WORK-RELATED WELL-BEING OF REGISTERED NURSES IN SOUTH AFRICA

Jacoba Johanna van der Colff, M.Cur.

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Promoter: Prof. S. Rothmann

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NOTE

The reader is reminded of the following:

- The references as well as the editorial style as prescribed by the *Publication Manual* (5th edition) of the American Psychology Association (APA) were followed in this thesis. This practice coincides with the policy of the Programme in Industrial Psychology of the North-West University to use APA style in all scientific documents as from January 1999.

- The thesis is submitted in the form of four research articles. The name of the promoter appears on each article as it was submitted for publication in national and international journals.

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PREFACE

The nursing profession currently faces momentous change regarding nursing as well as health care, both of which are in the process of being profoundly re-shaped. Some of the changes arise from within nursing itself, as part of professionalisation projects (e.g. autonomy of practice, a body of knowledge and research agendas). Other changes are thrust upon nursing and nurses as government struggle to contain healthcare while improving access, equity and health outcomes.

Amidst this climate of uncertainty and change, nurses still avidly bear the lamp with the oil of love and compassion. As old certainties lose their hold, new possibilities open up for redeveloping the place of nursing in health care. At the same time, new ethical issues are arising and political debates about the role of the state in health care and health provision continue. May you carefully consider what the nursing profession's boundaries and limitations should be to safeguard the interests of society and those you claim to serve. What a privilege for nurses to be an inherent part of this process!

May the results of this research allow you to obtain more insight into the difficulties, as well as the challenges and highlights of this very special profession. May this allow you to position yourself better within this caring and giving environment and to gain a better understanding of the importance of your role, as well as your own vulnerability in the nursing profession. Most of all, may the patients benefit from this in receiving only the best care from those they have entrusted their health and lives to. Nurses, please take good care – not only of your patients, but ultimately also of yourself.

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SUMMARY

Title: Work-related well-being of registered nurses in South Africa.

Key words: Burnout, engagement, validity, reliability, nursing, coping, sense of coherence, occupational stress.

The nursing profession in South Africa currently faces a climate of uncertainty and change as governments struggle to contain healthcare while improving access, equity and health outcomes. These factors are placing an extra burden on people in a profession that is already encapsulated by an above-average risk environment for burnout and occupational stress. This research emerges from the need to enhance the work wellness of employees in an already burdened profession.

Enhancement of work wellness depends on the successful diagnosis of burnout, work engagement and occupational stress. To be able to measure these constructs, it is important to use reliable and valid instruments, taking into account the cultural diversity in a multicultural setting such as South Africa. No validated instruments in this regard exist for the nursing profession in South Africa. Furthermore, little information is available regarding these constructs and the relationship between them, including sense of coherence and coping strategies.

The general aim of this study was to validate the Maslach Burnout Inventory (MBI), the Utrecht Work Engagement Scale (UWES) and the Nursing Stress Indicator (NSI) for the nursing profession in South Africa; to analyse the differences between the levels of burnout and engagement of different biographical groups; to identify the major occupational stressors and to investigate the relationships between occupational stress, sense of coherence, coping, burnout and work engagement.

A cross-sectional survey design was used, with stratified random samples (N = 818) taken of registered nurses in South Africa. The Maslach Burnout Inventory-Human Services Survey, the Utrecht Work Engagement Scale, the Nursing Stress Indicator, the Orientation to Life Questionnaire, the Coping Orientation for Problem Experienced Questionnaire, as well as a biographical questionnaire, was administered for the purpose of data collection. Cronbach

alpha coefficients, exploratory factor analysis, Pearson product-moment correlations, multivariate analysis of variance (MANOVA), one-way analysis of variance (ANOVA), t-tests, descriptive statistics and multiple regression analysis were employed to analyse the data.

Exploratory factor analysis with target rotations resulted in a three-factor model of burnout, consisting of exhaustion, depersonalisation and personal accomplishment, and a one-factor model of work engagement. The scales showed acceptable construct equivalence and internal consistencies for all three language groups, except for one item in the engagement scale, where a significant lower score was noticed for the African language speaking group. Practically significant differences were found in the burnout and engagement levels of registered nurses with regard to their age and rank, and in the case of work engagement, also regarding the years spent in nursing. T-tests revealed that burnout and engagement levels were influenced by the occurrence of a medical condition and a lack of specialised training, and in the case of burnout, also by longer working hours (full-time employment).

Registered nurses reported significantly high levels of stress relating to staff shortage, inadequate salaries and excessive administrative duties. Lack of organisational support and job demands were the strongest predictors of burnout (emotional exhaustion and depersonalisation), together with a weak sense of coherence. Focus on and ventilation of emotions as a coping strategy was also related to emotional exhaustion. Low levels of burnout were found to be related to high levels of engagement.

Multiple regression analysis revealed that occupational stress, a weak sense of coherence, approach coping, focus on and ventilation of emotions, and low seeking of emotional/social support predicted 33% of the variance in emotional exhaustion. Twenty-seven percent of the variance in depersonalisation was predicted by occupational stress, a weak sense of coherence, avoidance coping, focus on and ventilation of emotions, and a low turning to religion. Occupational stress because of job demands, a weak sense of coherence, approach coping strategies, focus on and ventilation of emotion, in the absence of avoidance as a coping strategy, predicted 17% of the variance in personal accomplishment, while low levels of occupational stress because of job demands, a weak sense of coherence, and approach coping strategies predicted 24% of the variance in engagement.

Recommendations for future research were made.

OPSOMMIMG

Onderwerp: Werkswelstand van geregistreerde verpleegkundiges in Suid-Afrika.

Sleutelterme: Uitbranding, werksbegeestering, betroubaarheid, geldigheid, verpleging, coping, koherensiesin, werkstres.

Die verpleegprofessie in Suid-Afrika bevind hom tans in 'n klimaat van heelwat onsekerheid en verandering, terwyl die staat sukkel om optimale gesondheidsorg te handhaaf en terselfdertyd toeganklikheid, gelykheid en die uitkomste van gesondheid te verbeter. Hierdie faktore plaas 'n addisionele las op die werknemers binne die verpleegprofessie wat alreeds bekend staan as 'n beroep met hoë blootstelling aan uitbranding en werkstres. Hierdie navorsing spruit voort uit 'n behoefte om die werkswelstand van verpleegkundiges binne 'n professie wat onder baie druk gebuk gaan, te bevorder.

Die bevordering van werkswelstand berus op 'n suksesvolle diagnose van uitbranding, werksbegeestering en werkstres. Ten einde in staat te wees om hierdie konstrukte te meet, moet daar gebruik gemaak kan word van betroubare en geldige meetinstrumente, met inagneming van die kultuurdiversiteit in Suid-Afrika. Geen geldige en betroubare meetinstrumente van hierdie aard is beskikbaar vir die verpleegprofessie in Suid-Afrika nie. Verder word daar oor min inligting beskik betreffende die genoemde konstrukte en die verwantskap tussen hulle, insluitend koherensiesin en coping-strategieë.

Die algemene doelstelling van hierdie navorsing was om die Maslach Uitbrandingsvraelys-Menslike Dienste Opname (MBI-HSS), die Utrecht Werksbegeesteringskaal (UWES), en die Verpleegstresindikator (NSI) vir die verpleegprofessie in Suid-Afrika te valideer; om ondersoek in te stel na die verskille in vlakke van uitbranding en werksbegeestering van geregistreerde verpleegkundiges op grond van biografiese verskille; om die belangrikste werkstressore te identifiseer; en om ondersoek in te stel na die verband tussen werkstres, koherensiesin, coping, uitbranding en werksbegeestering.

'n Dwarssnee opname-ontwerp is gebruik vir data-insameling, met 'n gestratifiseerde ewekansige steekproef (N = 818) van geregistreerde verpleegkundiges in Suid-Afrika. Die

Maslach Uitbrandingsvraelys - Menslike Dienste Opname, die Utrecht Werksbegeestering-skaal, die Verpleegstresindikator, die Lewensoriëntasievraelys, die COPE vraelys en 'n biografiese vraelys is afgeneem ten einde data vir die navorsing in te samel. Data-analise is gedoen aan die hand van Cronbach alfakoëffisiënte, verkennende faktorontleding, Pearson produk-moment korrelasies, meerveranderlike variansie-analise (MANOVA), eenrigting variansie-analise (ANOVA), t-toetse, beskrywende statistiek, en meervoudige regressie-analise.

Verkennende faktorontleding met teikenrotasies het 'n drie-faktormodel van uitbranding aangedui, bestaande uit emosionele uitputting, depersonalisasie en persoonlike doelbereiking, en 'n een-faktor model vir werksbegeestering. Die skale het verder aangedui dat konstruk-ekwivalensie en interne konsekwentheid vir al drie taalgroepe bestaan, met die uitsondering van een item, waar 'n betekenisvolle laer telling waargeneem is by die Afrikataalsprekende groep. Praktiese betekenisvolle verskille is gevind in die uitbrandings- en werks-begeesteringsvlakke van geregistreerde verpleegkundiges ten opsigte van ouderdom en rang, en ten opsigte van werksbegeestering wat betref die aantal jare in verpleging. T-toetse het verder aangedui dat uitbranding- en werksbegeesteringsvlakke ook beïnvloed word deur die teenwoordigheid van 'n mediese toestand en 'n gebrek aan gespesialiseerde opleiding, en in die geval van uitbranding, ook wat langer werksure betref, soos wat dit die geval is met personeel wat voltyds in diens is.

Geregistreerde verpleegkundiges het aangedui dat 'n tekort aan personeel, onvoldoende salarisse en uitermatig baie administratiewe aktiwiteite as die ergste werkstressore beleef word. Uitbranding (emosionele uitputting en depersonalisasie) is die beste voorspel deur 'n gebrek aan ondersteuning deur die organisasie en deur werkseise wat aan die verpleegkundiges gestel word, tesame met 'n swak koherensiesin en die coping-strategie waar daar gefokus word op emosies en die ontlading daarvan. Daar was verder 'n verband gevind tussen lae vlakke van uitbranding en hoë vlakke van werksbegeestering.

Meervoudige regressie-analise het aangedui dat werkstres, 'n swak koherensiesin, probleemgesentreerde (aktiewe) coping, fokus op en ontlading van emosies, en 'n lae soeke na emosionele/sosiale ondersteuning, 33% van die variansie in emosionele uitputting voorspel het. Sewe-en-twintig persent van die variansie in depersonalisasie is voorspel deur werkstres, 'n swak koherensiesin, vermydingscoping, fokus op en ontlading van emosies, en

min steun op geloofsaspekte. Werkstres as gevolg van werkseise, 'n lae koherensiesin, probleemgesentreerde coping, fokus op en ontlading van emosies, in die afwesigheid van vermyding as 'n coping-strategie, het 17% van die variansie in persoonlike doelbereiking voorspel, terwyl lae vlakke van werkstres – veroorsaak deur werkseise, 'n swak koherensiesin en probleemgesentreerde coping – 24% van die variansie in werksbegeestering voorspel het.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This thesis focuses on the well-being of registered nurses in the nursing profession in South Africa. In order to gain a better understanding of the above, the validation of measuring tools for burnout, work engagement and occupational stress, the identification of causal factors of occupational stress, the levels of burnout and work engagement of these nurses – differentiating between different groups of nurses – and sense of coherence and coping, with special emphasis on the relationships between all of these constructs, will serve as particular focal points.

Chapter 1 focuses on the problem statement, research objectives and research methodology. The chapter commences with a problem statement, providing a literature overview of previous related research conducted on burnout, work engagement and occupational stress in the nursing profession. A discussion of the research method follows, with an explanation of the research design, participants, measuring instruments and statistical analysis. The chapter concludes with an overview of the chapters comprising this thesis.

1.1 PROBLEM STATEMENT

A stable and productive health service is of vital importance to any country. The nursing profession comprises by far the greatest component of this service section. The nursing profession is seen as a stressful and emotionally demanding profession (Carson, Bartlett, & Croucher, 1991; Coffey & Coleman, 2001; Dolan, 1987; Fagin, Brown, Bartlett, Leary, & Carson, 1995; Moores & Grant, 1977; Snelgrove, 1998; Sullivan, 1993), which makes nurses exceptionally susceptible to burnout. In fact, burnout has long been a proven reality within the nursing profession (Glass, Mcknight, & Valdimarsdottir, 1993; Lewis, 1988; McKnight & Glass, 1995; Schaufeli & Janczur, 1994; Tarolli-Jager, 1994), with symptoms such as low energy levels, feelings of lack of control, helplessness, low motivational levels, negative attitudes towards work, self and others, emotional exhaustion, absenteeism and turnover, performance deficits and substance abuse (Glass et al., 1993).

Several opinions on and definitions of burnout are found in the literature. Edwards, Burnard, Coyle, Fothergill, and Hannigan (2000) captured this by saying: "Throughout the research literature there is not a standard definition of burnout". Some authors, such as Maslach and Schaufeli (in Demerouti, Bakker, Nachreiner, & Schaufeli, 2000, p. 455), initially described burnout as "a specific kind of occupational stress reaction among human service professionals, as a result of the demanding and emotionally charged relationships between caregivers and their recipients", while it has recently been described by Rothmann, Rothmann and Malan (2001) as a "particular, multidimensional, chronic stress situation that goes beyond the experience of mere exhaustion. Burnout is seen as the final step in a progression of unsuccessful attempts to cope with a variety of negative stress conditions". With this definition, it is notable that the view of burnout has moved beyond the so-called human service professions. The possibility of studying burnout is thus open to all professions.

Maslach (1982, 1993) and Maslach, Jackson, and Leiter (1996) and Maslach, Schaufeli, and Leiter (2001) describe burnout as a syndrome consisting of three dimensions, namely feelings of emotional exhaustion, depersonalisation (cynicism) and reduced personal accomplishment. *Emotional exhaustion,* representing the individual stress dimension of burnout, refers to feelings of depleted physical and emotional resources and prompts actions in the worker to distance him/her emotionally and cognitively from his/her work, presumably as a way to cope with work overload. The interpersonal context dimension is represented by *depersonalisation,* which entails negative, callous and cynical attitudes or excessively detached responses towards the recipients of service and care (e.g. patients), reducing the recipient to an impersonal object. These two dimensions are generally considered to be the core symptoms of burnout (Demerouti et al., 2000). The third dimension, *lack of personal accomplishment,* (often studied only as an afterthought) (Demerouti et al., 2000), represents the self-evaluation dimension of burnout and refers to feelings of insufficiency (Schaufeli & Buunk, 1996), incompetence, lack of achievement, as well as feelings of unproductiveness (Maslach et al., 2001).

Schaufeli and Enzmann (1998) partially agree with the above description by Maslach (1982, 1993) and Maslach et al. (1996, 2001) by also identifying exhaustion as a core indicator of burnout and a sense of reduced effectiveness as an accompanying symptom, but name another three accompanying general symptoms, namely distress (affective, cognitive, physical, and behavioural), decreased motivation, and dysfunctional attitudes and behaviours

at work. Thus, the definition of burnout presented by Schaufeli and Enzmann (1998, p. 36), may represent a summary of the above. They stated: "Burnout is 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 further viewed by the authors as self-perpetuating due to inadequate coping strategies and frustrated intentions.

Burnout should be seen as a process occurring progressively over time, rather than as a state (Carson & Fagin, 1996; Maslach & Schaufeli, 1993; Prosser et al., 1999; Williams, Mitchie, & Pattani, 1998), which could, according to Schaufeli and Enzmann (1998), be determined by personality traits such as hardiness or neuroticism, or by high job demands. Maslach and Leiter (1997) also point out that burnout should rather be regarded as a crisis in a person's relationship with work than a crisis in the relationship with people at work (in Schaufeli & Enzmann, 1998).

Burnout is described by Gupchup, Singhal, Dole, and Lively (1998, p. 495) as "...a unique expression of stress". Although burnout can occur in any occupation, nursing is considered as being inherently stressful and an above-average risk group regarding work stress (Demerouti et al., 2000; Levert, Lucas, & Ortlepp, 2000; Schaufeli & Janczur, 1994; Trummers, Janssen, Landeweerd, & Houkes, 2001), causing more stress related illnesses than in any other occupational group (Surmann, 1999). Hingley (in Schaufeli & Janczur, 1994, p. 99) stated in this regard: "Every day the nurse confronts stark suffering, grief and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are by normal standards distasteful, even disgusting, others are often degrading; some are simply frightening". Stress is seen by Cherniss (1995) as the main causative factor of burnout.

The Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986) is used in the most studies on burnout (Schaufeli & Enzmann, 1998). However, the MBI has not been standardised for nurses in South Africa and little information is available on its reliability and construct validity (see Rothmann, 2002), which makes it difficult to evaluate research results regarding burnout levels of nurses. Therefore, the first research problem is that the MBI is not validated and standardised for nurses in South Africa. This makes it difficult to assess the

levels of burnout of nurses and to compare the levels of burnout of nurses in various demographic groups.

