively related to job resources because of organisational support and advancement opportunities, negatively to ill health (physical and psychological) and positively to organisational commitment (affective and behavioural). Coetzer and Rothmann (2004) found that job demands and a lack of job resources increased levels of burnout, while availability of resources increased levels of engagement. This study further confirmed the theory of the JD-R model (Demerouti et al., 2001) that lack of job resources are related primarily to disengagement.

The results of the multiple regression analyses also supported the underlying theory of the COBE model and confirmed that burnout is predicted by job demands (workload and job insecurity) and lack of job resources (insufficient organisational support and advancement opportunities) whereas engagement is predicted by availability of job resources (organisational support). Similarly, Storm and Rothmann (2003b) reported exhaustion to be predicted by job demands and lack of job resources. In this study, exhaustion was predicted by job demands because of workload and job insecurity as well as by lack of resources that included mainly collegial assistance, insufficient equipment and unfamiliarity with new technology. Cynicism was best predicted by lack of job resources because of inadequate organisational support and lack of advancement opportunities. Jonker (2004) found that cynicism was best predicted by job demands, lack of job resources and two specific personality characteristics. Maslach (1998) cited that cynicism was best predicted by job demands (work overload and social conflict). Organisational commitment was predicted by both burnout and engagement.

Therefore this study confirmed the first hypothesis that burnout is predicted by job demands and a lack of job resources. It was clear from the results that the exhaustion component of burnout was predicted by overload (pace and amount of work and quantitative overload), job insecurity and a lack of resources (including equipment, staff and financial resources), while cynicism was predicted by a lack of organisational support. The second hypothesis, which stated that work engagement is predicted by job resources, is also accepted. It can be concluded, however, that organisational support (including managerial support, communication, role clarity, and the extent of work autonomy) has a strong effect on both the vigour and dedication components of work engagement. The third hypothesis, namely that exhaustion and cynicism predict physical and psychological ill health, is partially accepted. The results showed that, although exhaustion predicted physical ill health, both exhaustion and lack of dedication predicted psychological unwell-being. The fourth hypothesis, which stated that vigour and dedication predict organisational commitment, is also partially accepted.

It can thus be said that job demands, because of high workload and job insecurity together with lack of job resources because of insufficient organisational support and advancement opportunities, contributed to a significant level of exhaustion in this study. Exhaustion (low

energy) reduces engagement (identification) and organisational commitment (psychological attachment and identification) and impacts negatively on both physical and psychological health. Existing theoretical relationships between burnout and engagement as well as burnout and ill health were confirmed in this study, and specifically the theory that burnout develops in response to excessive job demands and diminished job resources (Schaufeli & Bakker, 2004) and that health problems are linked to burnout via job demands (Jackson et al., in press). This study supports the theory of the DC model and findings of a large number of studies which showed that job control, and sometimes job demands, are critical components in a healthy work environment as indicated by various health outcomes (Flovainio et al., 2005). According to Iacovides, et al. (2003), inadequate control over one's work, frustrated hopes and the feeling of losing meaning in life seem to be important causes of burnout.

The results should be interpreted in view of the current transformation process in the organisation and the history of the organisation. Eight months ago the organisation commenced with restructuring aimed at becoming a world-class organisation and reducing costs. The new organisational design includes centres of excellence and shared business services that will result in job losses and possible demotions. The majority of affected employees are within the management ranks. Although the aims of the restructuring exercise were communicated eight months ago, communication on progress made has been limited and the appointment of employees into their new roles has been extremely slow. It is likely that the situation has escalated the anxiety levels of the employees in the organisation, and contributed to the current levels of job insecurity experienced by the participants as well as a sense of reduced control, participation in decision-making and job autonomy.