Various stressors could contribute to burnout of nurses. These stressors, which are included in most models of burnout, place "demands" upon nursing staff (Schaufeli & Enzmann, 1998). Cavanagh (1997) divides stressors within the nursing profession into three categories, namely personal, interpersonal and work environment stressors. *Personal stressors* include an inability to manage home, work and sometimes also study responsibilities and an inadequate preparation of personnel for the demanding tasks of nursing. *Interpersonal stressors* reflect on relationships with doctors, supervisors, other senior personnel and colleagues (Basson & Van der Merwe, 1994). *Work environment stressors* comprise modern technology, which is essentially inhumane and depersonalised (Cavanach, 1997; Lewis, 1988); a high work load and long working hours that do not contribute to a personal and social lifestyle (Basson & van der Merwe, 1994; Cavanach, 1997); procedures that endanger nurses' lives; caring and especially dealing with pain, suffering and dying of patients; the strain of being exposed to making mistakes and managing demanding responsibilities (Cavanach, 1997); lack of autonomy (Schaufeli & Enzmann, 1998); role conflict and -ambiguity (Levert et al., 2000) and under-staffing (Erasmus, Poggenpoel, & Gmeiner, 1998; Kilfedder, Power, & Wells, 2001).

Stress is but one aspect that influences a person's well-being negatively. Studies confirmed that one's sense of coherence is an important component of one's health and well-being (Antonovsky, 1987, 1993). Sense of coherence has been defined as a relatively stable dispositional orientation, which is represented by the concepts of comprehensibility, manageability and meaningfulness (Antonovsky, 1987). A strong sense of coherence is related to general well-being (Feldt, 1997). In theory, this means that individuals with high levels of burnout would be expected to demonstrate lower levels of sense of coherence. Specifically, the manageability component of sense of coherence has been proven to be related to the exhaustion component of burnout (Rothmann & Malan, 2003).

According to Antonovsky (1987), a strong sense of coherence is not a particular coping style, and the stressors life poses are many and varied. To adopt one pattern of coping consistently is precisely to fail to respond to the nature of the stressor, and hence to decrease the chances of successful coping. A person with a strong sense of coherence selects the particular coping

strategy that seems most appropriate to deal with the stressor being confronted. The availability of a wide repertoire of coping strategies, then, and flexibility of choice at any given time, are crucial (Antonovsky, 1987; Feldt, 1997). The stronger the sense of coherence a person has, the better the ability he/she has to employ cognitive, affective and instrumental strategies that are likely to improve coping and, thus, well-being.

One of the basic issues in the burnout domain concerns coping, or ways in which an individual can attempt to deal with job stressors to ward off aversive strains (Beehr, Johnson, & Nieva, 1995). Lazarus and Folkman (1984, p. 141) defined coping as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person". There are two major coping strategies. When a successful coping strategy is followed (e.g. problem-solving) goals are achieved, professional efficacy is enhanced and a sense of existential significance is fostered (Schaufeli & Enzmann, 1998). By contrast, when a poor coping strategy is adopted, burnout is likely to develop. Burnout is also a self-perpetuating process not only because it impedes the attainment of professional goals, but also because it depletes coping resources.

Although work stressors – giving rise to stress and, ultimately, burnout – are a reality within the nursing profession, there is also another (positive) side to the coin, namely being dedicated and immersed in one's work, referred to in literature as engagement (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002). Engaged employees regard themselves as competent in dealing with the demands of their job. They are energetic and have a sense of effective connection with their work activities. Engagement is thus defined as a positive, fulfilling, work-related state of mind that is characterised by three dimensions, namely vigour, dedication and absorption (Schaufeli et al., 2002). Vigour refers to having high energy levels, resilience regarding work activities, investing effort in one's work and persistence in difficult circumstances. Dedication includes a sense of significance, enthusiasm, inspiration, pride and challenge, while absorption is characterised by full concentration on and engrossment in one's work, and finding it difficult to detach oneself from work (Schaufeli et al., 2002).

The impact of burnout on the quality of care in the nursing profession should not be underestimated. The prevalence rates of occupational stress are rising continuously in most industrial countries, as indicated by the increase in stress-related absenteeism. The

expenditure involved in absenteeism, work turnover, loss of work, lack of productivity and underachievement is in fact incalculable. Literature also reports an increase in the number of disability recipients due to mental (possibly stress related) disorders (Schaufeli & Enzmann, 1998). Low job satisfaction among nurses also has a negative influence on the quality of patient care (Muldoon & Kremer, 1995).

In light of these findings, the importance of identifying personality traits and job stressors related to burnout as well as engagement is indisputably of great importance to improve the standard of health services and care in the nursing profession. The negative impact of burnout does not apply only to the individual, but also – and in particular – to the government and private organisations. Schaufeli and Enzmann (1998) mentioned that the increase of burnout cannot be attributed to occupational stress and work-related factors only, but also to the changing social, cultural and ideological contexts. These concepts are extremely relevant to the South African context with its cultural diversity and the social changes with the process of transformation being implemented. It will therefore be of the utmost importance to standardise measuring instruments for the measuring of burnout, engagement and occupational stressors and to be able to identify burnout and work engagement levels and occupational stressors in order for health care in South Africa to be improved.

Based on the problem statement as described above, the following research questions arise:

- What are the psychometric properties of the Maslach Burnout Inventory - Human Services Survey (MBI-HSS) for registered nurses in South Africa, and do differences exist between the burnout levels of different biographic groups?
- What are the psychometric properties of the Utrecht Work Engagement Scale (UWES) for registered nurses in South Africa, and do differences exist between the work engagement of different biographic groups?
- What are the psychometric properties of the Nursing Stress Indicator (NSI), and what are the occupational stressors for registered nurses in South Africa?
- What are the relationships between occupational stress, sense of coherence, coping, burnout and work engagement for registered nurses in South Africa?

This research will contribute to the science of Industrial Psychology in the following ways:

- It will result in a valid and reliable measuring instrument for burnout of registered nurses in South Africa.
- It will result in a valid and reliable measuring instrument for work engagement of registered nurses in South Africa.
- It will result in a valid and reliable measuring instrument for occupational stress of registered nurses in South Africa.
- Knowledge regarding occupational stressors will be gained and may thus be used to predict occupational stress of registered nurses in South Africa.
- Information regarding the relationship between occupational stress, sense of coherence, coping, burnout and work engagement for registered nurses in South Africa will be gleaned.

1.2 RESEARCH OBJECTIVES

Arising from the introduction and problem statement described above, the following general and specific objectives are set for this research:

1.2.1 General objective

The general objective of this research is to validate the Maslach Burnout Inventory (MBI), the Utrecht Work Engagement Scale (UWES) and the Nursing Stress Indicator (NSI) for the nursing profession in South Africa; to analyse the differences between the levels of burnout and engagement of different biographical groups; to identify the major occupational stressors and to investigate the relationships between occupational stress, sense of coherence, coping, burnout and work engagement.

1.2.2 Specific objectives

- To assess the construct equivalence, validity and reliability of the MBI-HSS for registered nurses in South Africa, to standardise the MBI-HSS for registered nurses and to analyse the differences between the levels of burnout of different biographical groups.

- To investigate the construct equivalence, validity and reliability of the UWES for registered nurses in South Africa, to standardise the UWES for registered nurses and to analyse the differences between the levels of work engagement of different biographical groups.
- To assess the validity and reliability of the NSI, and to identify occupational stressors for registered nurses in South Africa.
- To investigate the relationships between occupational stress, sense of coherence, coping, burnout and work engagement of registered nurses in South Africa.
- To make recommendations regarding the management of burnout and engagement of professional nurses.

1.3 RESEARCH METHOD

The research method consists of a literature review and empirical study.

1.3.1 Literature review

The literature review focuses on previous research on burnout, work engagement, occupational stress, sense of coherence and coping, and the measurement of these constructs. An overview of the conceptualisation of these constructs in literature, as well as the findings in terms of measuring burnout, work engagement and occupational stress, is provided.

1.3.2 Research design

A cross-sectional research design with a survey as technique of data collection is used to attain the objectives of this research. Cross-sectional designs are used to examine groups of subjects in various stages of development simultaneously, while the survey describes a technique of data collection in which questionnaires are used to gather data regarding an identified population (Burns & Grove, 1993). This design is well suited to the descriptive and predictive functions associated with correlational research, whereby relationships between variables are examined (Shaunessey & Zechmeister, 1997). Schaufeli and Enzmann (1998) criticise the use of cross-sectional designs in burnout research, and recommend that experiments and longitudinal studies should be used when possible. However, a cross-

sectional design is the most appropriate design for the validation of the MBI (Byrne, 1994), and the UWES.

1.3.3 Participants

A stratified, random sample ($N = 818$) is taken from registered nurses in the private, public, hospital, community, psychiatric and management sectors in South Africa.

The sample consists mainly of female, married, Afrikaans speaking registered nurses with a nursing diploma, working full-time on day duty in hospital wards in the private sector in the Gauteng province. The mean age of the participants was 40 years, while the average duration of service in the nursing profession was 19 years. A total of 52,20% of the participants were Afrikaans speaking, 28,90% were English speaking, while 18,90% spoke an African language. The majority of the group took at least 21 days of leave during the year prior to the survey and 86,50% took sick leave constituting fewer than 8 days.

1.3.4 Measuring battery

The *Maslach Burnout Inventory - Human Services Survey* (MBI-HSS), the *Nursing Stress Indicator* (NSI), the *Orientation to Life Questionnaire* (OLQ), the *Utrecht Work Engagement Scale* (UWES), the *COPE*, as well as a biographical questionnaire, are administered for the purpose of data collection.

The *Maslach Burnout Inventory - Human Services Survey (MBI-HSS)* measures respondents' perceived experience of burnout in relation to the recipients of their service, care or treatment in the human services or helping professions. The MBI-HSS (Maslach & Jackson, 1986) consists of 22 items phrased as statements about personal feelings and attitudes that are self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The three subscales of the MBI-HSS include emotional exhaustion (nine items; e.g. "I feel emotionally drained from my work"), depersonalisation (five items; e.g. "I feel I treat some recipients as if they were impersonal objects"), and personal accomplishment (eight items; e.g. "I have accomplished many worthwhile things in this job"). As such, the psychometric soundness of the MBI-HSS is well documented in the literature with internal consistencies usually well above the 0,70 Cronbach alpha level, except for the depersonalisation scale in some samples

(Schaufeli et al., 2002). Test-retest reliability ranging from three months to one year has been reported in the range of 0,50 to 0,82 (Leiter & Durup, 1996). The convergent validity is well demonstrated for emotional exhaustion and depersonalisation, but seems to be insufficient for personal accomplishment. Regarding discriminant validity, emotional exhaustion is related to job satisfaction, distress symptoms and depression; depersonalisation is less strongly related to these, while reduced personal accomplishment is only vaguely related to these constructs (Schaufeli & Enzmann, 1998).

The *Utrecht Work Engagement Scale (UWES)* (Schaufeli et al., 2002) is used to measure the levels of work engagement. Although engagement is conceptually regarded as the positive antithesis of burnout, it is operationalised in its own right. The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The three dimensions of engagement that can be distinguished are vigour (6 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 (6 items; e.g. "When I am working, I forget everything else around me"). Engaged individuals are characterised by high levels of vigour and dedication, and elevated levels of absorption. Empirically, certainty needs to be obtained as to whether or not burnout and engagement are indeed opposites of the same continuum, while theoretically there seems to be a dichotomous relationship. Burnout and engagement can be described as related but distinct concepts (Schaufeli et al., 2002). In terms of internal consistency, reliability coefficients for the three subscales have been determined between 0,68 and 0,91. Improvement of the alpha coefficient (ranging from 0,78 to 0,89) seems possible without adversely affecting the internal consistency of the scale (Storm & Rothmann, 2003).

The *Nursing Stress Indicator (NSI),* developed by Van der Colff and Rothmann (in press), consists of 62 statements that need to be rated regarding intensity and frequency, thus 124 items. Firstly, participants rated each of the 62 statements in terms of perceived intensity of the particular stressor on a 9-point scale, ranging from 1 (*low*) to 9 (*high*). In the second part of the questionnaire, the participants were asked to respond in terms of perceived frequency in experiencing these stressors over a period of the past 6 months on a 10 point scale ranging from 0 (*no days*) to 9+ (*more than 9 days*). Exploratory factor analysis of the NSI in a sample of nurses resulted in three reliable factors, namely *lack of organisational support* (e.g. lack of supervisory or managerial support, and colleagues not doing their jobs), *demands of the job* (e.g. having to deal with constant unfamiliar situations, and making critical on-the-spot

decisions) and *nursing-specific demands* (e.g. death of a patient, making a mistake during the treatment of a patient, and watching a patient suffer).

The *Orientation to Life Questionnaire (OLQ)* (Antonovsky, 1987) is used to measure the participants' sense of coherence. The OLQ consists of 29 items. Antonovsky (1993) reported Chronbach alpha coefficients of the OLQ in 29 research studies varying between 0,85 and 0,91. Test-retest reliability studies found coefficients between 0,41 and 0,97 (Antonovsky, 1993). Rothmann (2002) reported an alpha coefficient of 0,89 for the OLQ, which may be regarded as acceptable (Nunnally & Bernstein, 1994). In terms of the construct validity of the OLQ, it was found that a negative relationship exists between OLQ and experienced stress, and that the OLQ correlates negatively with the "State-Trait Anxiety Inventory-Trait" and the "Beck Depression Inventory" (Frenz, Carey, & Jorgensen, 1993). Rothmann, Van der Colff, Rothmann, and Van Rensburg (2003) subjected the OLQ to an exploratory factor analysis and extracted two internally consistent factors, namely meaninglessness (pessimism) and manageability.

The *Coping Orientation for Problem Experienced Questionnaire (COPE)* is used to measure the participants' general coping strategies (Carver, Scheier, & Weintraub, 1989). This instrument is a multi-dimensional 53-item questionnaire indicating the different ways in which individuals cope in different circumstances. Five factors were extracted for registered nurses, namely approach coping, seeking emotional or social support, avoidance as a strategy of coping, turning to religion and focus on and ventilation of emotions. The COPE has been proven both reliable and valid in different cultural groups (Clark, Bornman, Cropanzano, & James, 1995; Van der Wateren, 1997). Carver et al. (1989) also reported alpha coefficients for the COPE ranging from 0,45 to 0,92. With the exception of mental disengagement, which measures less than 0,60, all the sub-scales demonstrate good levels of reliability. Test-retest reliability varies from 0,46 to 0,86 and 0,42 to 0,89 after 2 weeks (Carver et al., 1989). Acceptable reliability and validity levels have been determined for the COPE in South Africa, rendering it suitable for use within this context (Van der Wateren, 1997).

1.3.5 Statistical analysis

Statistical analysis is conducted by means of the SPSS programme (SPSS Inc., 2003). The SPSS programme is used to conduct statistical analysis regarding reliability and validity of

the measuring instruments, descriptive statistics, t-tests, analysis of variance, correlation coefficients and multiple regression analysis.

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, range, skewness and kurtosis) and inferential statistics are used to analyse the data. A cut-off point of $p = 0,05$ is set for the statistical significance of the results. Effect sizes (Cohen, 1988) are used to decide on the practical significance of the findings. Pearson product-moment correlation coefficients were used to specify the relationships between the variables. A cut-off point of 0,30 (medium effect, Cohen, 1988) is set for the practical significance of correlation coefficients. T-tests and analysis of variance are used to determine the differences between groups. A multiple regression analysis is conducted to determine the percentage of the variance in the dependent variables (burnout and work engagement) that is predicted by the independent variables (Tabachnick & Fidell, 2001).

Multivariate analysis of variance (MANOVA) is used to assess the significance of differences between groups. MANOVA tests whether or not mean differences amongst groups, on a combination of dependent variables, are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable, which maximises group differences, is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda is used to test the significance of the effects. When an effect is significant in MANOVA, ANOVA is used to discover which dependent variables were affected. Due to the fact that multiple ANOVAs are used, a Bonferroni-type adjustment is made for inflated Type 1 error.

T-tests are used to determine differences between the groups in the sample. Effect sizes (Cohen, 1988; Steyn, 1999) are used in addition to statistical significance to determine the significance of relationships. Effect sizes indicate whether or not obtained results are important (while statistical significance may often show results which are of little practical relevance). A cut-off point of 0,50 (medium effect) (Cohen, 1988) is set for the practical significance of differences between means.

1.4 RESEARCH PROCEDURE

The measuring battery was compiled. A letter requesting participation and motivating the research was included. Ethical aspects regarding the research were discussed with the participants. The test battery was administered in small groups at the different workplaces on suitable dates.

1.5 DIVISION OF FURTHER CHAPTERS

The research is presented in the following manner:

Chapter 2: Burnout of registered nurses in South Africa.

Chapter 3: Work engagement of registered nurses in South Africa.

Chapter 4: Occupational stress of registered nurses in South Africa.

Chapter 5: Occupational stress, sense of coherence, coping, burnout and work engagement of registered nurses in South Africa.

Chapter 6: Conclusions, limitations and recommendations.