Simultaneously, other change initiatives such as continuous improvement, an enterprise resource system and a culture change initiative were implemented. The organisation expects its managers to embrace and champion the change initiatives. According to Maslach and Leiter (1997), major organisational transitions increase managers' workload in three ways: it becomes more intense and more complex and demands more time. It can thus be argued that the workload (physical, emotional and cognitive) of the managers has increased significantly over the past eight months. However, their job resources have not increased. In support of the DC model it can thus be argued that the high job demands together with reduced influence on their own control and decision making associated with the transformation, had an adverse effect on participants' health, both physically and psychologically.

Historically, the organisation's human resource systems were ineffective. The organisation appointed management expertise from their competitors or promoted the best internal technical experts into management positions without regard for the complexity of management work or the competencies required to manage others. Development interventions focused on technical development with little attention paid to the development of management and leadership skills. Career and succession planning as well as formal performance management were non-existent.

When interpreting the results, it must be kept in mind that the sample was very homogeneous. 88,60% of the participants were male, 40% of them were younger than 40, and 45% were between ages 41 and 50. Sixty-seven percent of the participants were employed at the entry level of the management ranks, namely at Paterson grading of D-level. It can thus be said that they fall in two career development stages, namely the early and mid-career stages (Greenhaus, Callanan, & Godshalk, 2000). With regard to advancement opportunities, it is evident that the career development needs, i.e. growth, development and advancement needs of the management staff were not met in the past. Forty percent of the management corps are in the early career stage during which acceptance as a valued contributor to the organisation, and upward mobility are the main career objectives (Greenhaus et al., 2000). Forty-five percent of the participants find themselves in the mid-career phase during which individuals confront the midlife transition and reconcile their accomplishments in life and their careers with their youthful aspirations. Many may find themselves on a career plateau with associated feelings of frustration, guilt and stagnation as they realise that future advancement opportunities are unlikely (Greenhaus et al., 2000). The implementation of the Employment Equity Act further restricted (and still does) advancement opportunities for especially white males, i.e. the majority of the management corps (88,60% of the sample were male and 84,70% white). In general, it can thus be said that the managers did not reap the anticipated return on the individual resources that they invested in the organisation and their jobs in the past.

As far as organisational support is concerned, the technical experts who were promoted to various levels of managerial positions were not prepared for the responsibility of managing and developing the performance of their reporting staff through relevant development initiatives. It is possible that this, combined with the absence of a formal performance

appraisal system, could have resulted in a lack of management support, ineffective communication, little or ineffective performance feedback, and limited participation in decision-making at different levels of management.

In conclusion, it can be argued that participants developed exhaustion in response to a significant increase in workload, high levels of job insecurity, and insufficient job resources. This resulted in psychological withdrawal (i.e. cynicism, reduced dedication and vigour) both from the work and the organisation, as well as ill health of the participants. This is similar to findings cited by Maslach et al. (2001) in a meta-analysis of burnout and engagement research. The results confirmed the underlying theory of the COBE model. Work wellness (burnout and engagement) was predicted by both job demands (workload and job insecurity), and lack of job resources (lack of organisational support and advancement opportunities). Organisational commitment was predicted by work wellness (burnout and engagement).

The present study has certain limitations. The research was a cross-sectional survey design. As a result, no causal inferences could be drawn, even though advanced analytical procedures were employed. Another limitation is that the measurement of this model's variables was based solely on self-reports. Furthermore, the study population was very homogeneous. From a sample of 202 managers, 88,6% were male, and 84,7% white. South Africa's multicultural society necessitates studying the constructs burnout, engagement and organisational commitment for managers from different cultural groups, and proving the construct equivalence and the absence of item bias for these groups. Future studies should also include larger sample sizes.

RECOMMENDATIONS

Given the pervasive nature of burnout, organisations should adopt a preventative approach. According to Kompier and Kristensen (2001), interventions may, in the first place, be directed at the work situation or the coping capacity of employees. Work-oriented interventions aim at improving the fit between an individual and the workplace to the benefit of the individual and organisational system. Employee-oriented interventions aim at teaching employees effective stress management skills, or skills to modify their appraisals of stressful situations as being less stressful. In the context of the organisation, effective human resource

systems including career development, and performance management should be implemented as a matter of priority.