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CHAPTER 2

ARTICLE 1

BURNOUT OF REGISTERED NURSES IN SOUTH AFRICA

J.J. VAN DER COLFF

S. ROTHMANN

WorkWell: Research Unit for People, Policy and Performance, North-West University, Potchefstroom

ABSTRACT

The objectives of this study were to validate the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) for registered nurses in South Africa and to analyse the differences between the levels of burnout of different biographical groups. A cross-sectional survey design with a stratified random sample (N = 818) was used. The MBI-HSS, as well as a biographical questionnaire, was administered. Exploratory factor analysis with a direct oblimin rotation resulted in a three-factor structure of burnout, consisting of emotional exhaustion, depersonalisation and personal accomplishment. Construct equivalence of the three factors was confirmed for the Afrikaans, English and African language speaking groups. The scales showed acceptable reliabilities. MANOVA revealed significant differences in burnout levels with regard to language (culture), age, rank, job satisfaction, reciprocity, presence of a medical condition, full-time employment and specialised training.

OPSOMMING

Die doelstellings van hierdie studie was om die Maslach Uitbrandingsvraelys – Menslike Dienste Opname (MBI-HSS) vir geregistreerde verpleegkundiges in Suid-Afrika te valideer en om die verskille in uitbrandingsvlakke van verskillende biografiese groepe te analiseer. 'n Dwarssnee opname-ontwerp met 'n gestratifiseerde ewekansige steekproef (N = 818) is gebruik. Die MBI-HSS en 'n biografiese vraelys is afgeneem. 'n Verkennende faktor analise met 'n direkte oblimin rotasie het 'n drie-faktormodel van uitbranding bestaande uit emosionele uitputting, depersonalisasie en persoonlike bereiking bevestig. Konstrukekwivalensie van die drie faktore is gevind vir die Afrikaanse, Engelse en Afrika taalgroepe. Die skale het aanvaarbare betroubaarheid getoon. MANOVA het aangedui dat daar beduidende verskille is in die vlakke van uitbranding wat betref taal (kultuurgroepe), ouderdom, rang, werkstevredenheid, wederkerigheid, teenwoordigheid van 'n mediese toestand, voltydse werkers en gespesialiseerde opleiding.

A stable and productive health service is of vital importance to any country. This includes the nursing profession, which comprises by far the greatest component of this service section. The nursing profession is seen as a stressful and emotionally demanding profession (Carson, Bartlett, & Croucher, 1991; Coffey & Coleman, 2001; Dolan, 1987; Fagin, Brown, Bartlett, Leary, & Carson, 1995; Snelgrove, 1998; Sullivan, 1993), which makes nurses exceptionally susceptible to burnout. In fact, burnout has long been a proven reality within the nursing profession (Glass, Mcknight, & Valdimarsdottir, 1993; Lewis, 1988; McKnight & Glass, 1995; Schaufeli & Janczur, 1994; Tarolli-Jager, 1994) with symptoms such as low energy levels, feelings of lack of control, helplessness, low motivational levels, negative attitudes towards work, self and others, emotional exhaustion, absenteeism and staff turnover, performance deficits and substance abuse (Glass et al., 1993).

In order to understand burnout and its impact on the nursing profession, it will be necessary to explore the concept *burnout.* Several opinions on and definitions of burnout are found in the literature. Edwards, Burnard, Coyle, Fothergill, and Hannigan (2000) captured this by saying that a standard definition of burnout doesn't actually exist. Some authors, such as Maslach, Schaufeli, and Leiter (2001, p. 455), initially described burnout as "a specific kind of occupational stress reaction among human service professionals, as a result of the demanding and emotionally charged relationships between caregivers and their recipients". Burnout is seen as the final step in a progression of unsuccessful attempts to cope with a variety of negative stress conditions (Schaufeli & Enzmann, 1998).

Maslach (1982, 1993), Maslach, Jackson, and Leiter (1996) and Maslach et al. (2001) describe burnout as a syndrome consisting of three dimensions, namely feelings of emotional exhaustion, depersonalisation (cynicism) and reduced personal accomplishment. *Emotional exhaustion,* representing the individual stress dimension of burnout, refers to feelings of depleted physical and emotional resources (lack of energy) and prompts actions in the worker to distance him/her emotionally and cognitively from his/her work, presumably as a way to cope with work overload. The interpersonal context dimension is represented by *depersonalisation,* which entails negative, callous and cynical attitudes or excessively detached responses towards the recipients of service and care (i.e. patients), reducing the recipient to an impersonal object. These two dimensions are generally considered to be the core symptoms of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000). The third dimension, *lack of personal accomplishment* (often studied only as an afterthought)

(Demerouti et al., 2000), represents the self-evaluation dimension of burnout and refers to feelings of insufficiency (Schaufeli & Buunk, 1996), negative self-evaluation, incompetence, lack of achievement or a belief that objectives are not reached, poor professional self-esteem, as well as feelings of unproductiveness (Maslach et al., 2001).

Schaufeli and Enzmann (1998) partially agree with the above description by Maslach (1982, 1993) and Maslach et al. (1996, 2001) by also identifying exhaustion as a core indicator of burnout and a sense of reduced effectiveness as an accompanying symptom, but name another three accompanying general symptoms, namely distress (affective, cognitive, physical, and behavioural), decreased motivation, and dysfunctional attitudes and behaviours at work. Thus, the definition of burnout presented by Schaufeli and Enzmann (1998, p. 36), may represent a summary of the above. They stated: "Burnout is 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". Moreover, burnout is viewed by these authors as self-perpetuating, due to inadequate coping strategies and frustrated intentions.

Burnout should be seen as a process, occurring progressively over time, rather than as a state (Carson & Fagin, 1996; Maslach & Schaufeli, 1993; Prosser et al., 1999) that could, according to Schaufeli and Enzmann (1998), be affected by personality traits such as hardiness or neuroticism, or by high job demands. Maslach and Leiter (1997) also point out that burnout should rather be regarded as a crisis in a person's relationship with work than a crisis in the relationship with people at work.

Burnout is described by Gupchup, Singhal, Dole, and Lively (1998, p. 495) as "... a unique expression of stress". Although burnout can occur in any occupation, nursing is considered as being inherently stressful and an above average risk group regarding work stress (Demerouti et al., 2000; Levert, Lucas, & Ortlepp, 2000; Schaufeli & Janczur, 1994; Tummers, Janssen, Landeweerd, & Houkes, 2001), causing more stress-related illnesses than in any other occupational group (Surmann, 1999). Hingley (in Schaufeli & Janczur, 1994, p. 99) stated in this regard: "Every day the nurse confronts stark suffering, grief and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are by normal standards

distasteful, even disgusting, others are often degrading; some are simply frightening". Stress is seen by Cherniss (1995) as the main causative factor of burnout.

The above information could not have been noted if not for the development of the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986). This was probably the most influential development in terms of scientific exploration of the burnout construct. Three versions of the MBI were developed, namely the MBI-GS (General Survey), MBI-ED (Educators) and MBI-HSS (Human Services Survey). The MBI-GS measures exhaustion, cynicism and professional efficacy, and the latter two measure emotional exhaustion, depersonalisation and personal accomplishment. The General Survey measures burnout across a broad range of professions, whereas the HSS and ED-versions of the MBI measures burnout within the human services and education contexts respectively.

The importance of establishing a reliable and valid instrument to assess burnout of nurses is not only important for empirical research purposes, but also for the pragmatic, standardised application in the individual assessment setting. As such, a considerable amount of research seems to support the psychometric soundness of the MBI-HSS in various occupational settings (Byrne, 1991, 1994; Enzmann, Schaufeli, & Girault, 1995; Green & Walkey, 1988; Maslach & Jackson, 1981). However, little information is available on the internal consistency and construct validity (see Rothmann, 2002), which makes it difficult to evaluate research results regarding burnout levels of nurses. The Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986) is used in most studies of burnout (Schaufeli & Enzmann, 1998). Therefore, the first research problem posed is the fact that the MBI is not validated for nurses in South Africa, thus making it difficult to assess the levels of burnout of nurses.

In terms of South African studies, there seems to be an apparent paucity of research regarding the validity, reliability and the establishment of norms for various occupational settings of the MBI-HSS. Although many related studies were conducted in the United States and Europe in the early stages of scale development, a lack of research in this area within the South African context necessitates the current research (Rothmann, 2002).

South Africa differs from most other countries in that it consists of a multicultural society. According to Van de Vijver and Leung (1997), measurement equivalence should be computed for measuring instruments in any multicultural setting where individuals from

different cultural groups are compared in terms of a specific construct. This is particularly relevant where no norms exist for the different cultural groups, which is often the case in cross-cultural research. In line with recommendations of Poortinga (1989) and Van de Vijver and Leung (1997) measurement equivalence should be tested for in a multi-cultural context where differences in scores could be attributed to cultural influences in terms of item meaning and understanding, rather than differences resulting from the measuring of the constructs by the measuring instruments. If cultural influences are not accounted for, invalid conclusions regarding the constructs under study could be made with serious implications for culturally diverse settings such as South Africa.

The objectives of this study were to investigate the factorial validity, construct equivalence, and reliability of the Maslach Burnout Inventory - Human Services Survey (MBI-HSS) for registered nurses in South Africa and to analyse the differences between the levels of burnout of different biographical groups.

The Maslach Burnout Inventory – Human Services Survey (MBI-HSS)

A major development in the stimulation of scientific interest in burnout was the introduction of the easy-to-administer, self-report questionnaires in the beginning of the eighties, the Maslach Burnout Inventory (MBI) particularly being the most popular (Maslach & Jackson, 1981; Maslach et al., 1996, Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). It is estimated that the MBI has been used in over 90% of the empirical publications on burnout since the mid eighties (Schaufeli & Enzmann, 1998).

The MBI-HSS (Human Services Survey) was designed to measure burnout of people working in the human services and health care occupations by means of three subscales, namely emotional exhaustion, depersonalisation and personal accomplishment. Emotional exhaustion refers to a lack of energy and a feeling that emotional resources are depleted, whereas depersonalisation refers to the treatment of recipients of services in a negative, cynical, detached and emotionally callous manner. Reduced personal accomplishment refers to negative self-evaluation, the belief that objectives are not reached, poor professional self-esteem and beliefs of insufficiency on the part of the service provider.

Initial interest in the first phase of development of the construct was limited to pragmatic and

descriptive concerns and a lack of empirical study. It was only during the so-called empirical phase that the construct of burnout was operationally defined and researched by means of scientific study. Although the reliability and validity of the MBI-HSS are well established, the literature seems to reflect opposing views regarding the factorial structure of the MBI-HSS (Cordes & Dougherty, 1993, Maslach & Jackson, 1986). Findings have indicated two-factor solutions (Brookings, Bolton, Brown, & McEvoy, 1985), four-factor solutions (Firth, McIntee, McKeown, & Britton, 1985; Iwanicki & Schwab, 1981) and unitary conceptions of the factor structure of the MBI-HSS, adding the three factors together towards an overall measure of burnout (Golembiewski & Munzenrider, 1981; Meier, 1984).

In their sample of female human services professionals, Brookings et al. (1985) found a combined factor consisting of emotional exhaustion and depersonalisation, which they called the core of burnout, and a personal accomplishment factor. According to Firth et al. (1985), emotional exhaustion could be subdivided into two factors, namely frustration and discouragement about work and emotional draining in a nursing sample, whereas Iwanicki and Schwab (1981) argued for the separation of depersonalisation into a job-related and student-related factor in their teacher sample. However, the most common solution in terms of the factorial structure of the MBI seems to be the existence of three conceptually distinct components of burnout, namely emotional exhaustion, depersonalisation and personal accomplishment for the MBI-HSS (Golembiewski & Munzenrider, 1981; Green & Walkey, 1988; Maslach & Jackson, 1981, 1986).

In terms of reliability, the MBI-HSS seems to be an internally consistent scale with Cronbach alphas in various samples (e.g. graduate students, administrators in a health agency, teachers, social service- and mental health workers, police officers, nurses, and public service employees) constantly exceeding the proposed criterion of 0,70 as proposed by Nunnally and Bernstein (1994), with the exception of the depersonalisation scale in some samples (Schaufeli et al., 2001; Schaufeli, Enzmann, & Girault, 1993). Initial research on the MBI-HSS (N = 1 316) yielded reliability coefficients of 0,90 for emotional exhaustion, 0,79 for depersonalisation and 0,71 for personal accomplishment (Maslach, Jackson, & Leiter, 1997). In a study of educators and business owners in the United States of America, Boles, Dean, Ricks, Short, and Wang (2000) found Cronbach alpha coefficients of 0,89 and 0,90 (emotional exhaustion), 0,70 and 0,80 (depersonalisation) and 0,76 and 0,78 (personal accomplishment) for the educators and small business owners respectively.

In the South African context, research evidence seems to confirm these findings. Basson and Rothmann (2002) found internal consistencies of 0,89 for emotional exhaustion, 0,67 (depersonalisation) and 0,73 (personal accomplishment) in a pharmacist sample. In their sample of psychiatric nurses, Levert et al. (2000) reported alpha coefficients of 0,78 (emotional exhaustion), 0,74 (depersonalisation) and 0,75 (personal accomplishment).

Studies on the test-retest reliability of the MBI-HSS seem to confirm the stability of the MBI-HSS scales over time. Coefficients of 0,82 for emotional exhaustion, 0,60 for depersonalisation and 0,80 for personal accomplishment were found after 2 to 4 weeks for a sample of social welfare graduate students and health agency administrators. Another study amongst teachers revealed coefficients of 0,60 for emotional exhaustion, 0,54 for depersonalisation and 0,57 for personal accomplishment after one year (Jackson, Schwab, & Schuler, 1986). Other studies confirmed stability of the scales of the MBI-HSS over time with correlations of 0,50 to 0,82 for time spans of three months to one year (Leiter & Durup, 1996). Schaufeli and Enzmann (1998) analysed 15 longitudinal studies with different versions of the MBI and found that the differences in variance between the first and second measurement, which can be explained by the first measurement, ranged between 24% and 67% for emotional exhaustion, 12% and 61% for depersonalisation and 20% and 62% for personal accomplishment.

The lowered internal consistency findings in terms of the depersonalisation scale seem to agree with literature reports regarding the high correlations between emotional exhaustion and depersonalisation (Lee & Ashforth, 1990). Meta-correlations in a study by Lee and Ashforth (1996) provided support for this finding by establishing the inter-correlation between the emotional exhaustion scale and the depersonalisation scale at 0,64. The relationship between emotional exhaustion and personal accomplishment was determined at -0,22, while depersonalisation and personal accomplishment yielded a correlation of -0,34. Notwithstanding this fact, differential patterns of correlations between the dimensions of burnout and other study variables such as age, workload, autonomy, job challenge, satisfaction with status and recognition, role ambiguity, job satisfaction, turnover intention, role conflict and organisational commitment, to name but a few, seem to suggest the existence of the three distinct components of burnout (Friesen, Prokop, & Sarros, 1988; Jackson et al., 1986; Maslach & Jackson, 1984; Lee & Ashforth, 1996; Schwab & Iwanicki,

1982). This argument – against the existence of a single unitary conception of burnout – was also posited by Maslach (in Iwanicki & Schwab, 1981; Maslach & Jackson, 1981).

Construct equivalence (also known as structural equivalence) indicates the extent to which the same construct is measured across the cultural groups under study, in other words, the comparison of cultural groups, seeing that their scores are related to the same construct. In the case of structural in-equivalence, no comparison can be made due to the fact that scores obtained are not related to the same construct (Van de Vijver & Leung, 1997). Naudé and Rothmann (2004) investigated the construct equivalence of the MBI-HSS for different race groups in South Africa. They found evidence for the construct equivalence of the MBI-HSS. Acceptable alpha coefficients were demonstrated for emotional exhaustion and personal accomplishment.

Burnout and biographical variables

It is by now evident from the literature that the nursing profession is prone to burnout. Research regarding the levels of burnout of nurses in different biographical groups revealed contrasting results. The research results of Happel, Martin, and Pinikahana (2003) supported those of various other authors, namely Clinton and Hazelton (2000), Coffey and Coleman (2001), de Jonge (1995), Edwards et al. (2000), and Prosser et al. (1999), by identifying mental health nurses and community mental health nurses as the professional groups with the highest sources of stress and, thus, of burnout (44% of the sample) – with particularly high levels of emotional exhaustion – with no apparent difference between the two groups. Levert et al. (2000) confirmed this phenomenon as being prevalent in the South African context. Their research amongst psychiatric nurses in South Africa also revealed high burnout levels in all three dimensions of burnout. Almost 50% of the sample reported high levels of emotional exhaustion and depersonalisation, while as much as 93,4% of the sample experienced low feelings of personal accomplishment.

Compared to the above, Carson et al. (1991), Kilfedder, Power, and Wells (2001) and Tummers et al. (2001) found that reduced personal accomplishment was least experienced by staff in mental health care and that the psychiatric nurses in Scotland (United Kingdom) had significantly lower scores on emotional exhaustion and depersonalisation than a group of

physicians and medical nurses, which revealed that burnout was a less significant problem for mental health nurses.