Secondly, interventions may be aimed at eliminating, reducing or altering stressors (primary interventions). Possible interventions include: changes in decision-making processes; work redesign, and provision of a more supportive climate including constructive performance feedback. Thirdly, secondary level interventions can be implemented to prevent employees, who are already showing signs of stress, from getting sick and to increase their coping capacity. Examples of this strategy include cognitive restructuring, time management, conflict resolution techniques and coping strategies.

More research should be conducted on how to prevent burnout and enhance engagement as well as organisational commitment. Research should also be conducted to evaluate the effectiveness of interventions.

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CHAPTER 3

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This chapter encompasses conclusions regarding the literature review and empirical study. The limitations of the study are highlighted and recommendations are made for further studies.

3.1 CONCLUSION

In this section conclusions are drawn in terms of specific theoretical objectives and the results of the empirical study.

3.1.1 Conclusions in terms of specific theoretical objectives

A literature study was undertaken to conceptualise job characteristics, burnout, engagement, and organisational commitment. Subsequently, the following conclusions are drawn in terms of the theoretical objectives.

With reference to job characteristics, the work environment can be classified in terms of two broad categories, namely job demands and job resources. Job demands refer to an individual's work goals or the "things that have to be done" (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). It encompasses the physical, social and organisational aspects of the job that require sustained physical, mental and emotional effort. Job resources refer to physical, psychological, social and organisational job aspects that facilitate achievement of work goals, reduce job demands and the psychological costs associated with distress, and stimulate personal growth and development (Demerouti et al., 2001; Rothmann, 2002).

Burnout as a pathogenic psychological syndrome is the extreme end result of chronic exposure to stressors on the job. It comprises three dimensions, namely emotional exhaustion, cynicism and reduced professional efficacy (Maslach, Schaufeli, & Leiter, 2001). As core dimension of burnout, emotional exhaustion refers to feelings of being overextended and exhausted. Cynicism relates to the interpersonal dimensions of burnout and results in negative, callous responses to various job aspects (Maslach et al., 2001). Professional

efficacy, the weakest dimension of burnout - and often regarded as unnecessary (Lee & Ashforth, 1996; Schaufeli, 2003) - refers to individuals evaluating themselves as being ineffective and incompetent in fulfilling required job responsibilities (Schaufeli & Buunk, 1996).

Engagement is described as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption (Schaufeli & Bakker, 2002). It is a persistent and pervasive affective-cognitive state rather than situation, object or event-specific (Schaufeli, Salanova, González-Romà, & Bakker, 2002). Engagement is characterised by being enthusiastic about work, doing the work with high levels of energy and experiencing intrinsic enjoyment in doing the work. Vigour refers to high levels of energy and resilience, willingness to invest effort in one's work and perseverance in the face of difficulty. Dedication is described as a strong involvement in one's work accompanied by feelings of enthusiasm, significance and pride (Maslach et al., 2001). Absorption refers to a state of emersion in one's work that is characterised by focused attention, time distortion and intrinsic enjoyment, among other things (Csikszentmihalyi, 1990).

Schaufeli and Enzmann (1998) categorise organisational stressors as job demands and lack of job resources. Job demands refer to activities to be performed or things to be done which require sustained physical and mental effort (Demerouti et al., 2001). Job resources refer to all aspects that reduce job demands, facilitate achievement of work goals, and/or stimulate individual growth (Demerouti et al., 2001; Rothmann, 2002).

Physical ill health manifests in symptoms such as migraine, heart disease, ulcers, allergies, and back problems. Psychological ill health manifests in stress-induced symptoms such as depression, mood swings, irritability, etcetera and behaviours such as a tendency to smoke or drink more than usual, loss of sense of humour, etcetera. Both physical and psychological ill health have been associated with stress and burnout (Ho, 1997; Ryff & Singer, 1998; Sethi & Schuler, 1990).