Apart from mental health nurses being identified as experiencing high levels of stress in their work, research also showed that gender (being female), was the most remarkable factor to be positively related to fatigue (Cocco, Gatti, de Mendonça Lima, & Camus, 2003; Tiesinga, Dassen, Halfens, & Van den Heuvel, 1999). This is contrary to the findings of Maslach et al. (2001) who found that little difference was indicated in the likelihood of burnout for men and women, though results indicated that men experience slightly higher scores on depersonalisation than women and that women scored slightly higher on exhaustion. Their results also revealed that there was no significant difference for those filling a particular job category. However, another study stated that levels of experienced burnout in a sample of hospice nurses (as measured by the MBI) was low in comparison with other nursing disciplines (Payne, 2001), and in another study that community care staff experienced higher levels of burnout than health professionals working in hospitals (Edwards et al., 2000).

However, Maslach et al. (2001) and Schaufeli and Enzmann (1998) did point out that unmarried people seem to be more prone to burnout than those who are married (it is claimed that social support from partners might alleviate stress) (Schaufeli & Buunk, 1996), compared to Cocco et al. (2003) whose research revealed no significant differences. Maslach et al. (2001) and Schaufeli and Enzmann (1998) also point out that a higher level of education correlates positively with burnout, especially regarding emotional exhaustion, suggesting that more responsibility is laid upon workers on higher educational levels. However, personnel at higher levels of education scored higher on personal accomplishment than less educated personnel (Kilfedder et al., 2001). This is supported by the research of Cocco et al. (2003), which stated that most stress-related problems seem more prevalent among workers with low status and poor education. The research of Kilfedder et al. (2001) also indicated that full-time workers scored significantly higher on emotional exhaustion and depersonalisation, but had higher scores on personal accomplishment than those of part-time workers.

Moreover, literature reflects the fact that higher burnout levels, especially regarding depersonalisation, were associated with younger (under the age of 30), recently qualified nurses (Kilfedder et al., 2001; Schaufeli & Enzmann, 1998). In fact, the research of Van der Colff (2001) stated that nursing students are already showing signs of burnout during their

training, comparable to the burnout levels of working nurses and, thus, enter the profession with burnout. However, especially in European countries like the Netherlands, burnout is more prevalent in older age groups (Schaufeli & Van Dierendonck, 1993). European employees are probably more reluctant to change jobs because of cultural values and social security systems restricting labour market mobility more than in other countries (Schaufeli & Buunk, 1996). Research also showed that workers experience more burnout when they work more hours per week (Schaufeli & Enzmann, 1998).

In terms of race and burnout, Coetzee and Rothmann (2004) found that white employees (compared to black employees) showed higher levels of exhaustion. Coetzee and Rothmann attributed these differences to demands faced by white employees because of employment equity and organisational transformation.

Schaufeli and Enzmann (1998) re-analysed the findings of the meta-analysis of Lee and Ashforth (1996), adding 15 more studies on the relationships of burnout with job satisfaction, organisational commitment and intention to leave. They found that job satisfaction correlates comparatively highly with all three burnout dimensions but most highly with depersonalisation (27% shared variance), followed by exhaustion and reduced personal accomplishment (20% and 16% shared variances). Although less overtly so than job satisfaction, organisational commitment consistently correlates negatively with emotional exhaustion and depersonalisation (16% shared variance). The relationship with reduced personal accomplishment is clearly weaker (5% shared variance). Similar results are found with respect to the intention to quit, which shares 20% variance with emotional exhaustion, 12% with depersonalisation, and 6% with reduced personal accomplishment. The research of Kilfedder et al. (2001) also confirmed that lower emotional exhaustion is associated with greater total job satisfaction.

The research of Demir, Ulusoy, and Ulusoy (2003) revealed that personal accomplishment levels increase with the years spent in the nursing profession. The highest level of personal accomplishment was observed in nurses who have been working for 16 years or more. This contradicts the findings of Cocco et al. (2003), whose research revealed no differences in this regard. Demir et al. (2003) also stated that working day shifts decreases depersonalisation and increases personal accomplishment and that nurses who suffered from health problems were found to have higher levels of emotional exhaustion and depersonalisation. The authors,

however, warned that deteriorating health might be a sign of burnout, instead of viewing ill health only as a causative factor of burnout.

The hypothesis of this study are as follows:

Hypothesis 1: Burnout, as measured by the MBI-HSS, consists of three factors, namely emotional exhaustion, depersonalisation and personal accomplishment, which are equivalent and reliable for Afrikaans, English and African speaking registered nurses in South Africa.

Hypothesis 2: Significant differences exist on the burnout dimension scores of registered nurses in South Africa based on biographical characteristics.

METHOD

Research design

A cross-sectional research design with a survey as technique of data collection was used to test the research hypothesis. A cross-sectional design is the most appropriate design for the validation of the MBI (Byrne, 1994).

Participants

The study population could be defined as a stratified random sample of registered nurses (N = 818) in the private, public, hospital, community, psychiatric and management sectors of seven provinces of South Africa. Descriptive information of the sample is provided in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Frequency	Percentage
Sector	Private	686	83,92
	Public	132	16,08
Rank	Registered nurses	554	67,70
	Unit managers/ Chief professional nurses	122	14,90
	Middle and top managers	142	17,40
Employment	Full-time	762	93,20
	Part-time	52	6,40
Unit	Hospital ward	613	79,40
	Psychiatric ward	25	3,20
	Community/occupational services (Primary health care)	67	8,70
	Management	67	8,70
Specialised Unit	Intensive and High care	107	13,90
	Surgery, Urology, Ear, Nose and Throat, Orthopaedic,	140	18,20
	Theatre and Trauma/Casualties	184	24,00
	Medical, Oncology, Outpatients, Paediatrics	110	14,30
	Obstetrics	59	7,70
	Psychiatry and other, e.g. Community nursing/Management	168	21,90
Years employed in nursing profession	0 - 10 years	162	19,80
	10,01 – 15 years	159	19,40
	15,01 – 20 years	180	22,00
	20,01 – 25 years	130	15,90
	25,01 – 30 years	107	13,10
	30,01 and longer	80	9,80
Province	Eastern Cape	58	8,00
	Free State	42	5,80
	Gauteng	350	48,50
	Kwa-Zulu Natal	135	18,70
	Mpumalanga	46	6,40
	North West	57	7,90
	Western Cape	33	4,60
Nursing related educational level	Nursing Diploma	641	82,70
	Nursing Degree	134	17,30

Table 1

Characteristics of the Participants (continued)

Age	20 – 30	164	20,00
	30,1 – 35	129	15,80
	35,01 – 40	117	14,30
	40,01 – 45	175	21,40
	45,01 – 50	112	13,70
	50,01 – 60	121	14,80
Gender	Male	21	2,60
	Female	791	97,40
Marital status	Single	189	23,20
	Married	481	58,90
	Divorced	119	14,60
	Widow or widower	27	3,30
Home language	Afrikaans	427	52,20
	English	236	28,90
	African	155	18,90

The sample consisted mainly of female, married, Afrikaans speaking registered nurses with a nursing diploma, working full-time on day duty in hospital wards in the private sector in the Gauteng province. The mean age of the participants was 40 years, while the average length of service in the nursing profession was 19 years. A total of 52,20% of the participants were Afrikaans speaking, 28,90% were English speaking, while 18,90% spoke an African language. The majority of the group took at least 21 days of leave during the year prior to the survey and 86,50% took sick-leave comprising fewer than 8 days.

Measuring battery

The Maslach Burnout Inventory – Human Services Survey (MBI-HSS) (Maslach & Jackson, 1986) and a questionnaire to measure reciprocity were used in this study.

The *Maslach Burnout Inventory – Human Services Survey* (MBI-HSS) (Maslach & Jackson, 1986) measures respondents' perceived experience of burnout in relation to the recipients of their service, care or treatment. The MBI-HSS consists of 22 items phrased as statements about personal feelings and attitudes that are self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The three subscales of the MBI-HSS include

emotional exhaustion (nine items; e.g. "I feel emotionally drained from my work"), depersonalisation (five items; e.g. "I feel I treat some recipients as if they were impersonal objects"), and personal accomplishment (eight items; e.g. "I have accomplished many worthwhile things in this job"). The subscales represent a related (emotional exhaustion and depersonalisation) and independent (personal accomplishment), but separate multi-dimensional concept of the burnout construct. As such, the psychometric soundness of the MBI-HSS is well documented in the literature with internal consistencies usually well above the 0,70 Cronbach alpha level, except for the depersonalisation scale in some samples (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002). Test-retest reliability ranging from three months to one year has been reported in the range of 0,50 to 0,82 (Leiter & Durup, 1996).

Reciprocity was measured on four levels, namely reciprocity in terms of patients, co-workers, supervisors and the organisation. Four items were used, namely "As a nurse I put a lot of energy into dealing with patients, but I rarely get something in return"; "As a nurse I put a lot of energy into dealing with my co-workers, but I rarely get something in return"; "As a nurse I put a lot of energy into dealing with my supervisors, but I rarely get something in return"; and "As a nurse I put a lot of energy into dealing with the hospital as an organisation (management), but I rarely get something in return". The items were scored on a five-point rating scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*).

Statistical analysis

The statistical analysis was carried out with the SPSS programme (SPSS Inc., 2003). In the first step, means, standard deviations, skewness and kurtosis were determined to describe the data. The reliability of the MBI-HSS was determined by means of Cronbach alpha coefficients.

Construct equivalence of the MBI-HSS was performed. Construct equivalence can be investigated with several techniques, such as factor analysis, cluster analysis, and multidimensional scaling or other dimensionality-reducing techniques (Van de Vijver & Leung, 1997). The basic idea behind the application of these techniques is to obtain a structure in each culture, which can then be compared across all cultures involved. Factor analysis is the most frequently employed technique for studying construct equivalence. In the

current study both exploratory and confirmatory models could have been used. Given that information on the composition of the instrument is available (on the basis of previous studies), the choice for confirmatory factor analysis may seem obvious. However, the current authors used exploratory factor analysis for a pragmatic reason. The validity of the MBI-HSS has only been explored in one study in South Africa. Moreover, the authors had negative experiences with the use of confirmatory models in studying the construct validity of the MBI-HSS. The main problem in the application of confirmatory models is the manner in which they fit the data, which is almost always very poor. It is usually not clear whether the reasons for the poor fit are serious and should lead to a reformulation of the model, or are trivial and do not challenge the underlying model.

Exploratory factor analysis was therefore used to examine construct equivalence. A principal components analysis was conducted to determine the number of factors of the MBI-HSS in the total sample. Subsequently, a direct oblimin rotation was used to determine the solution for each race group. Factors obtained in each group were compared (after target rotation). The agreement was evaluated by a factor congruence coefficient, Tucker's phi (Van de Vijver & Leung, 1997). Values above 0,90 are taken to point to essential agreement between cultural groups, while values above 0,95 point to very good agreement. A high agreement implies that the factor loadings of the lower and higher level are equal up to a multiplying constant. (The latter is needed to accommodate possible differences in eigenvalues of factors for the race groups).

Multivariate analysis of variance (MANOVA) was used to assess the significance of differences between groups. MANOVA tests whether mean differences amongst groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable, which maximises group differences, is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda was used to test the significance of the effects. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Because multiple ANOVAs were used, a Bonferroni-type adjustment was made for inflated Type 1 error.

RESULTS

A simple principal component analysis was carried out on the 22 items of the MBI-HSS. First, the factorability of the items of the MBI-HSS was assessed. The Bartlett's test of Sphericity showed that the items were factorable (χ^2 = 7053,01; df = 231; p < 0,01). Furthermore, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0,90, which is acceptable compared to the recommended value higher than 0,60. The anti-image correlations for the 22 items varied from 0,77 (Item 4) to 0,96 (Item 22). The communalities of the items were higher than 0,35, except for Item 4 (0,31), Item 18 (0,26) and Item 22 (0,23). Three factors with eigenvalues higher than 1, which explained 46,71% of the variance, were extracted.

Next, a principal component analysis with a direct oblimin rotation was carried out separately for nurses in three language groups, namely Afrikaans, English and African languages. The pattern matrices for the three language groups are reported in Table 2.

Table 2

Pattern Matrices of the 22-item MBI-HSS for Nurses in Three Language Groups: Model 1

Item	Afrikaans			English			African		
	F1	F2	F3	F1	F2	F3	F1	F2	F3
I feel emotionally drained from my work.	**0,82**	0,03	0,00	**0,79**	0,10	0,10	**0,74**	-0,02	0,09
I feel used up at the end of the workday.	**0,83**	0,09	0,01	**0,75**	0,25	0,11	**0,57**	0,01	0,20
I feel fatigued (tired) when I get up in the morning and have to face another day on the job.	**0,81**	-0,04	0,01	**0,70**	-0,01	0,17	**0,76**	-0,11	-0,04
I can easily understand how my recipients feel about things.	0,30	**0,53**	-0,18	0,28	**0,60**	-0,13	**0,55**	0,18	-0,46
I feel I treat some recipients as if they were impersonal objects.	0,07	-0,10	**0,62**	0,11	-0,17	**0,59**	-0,04	-0,10	**0,62**
Working with people all day is really a strain for me.	**0,43**	-0,02	0,38	**0,34**	-0,15	0,36	**0,20**	0,05	0,57
I deal very effectively with the problems of my recipients.	0,12	**0,56**	-0,13	0,11	**0,61**	0,06	0,20	**0,51**	-0,21
I feel burned out from my work.	**0,80**	0,01	0,12	**0,71**	-0,02	0,18	**0,62**	-0,06	0,32
I feel I'm positively influencing other people's lives through my work .	-0,19	**0,68**	0,20	0,04	**0,60**	-0,23	-0,07	**0,59**	-0,06
I've become more callous (hard) toward people since I took this job.	0,10	0,15	**0,81**	0,06	0,03	**0,79**	0,04	0,13	**0,75**
I worry that this job is hardening me emotionally	0,22	0,10	**0,74**	0,11	0,08	**0,77**	0,40	-0,04	**0,53**
I feel very energetic	-0,60	**0,37**	0,06	-0,62	**0,25**	0,09	-0,53	**0,50**	0,09
I feel frustrated by my job.	**0,70**	-0,03	0,09	**0,31**	0,11	0,44	**0,54**	-0,03	0,35
I feel I'm working too hard on my job.	**0,62**	0,80	0,12	**0,41**	0,08	0,31	**0,42**	0,13	0,03
I don't really care what happens to some recipients.	0,00	-0,17	**0,62**	-0,04	-0,33	**0,51**	0,12	-0,07	**0,55**
Working with people directly puts too much stress on me	0,37	-0,02	**0,39**	0,28	-0,06	**0,50**	0,38	0,02	**0,41**
I can easily create a relaxed atmosphere with my recipients.	-0,16	**0,69**	-0,04	-0,19	**0,62**	0,02	-0,19	**0,75**	0,07
I feel exhilarated after working closely with my recipients.	0,23	**0,40**	-0,13	-0,43	**0,60**	0,15	0,17	**0,46**	0,09
I have accomplished many worthwhile things in this job.	-0,14	**0,68**	0,07	-0,34	**0,57**	0,09	-0,15	**0,67**	0,05
I feel like I'm at the end of my rope.	**0,67**	-0,07	0,12	**0,55**	-0,07	0,12	**0,50**	-0,08	0,24
In my work, I deal with emotional problems very calmly.	-0,07	**0,60**	0,02	0,09	**0,49**	-0,14	0,13	**0,61**	-0,05
I feel recipients blame me for some of their problems.	**0,35**	-0,13	0,21	0,12	0,06	**0,38**	0,04	0,03	**0,54**

Table 2 reveals that three items were complex and problematic in terms of construct equivalence for the three language groups. These items are: a) Item 4: *I can easily understand how my recipients feel about things*; b) Item 6: *Working with people all day is really a strain for me*; and c) Item 16: *Working with people directly puts too much stress on me*. These three items had significant cross-loadings on more than one factor. However, it was decided to retain these three items because the patterns found were equivalent across language groups.

Next, the three-factor solution for the three language groups was used as input for an exploratory factor analysis with target rotations. The three-factor structure was compared across the three groups by rotating one solution to the other. After target rotation, the following Tucker's phi coefficients were obtained, as stated in Table 3.

Table 3

Tucker's Phi Coefficients: Model 1

Variables	Afrikaans-English	Afrikaans- African	English-African
Emotional exhaustion	0,91	0,95	0,93
Personal accomplishment	0,97	0,96	0,93
Depersonalisation	0,93	0,92	0.92

Table 3 shows that the Tucker's phi coefficients of all factors for all language groups were acceptable (> 0,90).

Due to the fact that the construct equivalence of the MBI-HSS was acceptable for all three groups, a principal component analysis with a direct oblimin rotation was conducted on the total sample once more. The pattern matrix is reported in Table 4.