Organisational commitment refers to a reciprocal, psychological relationship between an employer and its employees. On the one hand, it entails commitment of the organisation towards the employees as reflected by employees' perception of the degree to which the organisation trusts, values and respects them. On the other hand, it refers to commitment of

the employee to the organisation as demonstrated through the extent to which the employee is loyal and dedicated to the organisation and its goals, as well as the employee's desire to remain employed by the organisation.

Literature confirmed strong and consistent correlations between exhaustion and job demands (workload and time pressure) (Maslach et al., 2001; Schaufeli et al., 2002) and between burnout and a lack of job resources (social support, lack of feedback, poor incentives, etcetera) (Maher, 1983; Maslach et al., 2001). Poor engagement is also associated with a lack of job resources (Schaufeli et al., 2002). Burnout is mainly predicted by job demands and lack of job resources, is related to health problems and turnover intentions, and mediates the relationship between job demands and health problems. Engagement is exclusively predicted by job availability of job resources, relates to turnover intentions and mediates the relationship between job resources and turnover intentions (Schaufeli & Bakker, 2004). Consistent evidence exists of a link between burnout and ill health (physical and psychological). Organisational commitment diminishes in the presence of burnout (Leiter & Maslach, 1988). Aktouf (1992) also confirmed that poor engagement leads to reduced organisational commitment.

3.1.2 Conclusions in terms of specific empirical objectives

This study set out to establish the extent to what job demands, job resources, burnout, engagement, health and organisational commitment were correlated. The results confirmed the findings of previous studies and supported the theoretical assumptions of the COBE model (Schaufeli & Bakker, 2004). Burnout (consisting of exhaustion and cynicism) was negatively related to engagement (consisting of vigour and dedication). Low levels of burnout were related to high levels of engagement, i.e. high levels of energy related to high levels of identification, confirming the findings of Schaufeli et al. (2002).

Exhaustion was positively related to job demands because of workload (which encompassed physical, emotional and cognitive workload), and negatively to job resources because of insufficient organisational support (which focused mainly on management support, communication, performance feedback, participative decision-making, work autonomy and role clarity). The findings of this study confirmed the theory underlying the JD-R model (Demerouti et al., 2001) that job demands are primarily related to exhaustion.

Cynicism correlated negatively with job resources because of lack of organisational support and advancement opportunities (which included growth, development and promotional opportunities). Both burnout dimensions were negatively related to organisational commitment, i.e. turnover intentions and positively related to both physical and psychological ill health.

Vigour and dedication were positively related to job resources because of organisational support and advancement opportunities, negatively to ill health (physical and psychological) and positively to organisational commitment (affective and behavioural). This study also confirmed the theory of the JD-R model (Demerouti et al., 2001) that lack of job resources are related primarily to disengagement.

The results of the multiple regression analyses confirmed that burnout is predicted by job demands (workload and job insecurity) and lack of job resources (insufficient organisational support and advancement opportunities) whereas engagement is predicted by availability of job resources (organisational support) and workload. In this study exhaustion was predicted by job demands because of workload and job insecurity as well as by lack of resources that mainly included collegial assistance, insufficient equipment and unfamiliarity with new technology. Cynicism was best predicted by lack of job resources because of inadequate organisational support and lack of advancement opportunities. Organisational commitment was predicted by both burnout (cynicism) and engagement (vigour and dedication).