Table 4

Pattern Matrix of the Total Sample of 22-item MBI-HSS for Registered Nurses in South Africa

Item	Total sample		
	F1	F2	F3
I feel emotionally drained from my work.	**0,80**	-0,00	0,02
I feel used up at the end of the workday.	**0,78**	0,06	0,02
I feel fatigued (tired) when I get up in the morning and have to face another day on the job.	**0,783**	-0,068	0,039
I can easily understand how my recipients feel about things.	0,33	**0,43**	-0,21
I feel I treat some recipients as if they were impersonal objects.	-0,07	-0,08	**0,67**
Working with people all day is really a strain for me.	**0,32**	-0,01	0,46
I deal very effectively with the problems of my recipients.	0,16	**0,56**	-0,12
I feel burned out from my work.	**0,74**	-0,02	0,15
I feel I'm positively influencing other people's lives through my work	-0,10	**0,64**	0,02
I've become more callous (hard) toward people since I took this job	0,04	0,09	**0,78**
I worry that this job is hardening me emotionally	0,21	0,08	**0,69**
I feel very energetic	-0,59	**0,42**	0,10
I feel frustrated by my job.	**0,57**	0,01	0,23
I feel I'm working too hard on my job.	**0,53**	0,12	0,10
I don't really care what happens to some recipients.	-0,07	-0,16	**0,65**
Working with people directly puts too much stress on me	**0,32**	0,03	0,45
I can easily create a relaxed atmosphere with my recipients.	-0,13	**0,69**	-0,03
I feel exhilarated after working closely with my recipients.	0,07	**0,51**	0,04
I have accomplished many worthwhile things in this job.	-0,19	**0,67**	0,08
I feel like I'm at the end of my rope.	**0,58**	-0,09	0,18
In my work, I deal with emotional problems very calmly.	0,00	**0,59**	-0,01
I feel recipients blame me for some of their problems.	0,20	-0,03	**0,36**

Table 4 reveals that a) Item 4: *I can easily understand how my recipients feel about things*; b) Item 6: *Working with people all day is really a strain for me*; and c) Item 16: *Working with people directly puts too much stress on me*, are still complex and problematic with significant cross-loadings on more than one factor.

The descriptive statistics and alpha coefficients of the three factors of the MBI-HSS are provided in Table 5.

Table 5

Descriptive Statistics and Alpha Coefficients of the MBI-HSS

Item	Mean	*SD*	Skewness	Kurtosis	α
Emotional exhaustion	22,15	11,28	0,25	-0,58	0,88
Depersonalisation	7,22	5,92	0,78	-0,10	0,73
Personal accomplishment	34,54	7,58	0,83	1,46	0,71

The information in Table 5 indicates that the scores on the three factors of the MBI-HSS are normally distributed. With regard to the reliability of the scales, emotional exhaustion, depersonalisation and personal accomplishment seem to demonstrate acceptable coefficient alphas above the 0,70 guideline, provided by Nunnally and Bernstein (1994). Not shown in Table 5 are the percentages of registered nurses who experience low, moderate or high levels of burnout. Rothmann (2005) analysed the levels of emotional exhaustion and depersonalisation of registered nurses in this sample. It was evident that 33,5%, 31,9% and 34,6% of the registered nurses displayed low, moderate and high levels of emotional exhaustion, while 53,8%, 25,8% and 20,4% showed low, moderate and high levels of depersonalisation respectively.

Next, multivariate analysis of variance (MANOVA) was used to analyse the differences between the burnout levels of different biographical groups, namely different language and age groups, different ranks, nurses working in different disciplines (specialised units), the number of years they have been involved in nursing, the levels of job satisfaction, as well as reciprocity (see Table 6). In MANOVA, several dependent variables (in this case emotional exhaustion, depersonalisation and personal accomplishment) are considered together in the same analysis.

Table 6

MANOVA of the Burnout Levels of Biographical Groups

Item	Value	F	df	p	η^2
Language (Culture)	0,92	11,83	6,00	0,00*	0,04
Age	0,96	2,11	15,00	0,01*	0,01
Rank	0,98	3,24	6.00	0,00*	0,01
Specialised unit	0,96	1,93	15,00	0,02	0,01
Years in nursing	0,97	1,49	15,00	0,10	0,01
Job Satisfaction	0,80	15,05	12,00	0,00*	0,07
Reciprocity	0,91	12,00	6,00	0,00*	0,04

* $p < 0,01$

Table 6 reflects the significant effect of culture (language groups) on the combined dependent variable burnout ($F_{(6, 1626)} = 11,83$, $p < 0,01$; Wilks' Lambda = 0,92; $\eta^2 = 0,04$). However, this effect was small (4,2% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of emotional exhaustion ($F_{2, 815)} = 2,50$, $p = 0,08$) in the three language groups of registered nurses in South Africa. The groups differed in terms of the level of personal accomplishment ($F_{(2, 815)} = 15,01$, $p = 0,00$) and depersonalisation ($F_{(2, 815)} = 7,01$, $p = 0,00$) where the Afrikaans speaking group showed lower levels of personal accomplishment ($F_{(2, 815)} = 15,01$, $p = 0,00$) than the other two groups, and both the Afrikaans and English speaking groups showed higher levels of depersonalisation ($F_{(2, 815)} = 7,01$, $p = 0,00$) than the African language speaking group.

Table 6 also reflects the significant effect of age on the combined dependent variable burnout ($F_{(15, 2236)} = 2,11$, $p < 0,01$; Wilks' Lambda = 0,96; $\eta^2 = 0,01$). However, this effect was small (1,3% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of emotional exhaustion ($F_{(5, 812)} = 2,48$, $p = 0,03$) and personal accomplishment ($F_{5, 812)} = 0,48$, $p = 0,79$) in the six age groups of registered nurses in South Africa. The groups differed in terms of the level of depersonalisation ($F_{(5, 812)} = 5,31$, $p = 0,00$), where the youngest age group (20-30 years) of registered nurses showed higher levels of depersonalisation ($F_{(5, 812)} = 5,31$, $p = 0,00$).

A significant effect of rank (registered nurses, chief professional nurses and nurse managers) on the combined dependent variable burnout was noted. ($F_{(6, 1626)}$ = 3,24, p < 0,01; Wilks' Lambda = 0,98; η^2 = 0,01). However, this effect was again small (1,2% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of emotional exhaustion ($F_{2, 815)}$ = 1,62, p = 0,20) and depersonalisation ($F_{(2, 815)}$ = 2,54, p = 0,08) in the three ranks of registered nurses in South Africa. The three groups differed in terms of the level of personal accomplishment ($F_{(2, 815)}$ = 4,42, p = 0,01), where the lowest rank of registered nurses showed lower levels of personal accomplishment ($F_{(2, 815)}$ = 4,42, p = 0,01).

Moreover, there was a significant effect of job satisfaction on the combined dependent variable burnout ($F_{(12, 2106)}$ = 15,05, p < 0,01; Wilks' Lambda = 0,80; η^2 = 0,07). Although being larger than the previous effects, this effect was still considered small (7% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were significant differences between the levels of emotional exhaustion ($F_{(4, 798)}$ = 42,21, p = 0,00), depersonalisation ($F_{(4, 798)}$ = 13,48, p = 0,00) and personal accomplishment ($F_{4, 798)}$ = 8,55, p = 0,00) in the five levels of job satisfaction, ranging from very unsatisfied with their job (level 1) to very satisfied with their job (level 5). The group that indicated that they were very unsatisfied with their job (level 1), showed the highest level of emotional exhaustion, as well as the highest level of depersonalisation and the lowest level of personal accomplishment. The group that indicated that they were very satisfied with their jobs (level 5), showed the highest level of personal accomplishment and the lowest levels of both emotional exhaustion and depersonalisation.

Reciprocity also proves to have a significant effect on the combined dependent variable burnout ($F_{(6, 1566)}$ = 11,99, p < 0,01; Wilks' Lambda = 0,91; η^2 = 0,04). This was however also a small effect (explaining 4,4% of the variance). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were significant differences between the levels of emotional exhaustion ($F_{(2, 785)}$ = 31,46, p = 0,00), depersonalisation ($F_{(2, 785)}$ = 18,72, p = 0,00) and personal accomplishment ($F_{2, 785)}$ = 8,68, p = 0,00) in the three levels of reciprocity (low, medium, high, where *low* indicates that the participants completely disagreed with the statement that they do not get anything in return

for what they put into their jobs and *high* indicates that the participants completely agreed with the statement) of registered nurses in South Africa. The groups differed in terms of the level of emotional exhaustion ($F_{(2, 785)} = 32{,}54$, $p = 0{,}00$). The group that measured low (i.e. indicating high levels of reciprocity), showed lower levels of emotional exhaustion and depersonalisation and higher levels of personal accomplishment, in comparison to the group that measured high (indicating low levels of reciprocity), which showed the highest level of both emotional exhaustion and depersonalisation and the lowest level of personal accomplishment.

Table 6 shows that working in specific units (e.g. surgery, medical wards, psychiatric and community nursing and trauma units), as well as the number of years spent in nursing, had no significant effect on the burnout levels of the participants.

Next, t-tests were used to analyse the differences between the burnout levels of different biographical groups regarding the presence of a medical condition or no medical condition, full-time or part-time employment; whether or not special training for the specific unit was received, the difference between nurses with a nursing diploma and a nursing degree; day- and night shifts and gender (see Table 7). The significance of differences between different biographical groups of registered nurses is reported in Table 7.

Table 7

T-tests of the Burnout Levels of Biographical Groups

Item	*Mean*	*SD*	*Mean*	*SD*	*t*	*p*	*d*
	Medical condition present (n = 140)		No medical condition present (n = 655)				
Emotional exhaustion	24,74	10,90	21,53	11,32	3,15	0,00*	0,28
Depersonalisation	8,00	6,08	6,97	5,86	1,83	0,07	0,17
Personal accomplishment	34,74	7,82	34,53	7,55	0,29	0,77	0,03
	Full-time employed (n = 762)		Part-time employed (n = 52)				
Emotional exhaustion	22,46	11,31	17,70	10,32	3,20	0,00*	0,42
Depersonalisation	7,39	5,98	5,13	4,63	3,32	0,00*	0,38
Personal accomplishment	34,55	7,52	34,00	8,49	0,46	0,65	0,06
	Special training received for specific unit (n = 373)		No special training received (n = 425)				
Emotional exhaustion	21,23	11,12	23,27	11,40	-2,56	0,01*	-0,18
Depersonalisation	6,87	5,63	7,67	6,16	-1,90	0,58	-0,13
Personal accomplishment	34,92	7,56	34,25	7,56	1,26	0,21	0,09
	Nursing Diploma (n = 636)		Nursing Degree (n = 134)				
Emotional exhaustion	21,99	11,20	23,04	11,57	-0,96	0,34	-0,09
Depersonalisation	7,38	5,93	6,93	6,04	0,80	0,43	0,07
Personal accomplishment	34,47	7,64	35,15	7,05	-1,01	0,32	-0,09
	Day duty (n = 639)		Night duty (n = 165)				
Emotional exhaustion	22,14	11,10	22,08	12,12	0,05	0,96	0,00
Depersonalisation	7,15	5,75	7,41	6,51	-0,46	0,65	-0,04
Personal accomplishment	34,37	7,68	35,16	7,33	-1,22	0,22	-0,10
	Male (n = 21)		Female (n = 791)				
Emotional exhaustion	25,14	10,57	22,08	11,31	1,31	0,21	0,27
Depersonalisation	8,33	6,96	7,20	5,90	0,74	0,47	0,16
Personal accomplishment	35,00	5,96	34,52	7,63	0,37	0,72	0,06

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

Although no practically significant differences between different biographical groups of registered nurses in South Africa as listed in Table 7 were revealed, statistically significant higher levels of emotional exhaustion were indeed revealed ($p < 0,01$) for staff members with a medical condition as compared to those with no medical condition; for staff members who

received no special training for the unit (discipline) they are working in as opposed to those who had special training; and indicated higher levels of both emotional exhaustion and depersonalisation for staff members working full-time in comparison to those who only worked part-time. No practically or statistically significant differences were revealed between groups with a nursing diploma or a nursing degree, between groups that work day shifts or night shifts, or regarding gender.

DISCUSSION

The objectives of this study were to assess the factorial validity, construct equivalence and internal consistency of the MBI-HSS for registered nurses in South Africa and to analyse the differences between the levels of burnout of different biographical groups. The results confirmed the factorial validity, internal consistency and construct equivalence of the MBI-HSS for registered nurses.

The results of this study supported a three-factor structure of the MBI-HSS, consisting of emotional exhaustion, depersonalisation and personal accomplishment, and confirmed the results of previous studies across various samples, occupational groups and countries (Byrne, 1991, 1994; Leiter & Schaufeli, 1996; Naudé & Rothmann, 2004; Schaufeli et al., 2002; Schutte, Toppinen, Kalimo, & Schaufeli, 2000).

An exploratory factor analyses (principal component analysis), with a direct oblimin rotation, was carried out separately for nurses in three language groups, namely Afrikaans, English and African languages. Evidence of low construct validity and cross loading was found for Item 4 (*I can easily understand how my recipients feel about things*); Item 6 (*Working with people all day is really a strain for me*), and Item 16 (*Working with people directly puts too much stress on me)* of the MBI-HSS. Previous studies also revealed the problematic stance of these items. The results of this study confirm the results of Yadama and Drake (1995) regarding item 4, Byrne (1991, 1994) regarding item 6, and Byrne (1991, 1994); Leiter and Durup (1994), Schaufeli and Van Dierendonck (1993); and Yadama and Drake (1995) regarding item 16. These findings could probably be explained in terms of the possibility of semantic differences regarding the comprehension of the content of the items by the different language (culture) groups. More than half of the sample consists of Afrikaans speaking nurses, while the smallest portion of the sample constitutes the African language speaking

group (19%). It is possible that these items were misunderstood by some of the language groups, which led to inconsistent responses by the different language groups in the particular sample.

It was eventually decided to retain all 22 items of the standard MBI-HSS, supported by the results of the Tucker's Phi Coefficients > 0,90, which proved that the construct equivalence was acceptable for all three language groups. This decision also supports the recommendations of Beckstead (2002). The results confirm the construct equivalence of the MBI-HSS for Afrikaans, English and African language speaking nurses in South Africa. It can therefore be deducted that the same constructs of burnout were measured in the three groups. These findings seem to support the findings by Naudé and Rothmann (2004), regarding emergency workers, where no evidence of factorial invariance was found for different cultural groups. Reliability analyses confirmed the internal consistency of the subscales of the MBI-HSS. The first hypothesis is therefore accepted.

Afrikaans speaking registered nurses and those with the lowest rank displayed lower levels of personal accomplishment and, together with the English speaking nurses and those in the age group 20-30 years, also showed higher levels of depersonalisation. A low level of job satisfaction was related to high levels of emotional exhaustion and depersonalisation, while groups with high levels of reciprocity showed low levels of both emotional exhaustion and depersonalisation and higher levels of personal accomplishment. Moreover, staff members with a medical condition were more prone to emotional exhaustion, and those who had not received special training for the job were more prone to both emotional exhaustion and depersonalisation.

The results revealed that the Afrikaans speaking group showed lower levels of personal accomplishment than the other two groups, while both the Afrikaans and English speaking groups showed higher levels of depersonalisation than the African language speaking group. These results are similar to the research results of Coetzee and Rothmann (2004). Regarding race and burnout, Coetzee and Rothmann (2004) found that white employees (compared to black employees) showed higher levels of exhaustion. Coetzee and Rothmann attributed these differences to demands faced by white employees because of employment equity and organisational transformation.

The above might also be related to the fact that more than half of the population of the sample consisted of Afrikaans speaking registered nurses and thus may have influenced the results of this study. The lower levels of depersonalisation of the African language speaking group might also be related to the fact that they represent the smallest percentage of the population in the sample. Alternatively, the African language speaking group may be reluctant to admit feelings of depersonalisation, due to cultural structures and the philosophy of *ubuntu* ("I am because we are").

Moreover, it was significant that registered nurses in the age group of 20-30 years showed higher levels of depersonalisation, confirming the research results of Kilfedder et al. (2001) and Schaufeli and Enzmann (1998); and that registered nurses with the lowest rank (junior registered nurses) showed lower levels of personal accomplishment than their colleagues in the higher ranks. These results are supported by the research of Cocco et al. (2003) and Kilfedder et al. (2001). The reason for the above could probably be derived from the fact that the younger and more junior staff members entered the profession de-motivated and are already experiencing some degree of burnout due to the strain of working and studying simultaneously (see the research by Van der Colff, 2001). The fact that they are less experienced than their more senior counterparts, with apparently also less autonomy, might also add more stress to the work situation, giving rise to feelings of inadequacy.

The group revealing the lowest level of job satisfaction also displayed the highest level of emotional exhaustion and depersonalisation, as well as the lowest level of personal accomplishment. This pattern seems to correlate with the group that indicated high levels of job satisfaction, which also showed high levels of personal accomplishment and low levels of both emotional exhaustion and depersonalisation. These results coincide with the results of Kilfedder et al. (2001).

Groups that indicated high levels of reciprocity showed lower levels of emotional exhaustion and depersonalisation and higher levels of personal accomplishment. The reverse of this phenomenon was also proven to be true. Registered nurses who indicated low levels of reciprocity also showed the highest level of both emotional exhaustion and depersonalisation and low levels of personal accomplishment. These results, regarding both job satisfaction and reciprocity, could possibly be related to the effect of personal characteristics such as locus of control, reciprocity and sense of coherence and the moderating effect that it could have

against the detrimental effects of work related stress and, eventually, burnout (Schmitz, Neumann, & Oppermann, 2000; Tselebis, Moulou, & Ilias, 2001).

T-tests revealed statistically significant higher levels of emotional exhaustion for staff with a medical condition, confirming the results of Demir et al. (2003); for staff members who received no special training for the unit (discipline) they are working in, confirming the findings of Cocco et al. (2003), Kilfedder et al. (2001) and McGrath et al. (2003); and indicated higher levels of both emotional exhaustion and depersonalisation for staff members who were working full-time. The latter confirms the results of Kilfedder et al. (2001) and Schaufeli and Enzmann (1998).

The above results might be explained by the additional strain that a chronic illness places upon any person's body – both physiologically and psychologically. Feelings of uncertainty about the execution of tasks, which might be experienced by those nurses who received no special training for the tasks they are confronted with, might also add to feelings of stress and incompetence, and might eventually lead to feelings of emotional exhaustion. Staff members working full-time, and thus longer hours, may be more prone to experience work overload and may eventually develop symptoms of burnout more easily than those employed part-time.

The second hypothesis regarding differences in burnout levels of different biographical groups is partly confirmed in that no differences were detected for educational level, shifts, specific units, as well as number of years spent in nursing,

In conclusion, the three-factor structure of the burnout construct is confirmed, as well as the internal consistency of the emotional exhaustion, depersonalisation and personal accomplishment scales of the MBI-HSS. Based on the results obtained from the study, it would seem that the MBI-HSS could be regarded as a suitable instrument for measuring burnout in registered nurses in South Africa. Furthermore, it seems that emotional exhaustion is a bigger problem than depersonalisation in registered nurses.

A limitation of this study was the unequal distribution of the population in the sample regarding language (cultural) groups, where one would have preferred to include a larger portion of African speaking nurses (in the study this group represents only about 19% of the

total population of the sample). One would also want to see a better distribution between nurses working in private hospitals, compared to those working in government (public) settings. In this study, nurses in the public sector represent only about 16% of the total sample size. Finally, the response rate was relatively low, which implies that the results cannot be generally applied to all registered nurses.

RECOMMENDATIONS

According to the results obtained in this study, the use of the MBI-HSS is recommended to assess burnout in registered nurses in South Africa, including all 22 items. Although the MBI-HSS was found to be reliable and valid for this sample, other occupational settings should also be investigated in a similar manner. It might also be necessary to translate the MBI-HSS into other languages used in South Africa. Future research should focus on the development of clinical guidelines in terms of burnout in various occupational settings to enable comparison and identification across occupations according to national guidelines.

It is evident from the results that a lack of specialised training seems to be a prominent source of stress for registered nurses. Organisations can no longer rely on staff with basic (generic) training alone. Organisations should provide proper training to all staff members according to the needs arising in the specific unit of employment. A higher level of education for nurses will lead to increased confidence and an ability to discuss issues as equals with professional colleagues (McGrath et al., 2003). A previous study (Kushnir, Cohen, & Kitai (2000) provides proof of the effectiveness of continuing education programmess in burnout prevention and should therefore be considered by organisations.

Moreover, it was evident from the results that the presence of a medical condition (chronic illness) in personnel is related to emotional exhaustion. Demir et al. (2003) state that health problems may increase burnout in nurses, but might also be a sign of burnout. Thus, optimum health care is an important factor in coping with burnout. Adequate treatment and care facilities should be provided by organisations. Above all, burnout should be managed in such a way that it is prevented before illness symptoms arise.

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CHAPTER 3

ARTICLE 2

WORK ENGAGEMENT OF REGISTERED NURSES IN SOUTH AFRICA

J.J. VAN DER COLFF

S. ROTHMANN

WorkWell: Research Unit for People, Policy and Performance, North-West University, Potchefstroom

ABSTRACT

The objectives of this study were to validate the Utrecht Work Engagement Scale (UWES) for registered nurses in South Africa and to analyse the differences between the levels of engagement of different biographical groups. A cross-sectional survey design was used with a stratified random sample (N = 818). The UWES and a biographical questionnaire were administered. Exploratory factor analysis with a direct oblimin rotation resulted in a one-factor structure of engagement. The scale showed acceptable reliability. Exploratory factor analysis with target rotations confirmed the construct equivalence of the engagement construct for the Afrikaans, English and African language groups. The results revealed significant differences in work engagement levels with regard to age, rank, job satisfaction, reciprocity, presence of a medical condition, full-time employment and specialised training.

OPSOMMING

Die doelstellings van hierdie studie was om die Utrecht-werksbegeesteringskaal (UWES) te valideer vir geregistreerde verpleegkundiges in Suid-Afrika en om die verskille in werksbegeesteringsvlakke van verskillende biografiese groepe te analiseer. 'n Dwarssnee opname-ontwerp met 'n gestratifiseerde ewekansige steekproef (N = 818) is gebruik. Die UWES is afgeneem. 'n Verkennende faktoranalise met 'n direkte oblimin rotasie het 'n een-faktormodel van werksbegeestering bevestig. Die skaal het aanvaarbare betroubaarheid getoon. Verkennende faktoranalise met teikenrotasies het die konstrukekwivalensie van die UWES vir die Afrikaanse, Engelse en Afrika groepe bevestig. Die resultate het aangedui dat daar beduidende verskille is in die vlakke van werksbegeestering wat betref ouderdom, rang, werkstevredenheid, resiprositeit (wederkerigheid), teenwoordigheid van 'n mediese toestand, voltydse werkers en gespesialiseerde opleiding.

Researchers and practitioners in psychology are increasingly questioning the prevailing post-Second World War paradigm, described as the pathogenic paradigm where the orientation towards the abnormal, the origin of the "pathos" (disease; ill-health), is taken as the starting point of interventions and strategies aimed at fixing and treating ill-health (Seligman, 2002). This paradigm assumes maladjustment and ill-health of individuals and neglects positive aspects of human functioning (Barnard, 1994). The prevalence of the pathogenic paradigm in the health and social sciences is confirmed by Diener, Suh, Lucas, and Smith (1999), reporting that 17 times more scientific articles were published on negative feelings than on positive feelings.

Recently, the field of psychology has been subjected to a transformation, in essence questioning many strongly held beliefs and premises at individual, group and meta-theoretical levels (Snyder & Lopez, 2002). The emergence of a new thinking-set or paradigm takes into account these strengths and resources, enabling the studying of "normal" or superhuman functioning which could previously not be understood in a problem-focused framework (Strümpfer, 2001). Seligman and Csikszentmihalyi (2000) call this the rising of "positive psychology", a move from a preoccupation with the worst things in life towards building and investigating positive qualities. According to these authors, psychology is not only the study of pathology, weakness and damage, but also the study of strength and virtue.

In a special edition of the American Psychologist called "positive psychology", an international attempt was made to stimulate research into positive psychology (Seligman & Csikszentmihalyi, 2000). Amongst the constructs investigated in this special edition were the concepts of striving for superiority (Adler, 1927), individuation (Jung, 1971), the mature personality (Allport, 1937), fully functioning personality (Rogers, 1951), internal-external locus of control (Rotter, 1966), will to meaning (Frankl, 1967), self-actualisation (Maslow, 1972), self-efficacy (Bandura, 1977), sense of coherence (Antonovsky, 1979), self-control (Rosenbaum, 1988) and intrinsic motivation (Ryan & Deci, 2000).

Similar tendencies are detected in the burnout research literature. Empirical studies revealed that some employees, regardless of high job demands and long working hours, did not develop burnout in comparison to others, but seemed to find pleasure in hard work and dealing with job demands (Schaufeli & Bakker, 2001). Consequently, theoretical and

empirical studies commenced on the concept of engagement, theoretically viewed as an antithesis of the burnout construct.

Development of the engagement construct took two different, but related avenues. Firstly, Maslach and Leiter (1997) rephrased burnout as an "erosion of engagement with the job". Subjective experience of work that started out as important, meaningful and challenging becomes unpleasant, unfulfilling and meaningless. Engagement, according to these authors, are characterised by energy, involvement and efficacy – the direct opposites of burnout, namely exhaustion, cynicism or depersonalisation and lack of professional efficacy, respectively. Consequently, engagement could theoretically be measured by means of the Maslach Burnout Inventory (MBI) when low scores on exhaustion and cynicism/depersonalisation, and high scores on professional efficacy are obtained.

The second path was taken by Schaufeli and his colleagues, agreeing in part with the description of engagement proposed by Maslach and Leiter (1997), with the difference that engagement be measured with a different instrument worthy of operationalisation in its own right (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002). They further argued that the simultaneous empirical investigation of burnout and engagement would be impossible with one instrument. Based on a theoretical analysis, burnout and engagement were conceptually related to each other, resulting in two work-related dimensions of well-being being identified, namely (1) *activation*, ranging from exhaustion to vigour, and (2) *identification*, ranging from cynicism to dedication (Schaufeli & Bakker, 2001). Moreover, personal accomplishment and absorption were included in the burnout and engagement constructs respectively, but not in an antithetical manner. It was argued that personal accomplishment was added only afterwards in the development of the Maslach Burnout Inventory (MBI) when a third factor was discovered during a factor-analysis of a preliminary version of the MBI (Maslach, 1993).

Engagement is therefore identified as a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption. Furthermore, it is not a momentary and specific state, but a more persistent and pervasive affective-cognitive state that is not focussed on a particular object, event, individual or behaviour (Schaufeli, Salanova, et al., 2002). *Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, not being easily fatigued and the ability to persist even in the face of difficulties. *Dedication* is characterised by a sense of significance

regarding one's work, feeling enthusiastic, inspired, proud and by viewing it as a challenge. *Absorption* is characterised by being totally happily immersed in one's work to the extent that it is difficult to detach oneself from it. Absorption comes close to the concept of "flow", an optimal state of experience where focussed attention, a clear mind, unison of body and mind, effortless concentration, complete control, loss of self-consciousness, time distortion and intrinsic enjoyment are experienced (Csikszentmihalyi, 1990).

Engagement can therefore be distinguished, but not divorced from burnout in terms of its structure and operationalisation. Engagement is theoretically viewed as the opposite end of the continuum from burnout, which cannot be effectively measured by the Maslach Burnout Inventory (MBI), but by its own survey, the Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al., 2002). There is a lack of information regarding the internal consistency, construct validity and comparability across cultural groups for the UWES, especially in the multicultural South African context.

Not only is it important to obtain a valid and reliable measurement of work engagement in South Africa from an empirical point of view, but also to enable the individual measurement of engagement in a valid and reliable manner in the nursing context in South Africa. According to Van de Vijver and Leung (1997), issues of measurement equivalence should be computed for measuring instruments in any multicultural setting where groups from different cultural settings are compared in terms of a specific construct. This is particularly relevant where no norms exist for the different cultural groups, which is often the case in cross-cultural research. In agreement with recommendations of Poortinga (1989) and Van de Vijver and Leung (1997), measurement equivalence should be tested in a multi-cultural context where differences in scores could be attributed to cultural influences in terms of item meaning and understanding, rather than differences resulting from the measurement of the constructs by the measuring instruments. If cultural influences are not accounted for, invalid conclusions regarding the constructs under study could be made with serious implications for culturally diverse settings such as South Africa.

The objectives of this study were to determine the factorial validity, construct equivalence and internal consistency of the Utrecht Work Engagement Scale (UWES) for registered nurses in South Africa and to analyse the differences between the levels of work engagement of different biographical groups.

The Utrecht Work Engagement Scale

Schaufeli, Salanova, et al. (2002) developed the Utrecht Work Engagement Scale (UWES) and reported acceptable internal consistency for it. Recent confirmatory factor-analytic studies confirmed the factorial validity of the UWES (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002). The findings showed internally consistent results for the three scales of the UWES. In a sample of undergraduate students (N = 314) and a sample of employees (N = 619), adequate Cronbach alphas were found as follows: Vigour (6 items), α = 0,68 and 0,80; dedication (5 items), α = 0,91 for both samples and absorption (6 items), α = 0,73 and 0,75. In the student sample, the value of α could be improved by eliminating three items (α = 0,79). The scales seem to be moderately to strongly related with the mean r = 0,63 in the sample of undergraduate students and the mean r = 0,70 in the sample of employees. Moreover, the fit of the hypothesised three-factor model with the data was found to be superior to the one-factor solution (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Martinez, et al., 2002).

In a cross-cultural study regarding the UWES for students in Spain, Portugal and the Netherlands, the factorial validity of the UWES was confirmed and the internal consistency of the scales was found to be satisfactory (Schaufeli, Martinez, et al., 2002). Factor loadings of absorption were found to be invariant across all samples, while factor loadings of vigour were invariant for only two of the three groups. The three-factor model fit to the data was found to be superior in all three samples after removing three items, namely items 11, 16 and 17. Internally consistent Cronbach alphas ranged from 0,65 to 0,79 for vigour (5 items); 0,77 to 0,85 for dedication (5 items); and 0,65 and 0,73 for absorption (4 items).

According to Van de Vijver and Leung (1997), three types or levels of equivalence can be identified, namely construct equivalence, measurement unit equivalence and scalar equivalence. *Construct equivalence* (also known as structural equivalence), the first level of equivalence, indicates the extent to which the same construct is measured across the cultural groups under study, in other words, the comparison of cultural groups, seeing that their scores are related to the same construct. On the other hand, in the case of structural in-equivalence, no comparison could be made because scores obtained are not related to the same construct. In the second type (level) of equivalence, the measuring units for the cultures under study are

similar, but the origins are not. This is called *measurement unit equivalence* and normally reflects the characteristics of interval scale measurement where differences between groups can be obtained, but the amount of difference cannot be quantified unless a point of origin can be determined or assumed (ratio). This is often problematic in cross-cultural research because the real comparative differences between cultures are not always known. *Scalar equivalence* or full comparability is the highest level of equivalence and is characterised by ratio scale characteristics, comparing cultural groups on the same construct(s) in terms of the same measuring unit relative to the same origin. In other words, different cultural groups would be on the same ratio scale when scalar equivalence is achieved. In the current study, however, only the first level of equivalence, namely construct equivalence, will be computed.

In terms of the study of the UWES in South Africa, only two studies regarding the internal consistency, factorial validity, and structural equivalence could be found. In the study of Storm and Rothmann (2003) it was found that a re-specified one-factor model (after deleting items 3, 11, 15 and 16) fitted the data the best in a sample of police members in South Africa, although a re-specified three-factor model (deleting items 4 and 14 and allowing items 8, 9, 15 and 16 to correlate) was also initially tested and satisfactory results obtained. The fit with the data was superior for a one-factor model. Reliabilities (coefficient alphas) of the three subscales were confirmed at 0,78 (vigour); 0,89 (dedication) and 0,78 (absorption). No evidence of structural in-equivalence was found for the UWES in this particular study. In the study of Naudé and Rothmann (2004), the construct equivalence of the UWES for different race groups was confirmed.

Since no South African studies in nursing could be found that considered the construct equivalence and internal consistency of the UWES, it is anticipated that previous findings in other studies would be replicated in the current study and that no evidence of construct in-equivalence and internal inconsistency would be found for the UWES in the South African nursing profession.

Accordingly, the research hypothesis pertaining to the present study can be formulated as follows:

Hypothesis 1: Work engagement, as measured by the UWES, consists of one factor, namely engagement, which is equivalent and reliable for Afrikaans, English and African language speaking registered nurses in South Africa.

Hypothesis 2: Significant differences exist on the work engagement dimension scores of registered nurses in South Africa, based on biographic characteristics.

METHOD

Research design

A cross-sectional survey design was used to reach the objectives of this research. According to Burns and Grove (1993), cross sectional designs are appropriate where groups of subjects at various stages of development are studied simultaneously, whereas the survey technique of data collection gathers information from the target population by means of questionnaires.

Participants

A stratified random sample of registered nurses (N = 818) in the private, public, hospital, community, psychiatric and management sectors of seven provinces of South Africa, namely the Eastern and Western Cape, The Free State, Gauteng, Kwa-Zulu Natal, Mpumalanga and the North West Province was taken. Descriptive information of the sample is provided in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Frequency	Percentage
Sector	Private	686	83,92
	Public	132	16,08
Rank	Registered nurses	554	67,70
	Unit managers/ Chief professional nurses	122	14,90
	Middle and top managers	142	17,40
Employment	Full-time	762	93,20
	Part-time	52	6,40
Unit	Hospital ward	613	79,40
	Psychiatric ward	25	3,20
	Community/occupational services (Primary health care)	67	8,70
	Management	67	8,70
Specialised Unit	Intensive and High care	107	13,90
	Surgery, Urology, Ear Nose and Throat, Orthopaedic	140	18,20
	Theatre and Trauma/Casualties	184	24,00
	Medical, Oncology, Outpatients, Paediatrics	110	14,30
	Obstetrics	59	7,70
	Psychiatry and other, e.g. Community nursing/Management	168	21,90
Years employed in current unit	0 – 2 years	271	33,10
	2,01 – 4 years	114	13,90
	4,01 – 6 years	213	26,00
	6,01 – 8 years	50	6,10
	8,01 – 10	45	5,50
	Longer than 10,01 years	125	15,30
Specially trained to work in current unit	Yes	373	46,70
	No	425	53,30
Years employed in nursing profession	0 - 10 years	162	19,80
	10,01 – 15 years	159	19,40
	15,01 – 20 years	180	22,00
	20,01 – 25 years	130	15,90
	25,01 – 30 years	107	13,10
	30,01 and longer	80	9,80
Shift	Day duty	655	80,11
	Night duty	163	19,89
Provinces	Eastern Cape	58	8,00
	Free State	42	5,80
	Gauteng	350	48,50
	Kwa-Zulu Natal	135	18,70
	Mpumalanga	46	6,40
	North West	57	7,90
	Western Cape	33	4,60

Table 1

Characteristics of the Participants (continue)

Item	Category	Frequency	Percentage
Nursing related educational level	Nursing Diploma	641	82,70
	Nursing Degree	134	17,30
Age	20 – 30	164	20,00
	30,1 - 35	129	15,80
	35,01 - 40	117	14,30
	40,01 - 45	175	21,40
	45,01 - 50	112	13,70
	50,01 - 60	121	14,80
Gender	Male	21	2,60
	Female	791	97,40
Marital status	Single	189	23,20
	Married	481	58,90
	Divorced	119	14,60
	Widow or widower	27	3,30
Home language	Afrikaans	427	52,20
	English	236	28,90
	African	155	18,90

The sample consisted mainly of female, married, Afrikaans speaking registered nurses with a nursing diploma, working full-time on day duty in hospital wards in the private sector in the Gauteng province. The mean age of the participants was 40 years, while the average duration of service in the nursing profession was 19 years. A total of 52,20% of the participants were Afrikaans Speaking, 28,90% were English speaking, while 18,90% spoke an African language. The majority of the group took at least 21 days of leave during the year prior to the survey and 86,50% took sick-leave comprising fewer than eight days.