Therefore, this study confirmed the first hypothesis that burnout is predicted by job demands and a lack of job resources. It was clear from the results that the exhaustion component of burnout was predicted by overload (pace and amount of work and quantitative overload), job insecurity, and a lack of resources (including equipment, staff and financial resources), while cynicism was predicted by a lack of organisational support. The second hypothesis, which stated that work engagement is predicted by job resources, is also accepted. However, it can be concluded that organisational support (including managerial support, communication, role clarity, and the extent of work autonomy) has a strong effect on both the vigour and dedication components of work engagement. The third hypothesis, namely that exhaustion and cynicism predict physical and psychological ill health, is partially accepted. The results showed that, although exhaustion predicted physical ill health, both exhaustion and lack of

dedication predicted psychological unwell-being. The fourth hypothesis, which stated that vigour and dedication predict organisational commitment, is also accepted.

It can thus be said that job demands because of high workload and job insecurity together with lack of job resources because of insufficient organisational support and advancement opportunities contributed to a significant level of exhaustion in this study. Exhaustion (low energy) reduces engagement (identification) and organisational commitment (psychological attachment and identification), and impacts negatively on both physical as well as psychological health. Existing theoretical relationships between burnout, engagement, ill health and organisational commitment were confirmed in this study.

In conclusion, it can be argued that participants developed exhaustion in response to a significant increase in workload, high levels of job insecurity, and insufficient job resources. This resulted in psychological withdrawal (i.e. cynicism, reduced dedication and vigour) both from the work and the organisation, as well as ill health of the participants. This is similar to findings cited by Maslach et al. (2001) in a meta-analysis of burnout and engagement research. The results confirmed the underlying theory of the COBE and JD-R models. Work wellness (burnout and engagement) was predicted by both job demands (workload and job insecurity) and lack of job resources (lack of organisational support and advancement opportunities). Organisational commitment was predicted by work wellness (burnout and engagement).

3.2 LIMITATIONS OF THIS RESEARCH

The sample size was one limitation of this study. Kerlinger and Lee (2000) recommend that the largest possible sample always be used (the smaller the sample size, the greater the error). The small sample size could account for the misfit between some of the originally hypothesised theoretical models and the data set.

The sample was very homogeneous with regard to gender (88,6% male) and race (84,7% white). The research findings can therefore not be generalised. Seen from a practical perspective, no meaningful comparisons could be made with regard to different race and gender groups. In view of South Africa's diverse population, additional research is needed to explore important demographic variables.

Only English versions of the measuring instruments were used whilst English is the home language of only 25.70% of the participants. This posed a language barrier and could also have contributed to the misfit between some of the hypothesised theoretical models and the data obtained, specifically in the case of the UWES where all the Absorption items had to be eliminated.

The cross-sectional survey research design was limiting in itself, as it provides a snapshot view of the topic under investigation and excludes determination of the causality of relationships between the variables. According to Kerlinger and Lee (2000), the depth of the survey information is ordinarily poor as compared to the scope.

Although the researchers adopted a systems approach to the research, the contribution of personality, as a factor that impacts on the individual system, could not be studied in relation to burnout, engagement and organisational commitment due to the scope and magnitude of adding this additional variable. This research could not provide a holistic view of the potential relationships that may exist between a variety of potential factors that might play a role within the individual and within the organisational system as far as burnout, engagement and organisational commitment are concerned.

Because the organisation that formed the focus of this study was restructuring at the time of the study, the internal organisational climate could have influenced the results of the study, specifically with regard to job insecurity and cynicism. The potential influence of the restructuring process on the dependent variables was not considered.

The research was presented from a pathogenic perspective and focused exclusively on pathogens such as exhaustion, cynicism, reduced vigour and dedication, etcetera. No attention was given to salutogenic or fortigenic factors.

3.3 RECOMMENDATIONS

Recommendations for the organisation and for future research are made in this section.