Measuring battery

The Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al., 2002) was used in the present study. Biographical information regarding language, position, education, gender and marital status was also gathered.

The *Utrecht Work Engagement Scale (UWES)* (Schaufeli, Salanova, et al., 2002) measures levels of work engagement. Initially, engagement was viewed as the positive antithesis of

burnout, but according to the scale developers, it can be operationalised in its own right. The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). Three dimensions of engagement can be distinguished, namely 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 (5 items; e.g. "When I am working, I forget everything else around me"). Engaged individuals are characterised by high levels of vigour and dedication, as well as elevated levels of absorption. Empirically, certainty needs to be obtained on whether or not burnout and engagement are indeed opposites of the same continuum, while theoretically there seems to be a dichotomous relationship. Burnout and engagement can be described as related but distinct concepts (Schaufeli, Salanova, et al., 2002). In terms of internal consistency, reliability coefficients for the three subscales have been determined between 0,68 and 0,91. Improvement of the alpha coefficient (ranging from 0,78 to 0,89) seems possible without adversely affecting the internal consistency of the scale (Storm & Rothmann, 2003).

Statistical analysis

The statistical analysis was conducted by means of the SPSS programme (SPSS Inc., 2003). First of all, means, standard deviations, skewness and kurtosis were determined to describe the data. The reliability was determined by means of Cronbach alpha coefficients.

Construct equivalence of the UWES was performed. Construct equivalence can be investigated with several techniques, such as factor analysis, cluster analysis, and multidimensional scaling or other dimensionality-reducing techniques (Van de Vijver & Leung, 1997). The basic idea behind the application of these techniques is to obtain a structure in each culture, which can then be compared across all cultures involved. Factor analysis is the most frequently employed technique for studying construct equivalence. In the current study both exploratory and confirmatory models could have been used. Given that information on the composition of the instrument (on the basis of previous studies) is available, the choice for confirmatory factor analysis may seem obvious. However, the current authors used exploratory factor analysis for a pragmatic reason. The validity of the UWES has only been explored in two studies in South Africa. Moreover, the authors had negative experiences with the use of confirmatory models in studying the construct validity of the UWES. The main problem in the application of confirmatory models is the manner in

which they fit the data, which is almost always very poor. It is usually not clear whether the reasons for the poor fit are serious and should lead to a reformulation of the model, or are trivial and do not challenge the underlying model.

Exploratory factor analysis was therefore used to examine construct equivalence. A principal components analysis was conducted to determine the number of factors of the UWES in the total sample. The component loadings of each group were compared. The agreement was evaluated by a factor congruence coefficient, Tucker's phi (Van de Vijver & Leung, 1997). Values above 0,90 are taken to point to essential agreement between cultural groups, while values above 0,95 point to very good agreement (Van de Vijver & Leung, 1997), whereas values lower than 0,90 (Van de Vijver & Poortinga, 1994) or even 0,85 (Ten Berge, 1986) should be viewed as an indication of significant existing differences.

RESULTS

A simple principal component analysis was carried out on the 15 items of the UWES. First, the factorability of the items of the UWES was assessed. The Bartlett's test of Sphericity showed that the items were factorable (χ^2 = 8284,95; df = 105; p <0,01). Furthermore, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0,96, which is acceptable, compared to the recommended value higher than 0,60. The anti-image correlations for the 15 items of the UWES varied from 0,95 (Item 12) to 0,98 (Item 15). This indicates that the items are factorable (> 0,6). The communalities of the items were acceptable (higher than 0,35), varying from 0,39 (Item 12) to 0,74 (Item 5). The simple principle components analysis showed that one factor with an eigenvalue larger than 1 could be extracted. This factor explained 57,28% of the variance.

Next, a principal component analysis was conducted separately for nurses in three language groups, namely Afrikaans, English and African languages. The component matrices for the three language groups are reported in Table 2.

Table 2

Component Matrices of the 15-item UWES for Nurses in Three Language Groups

Item	Afrikaans	English	African
1. I am bursting with energy in my work.	0,74	0,74	0,45
2. I find my work full of meaning and purpose.	0,76	0,83	0,77
3. Time flies when I'm working.	0,61	0,70	0,65
4. I feel strong and vigorous in my job.	0,80	0,85	0,82
5. I am enthusiastic about my job.	0,86	0,88	0,85
6. When I am working, I forget everything else around me.	0,64	0,62	0,58
7. My job inspires me.	0,86	0,87	0,82
8. When I get up in the morning, I feel like going to work.	0,80	0,81	0,74
9. I feel happy when I am engrossed in my work.	0,86	0,81	0,74
10. I am proud of the work that I do.	0,72	0,72	0,83
11. I am immersed in my work.	0,78	0,83	0,72
12. In my job, I can continue working for very long periods at a time.	0,67	0,63	0,56
13. To me, my work is challenging.	0,82	0,80	0,72
14. I get carried away by my work	0,81	0,83	0,72
15. I am very resilient, mentally, in my job.	0,64	0,75	0,67

Inspection of Table 2 confirms the construct validity of the UWES questionnaire. The score of all 15 items was evenly distributed for all three language groups, except for Item 1: *I am bursting with energy in my work,* where a significant lower score was noticed for the African language speaking group.

Next, the one-factor solution for the three language groups was compared. The Tucker's phi coefficients are reported in Table 3.

Table 3

Tucker's Phi Coefficients

Variables	Afrikaans-English	Afrikaans- African	English-African
Work engagement	0,99	0,99	0,99

Table 3 shows that the Tucker's phi coefficients of the one factor for all three language groups were higher than 0,95. Values above 0,95 indicate very good agreement between cultural groups (Van de Vijver & Leung, 1997).

The descriptive statistics and alpha coefficients of the one factor of the UWES are provided in Table 4.

Table 4

Descriptive Statistics and Alpha Coefficients of the UWES

Item	Mean	*SD*	Skewness	Kurtosis	α
Work engagement	65,47	16,69	-0,89	0,64	0,94

The information in Table 4 indicates that, with regard to the reliability, a coefficient alpha of 0,94 was obtained, which compares favourably to the 0,70 guideline, provided by Nunnally and Bernstein (1994). Not shown in Table 4, are the percentages of registered nurses who experience low, moderate or high levels of burnout. Rothmann (2005) analysed the levels of work engagement of registered nurses in this sample. It was evident that 27,6%, 45,1% and 27,3% of the registered nurses displayed low, moderate and high levels of work engagement respectively.

Next, univariate analysis of variance (ANOVA) was used to analyse the differences between the engagement levels of different biographical groups, namely different language and age groups, different ranks, nurses working in different disciplines (specialised units), the number of years they have been involved in nursing, the levels of job satisfaction, as well as reciprocity (see Table 5). In ANOVA, one dependent variable (in this case work engagement) is considered in the analysis.

Table 5

ANOVA of the Work Engagement Levels of Biographical Groups

Item	Sum of squares	*df*	Mean Square	*F*	*p*	η^2
Language (Culture)	1984,00	2	992,00	3,59	0,28	0,01
Age	8123,42	5	1624,68	6,01	0,00*	0,04
Rank	3057,45	2	1528,73	5,55	0,00*	0,01
Specialised unit (Discipline)	1602,68	5	320,54	1,15	0,33	0,01
Years in nursing	5968,44	5	1193,69	4,38	0,00*	0,03
Job Satisfaction	41284,60	4	10321,51	44,65	0,00*	0,18
Reciprocity	7979,39	2	3989,69	14,70	0,00*	0,04

* $p < 0,05$

Table 5 reflects a significant effect of age on the dependent variable engagement ($F_{(5,812)} = 6,01$, $p < 0,05$; $\eta^2 = 0,04$). However, this effect was small (4% of the variance explained). Analysis of the dependent variable for each age group revealed that the lowest age group (20-30 years) were the least engaged in their work, while the age group of 45-50 years had the highest level of engagement.

Moreover, a significant effect of rank (registered nurses (junior sisters), chief professional nurses and nurse managers) was detected on the dependent variable work engagement ($F_{(2,815)} = 5,55$, $p < 0,05$; $\eta^2 = 0,01$). However, this effect was also small (1,3% of the variance explained). Analysis of the dependent variable for the three different ranks of registered nurses showed that the lowest rank had the lowest level of work engagement, while the highest rank (middle and top management) had the highest level of work engagement.

Table 5 also shows a significant effect of the years spent in the nursing profession on the dependent variable engagement ($F_{(5,812)} = 4,38$, $p < 0,05$; $\eta^2 = 0,03$). However, this effect was small (2,6% of the variance explained). Once again, analysis of the dependent variable for the six groups revealed that the first group (being in nursing for a period shorter than 10 years) showed the lowest level of work engagement, while the sixth group (being in nursing for longer than 30 years) revealed the highest level of work engagement.

A significant effect of job satisfaction on the dependent variable work engagement was also detected ($F_{(4,798)} = 44,65$, $p < 0,05$; $\eta^2 = 0,18$). This effect seems to be the smallest (1,8% of the variance explained). Analysis of the dependent variable work engagement showed that the group displaying the lowest level of job satisfaction on a scale of 1 to 5, ranging from very unsatisfied with their job (level 1) to very satisfied with their job (level 5), were also the least engaged in their work, while the group scoring the highest on job satisfaction (level 5), were also the most engaged in their work.

Moreover, there was a significant effect of reciprocity on the dependent variable work engagement ($F_{(2,785)} = 14,70$, $p < 0,05$; $\eta^2 = 0,04$). This was, however, also considered a small effect (explaining 3,6% of the variance). Analysis of the dependent variable work engagement revealed that the group that scored low on the reciprocity scale (consisting of 3 levels – low, medium, high – where *low* indicates that the participants completely disagreed with the statement that they do not get anything in return for what they put into their jobs and *high* indicates that the participants completely agreed with the statement), and therefore indicating high levels of reciprocity, also revealed the highest levels of work engagement. The group constituting medium levels of reciprocity (partly agreeing with the statement that they do not get anything in return for what they put into their jobs), showed the lowest level of work engagement.

The ANOVA tests revealed that there was no significant difference between the work engagement levels of different cultural (language) groups or for nurses working in different disciplines (specialised units, e.g. surgery, medical wards, psychiatric and community nursing and trauma units).

Next, t-tests were used to analyse the differences between the work engagement levels of different biographic groups regarding the presence of a medical condition or no medical condition, full-time or part-time employment; whether or not special training for the specific unit was received, the difference between nurses with a nursing diploma and a nursing degree; day- and night shifts, and gender (see Table 6). In the t-tests, one dependent variable, work engagement, was considered in the analysis.

The significance of differences in work engagement levels between different biographical groups of registered nurses is reported in Table 6.

Table 6

T-tests of the Work Engagement Levels of Biographical Groups

Item	*Mean*	*SD*	*Mean*	*SD*	*t*	*p*	*d*
	Medical condition present (n = 140)		No medical condition present (n = 655)				
Work engagement	62,84	16,55	65,93	16,75	-2,00	0,05*	-0,18
	Full-time employed (n = 762)		Part-time employed (n = 52)				
Work engagement	65,65	16,67	62,15	17,17	1,42	0,16	-
	Special training received for specific unit (n = 373)		No special training received (n = 425)				
Work engagement	67,06	16,30	63,96	16,86	2,64	0,01*	0,18
	Nursing Diploma (n = 636)		Nursing Degree (n = 134)				
Work engagement	65,35	16,96	64,78	16,15	0,37	0,71	-
	Day duty (n = 639)		Night duty (n = 165)				
Work engagement	65,60	16,55	64,61	17,58	0,65	0,51	-
	Male (n = 21)		Female (n = 791)				
Work engagement	58,38	19,82	65,65	16,53	-1,67	0,11	-

* Statistically significant difference: $p < 0,05$

Although no practically significant differences between different biographical groups of registered nurses in South Africa were revealed, statistically significant lower levels of work engagement ($p < 0,05$) were revealed for staff members with a medical condition, compared to those with no medical condition, and statistical significant higher levels of work engagement for staff members who received special training for the unit (discipline) they are working in as opposed to those who had no special training. No practically or statistically significant differences were revealed between groups that comprised full-time or part-time employees; between nurses with a nursing diploma or a nursing degree, between groups that work different shifts (day shift or night shift), or regarding gender.

DISCUSSION

The objectives of this study were to validate the Utrecht Work Engagement Scale (UWES) for registered nurses in South Africa and to analyse the differences between the levels of work engagement of different biographical groups. The results showed that the factorial validity, reliability and construct equivalence of the engagement scales, consisting of 15 items, were satisfactory. It was evident that 27,6%, 45,1% and 27,3% of the registered nurses displayed low, moderate and high levels of work engagement respectively.

The results of this study further supported a one-factor structure of the UWES. This result did not coincide with the results of Schaufeli, Salanova, et al. (2002), who found a three-factor model, but confirm the results of the study of Storm and Rothmann (2003). An exploratory factor analysis (principal component analysis) was conducted separately for nurses in three language groups, namely Afrikaans, English and African. The score of all 15 items was evenly distributed for all three language groups, except for Item 1: *I am bursting with energy in my work*, where a significantly lower score was noticed for the African language speaking group. This could possibly be related to semantic misunderstanding. English would be the African language speaking group's second or third, or even fourth language, and there is a possibility that they did not understand the statement, as it included a metaphor. Van de Vijver and Leung (1997) suggest that metaphors should be avoided in questionnaires. The reliability of the scale which measures work engagement was also confirmed. Therefore, hypothesis a is accepted.

Univariate analysis of variance (ANOVA) identified the age group 30-40 years as being the least engaged in their work, and the age group 45-50 as the group demonstrating the highest levels of engagement. The analysis also revealed that the lowest rank of professional nurses (junior sisters) were the least engaged in their job, while nurses with the highest rank (middle and top management) were more engaged than nurses from the other ranks. This could possibly be explained by the fact that personnel in management positions have more autonomy in carrying out their duties and fewer people to report to. Several research studies emphasise the positive relationship between job autonomy and work engagement. High levels of autonomy at work are related to high levels of absorption in work, ensure higher levels of commitment of the employee towards the organisation and also act as a core motivating

activity (Gilbert, 2001; Winefield, Gillespie, Stough, Dua, & Hapuararchi, 2002; Winter, Taylor, & Sarros, 2002).

In accordance with the above results, the group that has been nursing for a period shorter than 10 years once more displayed the lowest levels of engagement, while the group that have been practising the nursing profession for longer than 30 years were the most engaged in their job. This might be due to the fact that, according to the research results of Van der Colff (2002), nurses often enter the profession with high levels of exhaustion and disillusionment, and during the first few years as a professional in the nursing profession, struggle to overcome the exhaustion and disillusionment towards the profession on the one side, and to adjust to the responsibilities and demands of a new position in the profession on the other side. People that have been involved in the profession for years may cope better due to experience gained over many years, and a mature approach towards handling problems and patients.

The results of this study showed that job satisfaction was related to work engagement. The group showing the lowest level of engagement also demonstrates low levels of job satisfaction; while the group that showed the highest level of engagement also displayed high levels of job satisfaction, as well as reciprocity. It becomes evident from these results that high levels of engagement and job satisfaction go hand in hand.

No significant differences were found between the work engagement levels of different cultural (language) groups or for nurses working in different disciplines (specialised units, e.g. surgery, medical wards, psychiatric and community nursing and trauma units). T-tests revealed that staff members with a medical condition were less engaged in their jobs compared to those with no medical condition. Those staff members who had received specialised training for the specific unit (discipline) they were working in, were also more engaged than those with no special training. Evidently, these results confirm the fact that health and education play a significant role in the work engagement levels of people.

Based on the results of this study, hypothesis 2 can be partially accepted. The study did indicates differences in engagement levels of different biographical groups regarding age, rank, years in nursing, job satisfaction, reciprocity, presence of a medical condition and special training received. However, no significant differences were found between different language (culture) groups or for nurses working in different units.