3.3.1 Recommendations for the organisation

The consequences of burnout include disengagement from work, reduced organisational commitment, ill health (Lee & Ashforth, 1990; Maslach, 1982; Seiler & Pearson, 1984-5), increased absenteeism, sick leave and turnover (Leiter & Harvie, 1998; Schaufeli & Enzmann, 1998), and reduced work performance and poor quality of service delivery (Blix, Cruise, Mitchell, & Blix, 1994; Maslach & Jackson, 1984; Schaufeli & Enzmann, 1998). In light of these findings and the organisation's vision to become a world-class, performance-driven organisation, it is strongly recommended that the organisation adopt multi-level interventions to prevent and/or address the problem of burnout, lack of engagement and poor organisational commitment. Interventions can be classified as primary, secondary and tertiary with each with its own outcomes. These categories of intervention focus on the individual, the interface between the individual and the organisation and the organisation itself (Schaufeli & Enzmann, 1998).

Primary interventions aim at reducing risk factors or changing the nature of stressors. Interventions that focus on the individual include self-monitoring and assessment, stress management, and promotion of a healthy lifestyle. At the level of interface between the individual and the organisation, interventions can include personal screening, training in time management and interpersonal skills, promotion of a realistic job image, and balancing work and private life. At the level of the organisation, organisation design and development interventions feature strongly and may include improving job content and work environment, management development interventions, career management, retraining as well as corporate fitness and wellness programmes. In the era where organisations compete for talented employees and given that managers can spread burnout to other employees through their attitudes and behaviour, a preventative approach is strongly recommended. Seen from an organisational design and development perspective, the organisation could design, develop and implement integrated human resource systems that include effective work design and allocation of sufficient resources, realistic recruitment and on-boarding of new staff, individual development plans, career and succession plans, performance management, internal surveys to measure managers' satisfaction with the way the organisation addresses their needs, and interventions to evaluate the effectiveness of the human resource systems. Furthermore, the organisation could also consider the implementation and maintenance of a corporate fitness and wellness programme that is specifically targeted at managers and

includes stress audits, awareness training, and annual or bi-annual psychosocial check-ups. One way to encourage management to support health promotion is to make it a meaningful part of their performance appraisal process.

Secondary interventions aim at changing the ways in which individuals respond to stressors. The organisation should consider implementing cognitive-restructuring, relaxation techniques, time management and conflict handling skills at individual level. At the interface between the organisation and the individual peer-support groups, coaching as well as career planning could be considered.

Tertiary interventions are reactive and aim at treating those who already suffer from burnout. Tertiary interventions are also referred to as treatment. At the level of interface between the individual and the organisation, it could include specialised counselling and psychotherapy. At organisational level, it could include institutionalisation of Occupational Health and Safety Services and Employee Assistance Programmes, both of which the organisation already provides. However, managers could be encouraged to use the current services.

Rehabilitation aims at re-integrating an employee who has suffered from burnout, back into the workplace. It goes beyond the individual level by considering the employee's job as well. Once an employee who has suffered burnout returns to the workplace, individual guidance and assistance are recommended at the level of interface between the individual and the organisation. At organisational level, and possibly as a last resort, outplacement could be considered.

3.3.2 Recommendations for future research

The study population was very homogeneous. From a sample of 202 managers, 88,6% were male, and 84,7% white. South Africa's multi-cultural society necessitates studying the constructs burnout, engagement and organisational commitment for managers from different cultural groups, and to prove the construct equivalence and the absence of item bias for these groups. Future studies should also include larger sample sizes.

DuBrin (1990) reported that managers who suffer from burnout harm organisational effectiveness because they spread it to their subordinates. Verhage and Jordaan (2001) found

that employee burnout could be attributed to inadequate leadership, inefficient and dictatorial management, nepotism, lack of transparency and poor interpersonal relations. From these findings it is evident that managers impact on the functioning and psychological health of subordinates and teams, and thus the effectiveness and productivity of the organisation. Therefore, more studies should be focused on managers who, as leaders of the organisation and its teams, can directly or indirectly “infect” subordinates with burnout.

Because of the negative organisational outcomes that result from burnout, and in the context of global pressure and competition for the same scarce pool of talented human resources, the need for more research on burnout, engagement and organisational commitment is critical.

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