In conclusion, the one-factor structure of the UWES, (according to the study of Storm and Rothmann, 2003), as well as the internal consistency and construct equivalence of the work engagement scales, is confirmed. Based on the results obtained from the study, it would seem that the UWES could be regarded as a suitable instrument for measuring engagement in registered nurses in South Africa.

A limitation of this study is the unequal distribution of the population in the sample regarding language (cultural) groups, where one would have preferred to include a larger portion of African speaking nurses (in the study this group represents only about 19% of the total population of the sample). One would also want to see a better distribution between nurses working in private hospitals, compared to those working in government (public) settings. In this study, nurses in the public sector represent only about 16% of the total sample size. Finally, the response rate was relatively low, which implies that the results cannot be generally applied to all registered nurses.

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

RECOMMENDATIONS

According to the results obtained in this study, the use of the UWES is recommended to assess engagement in registered nurses in South Africa., including all 15 items. In future studies, the diction of item 1 could be altered in order for it to be more comprehensible across the span of different language groups. According to a suggestion by Van de Vijver and Leung (1997), no metaphors should be included in the questionnaire, as English is not the first language of many people in South Africa. The possibility of translating the UWES into other African languages should also be considered.

Although the UWES was found to be reliable and valid for this sample, other occupational settings should also be investigated in a similar manner. Moreover, it is important to determine norm levels for other occupations in South Africa. It is recommended that larger

samples with a more powerful sampling method be utilised to enable generalisation of the findings to other similar groups.

It is clear from the results that a lack of autonomy in the work situation might attribute to low levels of work engagement, as was noted by the low levels of work engagement displayed by the lowest rank of registered nurses (junior sisters), as they are endowed with less autonomy than the other more senior personnel. Gilbert (2001), Winter et al. (2002) and Winefield et al. (2002) emphasise the important role of job autonomy in ensuring higher levels of work engagement and better commitment of employees towards organisations. Organisations should therefore adjust junior personnel's job descriptions in such a way that they have more decision making opportunities and thus more job autonomy.

It is evident from the results that a lack of specialised training seems to be a prominent source of stress for registered nurses, which is not only related to higher levels of burnout, but also to low levels of work engagement. Organisations can no longer rely on staff with basic (generic) training alone. Organisations should provide proper training or provide training opportunities to empower the employees in each specific unit with the knowledge, skills and competence that are necessary to meet the specific demands of the unit. These may include well designed training programmes that will not only increase workers' knowledge, skill and competence, but also boost their morale, increase their job satisfaction, and improve the performance of services. The research results of Gilbert (2001) confirm the importance of further training, stating that highly educated workers tend to be more absorbed in their work.

Evidently the presence of a medical condition (chronic illness) in personnel is related to low levels of work engagement. Optimum health care seems to be an important factor to improve work engagement levels of employees. Adequate treatment and care facilities should therefore be provided by organisations.

Future studies should focus on longitudinal designs where inference in terms of cause and effect could be made.

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CHAPTER 4

ARTICLE 3

OCCUPATIONAL STRESS OF REGISTERED NURSES IN SOUTH AFRICA

J.J. VAN DER COLFF

S. ROTHMANN

WorkWell: Research Unit for People, Policy and Performance, North-West University, Potchefstroom

ABSTRACT

The objective of this study was to investigate the construct validity and reliability of the Nursing Stress Indicator (NSI) and to identify occupational stressors for registered nurses in South Africa. A cross-sectional survey design was used. A stratified random sample of professional nurses (N = 818) in private and provincial hospitals in South Africa was used. The NSI was developed as measuring instrument and administrated together with a biographical questionnaire. Three internally consistent stress factors, namely lack of organisational support, job demands and nursing-specific demands (patient care) were extracted. The most severe stressors for registered nurses included staff shortages, inadequate salaries and excessive administrative duties (paper work). Insufficient personnel to handle the workload (work overload), fellow workers not doing their job, health risks posed by contact with patients and demands of clients/patients were also identified as stressors.

OPSOMMING

Die doelstelling van hierdie studie was om die konstrukgeldigheid en betroubaarheid van die *Nursing Stress Indicator* (NSI) te ondersoek en beroepstressore vir geregistreerde verpleegkundiges in Suid-Afrika te identifiseer. 'n Dwarssnee opname-ontwerp is gebruik. Die studiepopulasie (N = 818) is met behulp van 'n gestratifiseerde ewekansige steekproef van professionele verpleegkundiges in privaat en provinsiale hospitale in Suid-Afrika verkry. Die NSI is ontwikkel en saam met 'n biografiese vraelys op deelnemers toegepas. Drie intern konsekwente stresfaktore is onttrek, naamlik gebrek aan ondersteuning van die organisasie/bestuur, werkseise en verpleegaktiwiteite. Die ernstigste stressore vir geregistreerde verpleegsters was personeeltekorte, swak salarisse en uitermatige administratiewe funksies. Werkoorlading, swak samewerking van die span, gesondheidsrisiko's weens kontak met pasiënte en eise wat deur pasiënte gestel word, is ook as stressors geïdentifiseer.

A stable and productive health service is of vital importance to any country. This includes the nursing profession which comprises by far the greatest component of this service section. Nursing is seen as a stressful and demanding profession (Carson, Bartlett, & Croucher, 1991; Coffey & Coleman, 2001; Fagin, Brown, Bartlett, Leary, & Carson, 1995). Stress as a phenomenon gained recognition in the nursing environment because of the data gleaned from patients and empirical studies by researchers that suggested that stress and health are closely linked. Nurses are seen to have more stress than most people due to the nature of the job and the system within which they work (Bond, 1986).

The above statement by Bond (1986) emphasises the importance of determining the stressors endemic to nursing in South Africa. In South Africa, nurses face various problems, including an inadequate supply of protective equipment, negligible waste disposal methods and high patient loads. These are some of the issues that threaten the wellbeing of health workers already critically understaffed. Nurses are routinely exposed to dangers such as viruses, bacteria and needle-prick injuries. Staff shortages often force nursing staff to do work outside their job definitions - often without appropriate training or remuneration. The already overworked staff also have to face the trauma and stress of increasing numbers of HIV/AIDS patients (Hartley, 2005).

According to Spielberger and Vagg (1999), the identification of major sources of stress at work offers a twofold benefit for both management and employees, firstly by resulting in work environment changes that reduce stress and increase productivity, and secondly by facilitating the development of effective interventions that could reduce the debilitating effects of occupational stress. Meyerson (1994) and Handy (1988, 1991) showed that stress occurs in a particular context, since individuals differ in the meaning they attribute to stressful experiences.

Dewe (1989) adds another dimension to the measurement of stress in occupational settings by noting that the specific meaning attributed to stressful events and the perceived intensity should also be extended to include the frequency of the experienced stressor. Consequently, severity of a stressor can be obtained where an infrequently experienced stressor is not overestimated by only taking its perceived intensity into account. A further useful taxonomy of stressors in terms of their intensity and frequency is the distinction between acute and chronic stressors. Where an acute stressor is derived from a rather sudden event with relative

short duration in which an almost immediate psychological reaction is evoked, chronic stressors are experienced frequently and intensely (Farmer, 1990; Newton, 1989).

It became therefore not only important to study the stressors specific to nursing in South Africa, but also to establish the reliability and validity of a measure of perceived stress of nurses. The objectives of this study are thus to determine the construct validity and internal consistency of an occupational stress measure and to identify job stressors for nurses in South Africa.

Occupational stress

The voluminous body of stress literature is quite clear about the negative effects of occupational stress. These effects include impaired performance or reduction in productivity, diminishing levels of customer service, health problems, absenteeism, turnover, industrial accidents, alcohol and drug usage and purposefully destructive behaviours (e.g. spreading of rumours and stealing) (Cooper & Payne, 1988; Karasek & Theorell, 1990; Levi, 1981; Matteson & Ivancevich, 1982; Perrewé, 1991; Quick, Quick, Nelson, & Hurrell, 1997; Wright & Smye, 1996). The potential direct and indirect costs associated with various stress-related consequences command more than adequate attention from the manager of any business. In the United States alone it is estimated that the overall business and industry costs associated with burned-out or dispirited employees are in the range of $150 to $180 billion per annum (Wright & Smye, 1996).

The Spielberger State-Trait (STP) model of occupational stress (Spielberger, Vagg, & Wasala, 2003) conceptualises stress as a complex process that consists of three major components, namely sources of stress that are encountered in the work environment, the perception and appraisal of a particular stressor by an employee, and the emotional reactions that are evoked when a stressor is appraised as threatening.

The STP model of occupational stress focuses on the perceived severity and frequency of occurrence of two major categories of stressors, namely job pressures and lack of support (Spielberger et al., 2003). The STP model recognizes the importance of individual differences in personality traits in determining how workplace stressors are perceived and appraised. Occupational stress is defined as the mind-body arousal resulting from physical and/or

psychological job demands. The appraisal of a stressor as threatening leads to anxiety and anger and the associated activation of the autonomic nervous system. If severe and persistent, the resulting physical and psychological strain may cause adverse behavioural consequences (Spielberger et al., 2003). Employees evaluate their work environment in terms of the severity (intensity) and frequency of occurrence of specific job demands and pressure and the level of support provided by other employees (supervisors and co-workers), as well as organisational features (policies and procedures). Failing to take the frequency of occurrence of a particular stressor into account may contribute to overestimating the effects of highly stressful situations that rarely occur, while underestimating the effects of moderately stressful events that are frequently experienced.

Lambert and Lambert (2001) found that the following factors in South Africa contribute to a stressful work environment for nurses: impaired communication with management, racism, lack of fair competitive remuneration and disregard for professional worth, non-conducive physical and psychological surroundings, lack of support from supervisors, high responsibility, long working hours and task overload.

Nurses use the word stress to describe a combination of unpleasant situations and unpleasant inner personal experiences (Bond, 1986). Vachon (1987) found that much of the stress experienced by caregivers was not related to interaction with patients. She reported a distribution of variables as follows: illness 15%; patient/family 23%; occupational role 26%; and work environment 36%.

Cavanagh (1997) divides stressors within the nursing profession into three categories, namely personal, interpersonal and work environment stressors. Personal stressors include an inability to manage home, work and study responsibilities. Interpersonal stressors reflect on relationships with doctors, supervisors, other senior personnel and colleagues (Basson & Van der Merwe, 1994). Work environment stressors include a high work load and long working hours (Basson & Van der Merwe, 1994); caring and dealing with pain, suffering and dying of patients; the strain of being exposed to making mistakes and managing demanding responsibilities (Cavanagh, 1997); role conflict and ambiguity (Levert, Lucas, & Ortlepp, 2000) and under-staffing (Erasmus, Poggenpoel, & Gmeiner, 1998; Kilfedder, Power, & Wells, 2001).

A lack of autonomy at work might also contribute to occupational stress of nurses. For nurses that served in Vietnam, one of the hardest things was to give up on their autonomy once they were back in their home countries. They were used to the mutual professional regard between physician and nurse in Vietnam. Back in the United States, nurses saw themselves slip into the traditional role of a "handmaiden". One of the nurses said: "I questioned a doctor and got reprimanded. It was like a slap in the face, and I saw all my powers taken away from me" (Norman, 1990). Interviews with professional nurses, whose roles were changed from the hospital environment to nursing roles in the community, showed their experience of an acute fear of their new professional autonomy. Community nurses become aware of their previously protected status as professionals who were not expected to think for themselves, or take any initiative while working in hospitals (Roberts, 1994).

The emotional demands associated with caring for patients are another occupational stressor for nurses. Bond (1986) concluded that emotions have a bad name in nursing. The dangers of emotional involvement for nurses are often pointed out, but not the dangers of emotional shallowness. Emotional maturity is considered as the absence of emotions rather than skill in being aware of them and expressing them appropriately. "Getting emotional" is seen as a weakness, whereas being rational is over-valued. In an effort not to show emotions, nurses work harder. They do not discuss it with their colleagues and in the process they are eradicating one of the greatest resources they have to cope with stress and for helping others do so. However, in trying not to show emotions, nurses might depersonalise the patients.

Dartington (1994) had an experience that sums up the emotional demands of nursing: "What I, the students and the tutors were all experiencing at first hand were the unconscious assumptions of the hospital system, which were that attachment should be avoided for fear of being overwhelmed by emotional demands that may threaten competence and that dependency on colleagues and supervisors should be avoided." Norman (1990) found that nurses insulate themselves, they avoid feeling sad or angry or helpless. A common feeling associated with death is the feeling of inadequacy. There is the grief about death itself and also the feeling of having failed to save a life (Mawson, 1994). Obholzer and Roberts (1994) state that staff working closely with people in great pain and with dying people experience much stress.

Roberts (1994) found in an old-age hospital that the nurses in the continuing care wards were low on morale, and relationships were antagonistic towards the nurses in the other wards. These nurses worked in the wards where there was no hope for the elderly to heal and leave the hospital. The nurses receive little positive feedback from colleagues, patients or families of the patients. In fact, many of their patients died soon after being transferred to the ward. Nurses in these wards were deprived of hope and the satisfaction of seeing their patients improve and moving back into the community.

Lack of resources is another source of stress for nurses. James (2002) found that nurses often experience a lack or inadequate amount of resources. This lack of resources leaves the nurses with a feeling of dissatisfaction because they cannot do their nursing work as expected of them. Resources include items such as staff, as well as items such as linen, food and equipment. Furthermore, support by nurse managers seems to be very important to nurses and the lack thereof is a source of stress. James (2002) found that the nurses she interviewed felt unsafe and insecure to operate optimally as nurses, because of the lack of support and favouritism practised and displayed by the nurse managers.

Tummers, Janssen, Landeweerd, and Houkes (2001) found that workload was high for nurses. They described workload as "budget constraints with the consequences of staff shortages, low salary, low career opportunity, and less time for direct patient care". Their study indicates that workload is an important predictor of emotional exhaustion. Govender (1995) found in her research that nurses' seniority correlates positively and significantly with the total sources of stress scores, especially with issues related to workload and conflict with doctors. Shift work also places a lot of stress on the nurse. Two out of the eight most common problems of shift work are the major communication problems among shifts and informal clique forming on any shift, which is viewed as negative and intimidating (Schaffner & Bermingham, 1993).

Relationships with colleagues, nurse managers and doctors can cause stress for the nurse. When nurses feel helpless towards their patients, they tend to experience a lot of anger and frustration, but this is often denied. This causes negative feelings to erupt between one another or to be directed at their superiors. Sometimes doctors prescribe pain-inflicting procedures and the nurses unconsciously blame the doctors for that. The structure of the relationship between the doctors and nurses does not allow the far more experienced nurses to

advise doctors on the best ways to conduct a particular procedure (Cohn, 1994). In interviewing urban and rural nurses, the nurses felt that conflict with doctors causes stress (Wilkes & Beale, 2001). They had different ideas regarding medication, and the doctors were also unable to support nurses when they needed it.

It seems that in order to protect themselves, nurses would deny a colleague support. Mawson (1994) experienced in the Walsingham Child Health Team that the team does not want to become involved with the feelings of guilt in a member, caused by the pain-inflicting procedures unfortunately necessary for the patient. The team does not want "the pain in their work made more acute".

Until now, a vast number of stressors for nurses were identified. Not all of them are applicable to all nurses at all times. In most of the research, the researchers concentrated on the stress of nurses in a specific health care unit, e.g. intensive care (Le Blanc, De Jonge, De Rijk, & Schaufeli, 2001; Couden, 2002), psychiatric or mental wards (Erasmus et al., 1998; Humpel, & Caputi, 2001; Levert et al., 2000), gynaecology (Orji, Fasubaa, Onwudiegwu, Dare, & Ogunniyi, 2002), general nurses (Yip, 2001), conditions such as HIV/AIDS and cancer (Lempp, 1995), and healthcare management (Rodham, 2002). A few comparative studies were identified, namely emergency department and general ward nurses (Yang et al., 2001), general and mental health nurses (Tummers et al.,2001), and urban and rural nurses (Wilkes & Beale, 2001).

Accordingly, the following hypotheses were formulated

Hypothesis 1: The Nursing Stress Indicator is an internally consistent and valid measuring instrument of occupational stress of registered nurses in South Africa.

Hypothesis 2: Significant differences exist in terms of occupational stress for registered nurses in South Africa, based on biographical characteristics.

METHOD

Research design

A cross-sectional survey design was used. The design can be used for the description of the population at a specific point in time (Shaughnessy & Zechmeister, 1997).

Participants

A stratified random sample (N = 818) were taken from hospital wards, psychiatric wards, community/occupational services and nursing management in private and public institutions in South Africa. The sample was stratified according to categories of nurses and included registered nurses in both private and provincial hospitals in South Africa. The characteristics of the study population are reported in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Frequency	Percentage
Sector	Private	686	83,92
	Public	132	16,08
Rank	Registered nurses	554	67,70
	Unit managers/ Chief professional nurses	122	14,90
	Middle and top managers	142	17,40
Employment	Full-time	762	93,20
	Part-time	52	6,40
Unit	Hospital ward	613	79,40
	Psychiatric ward	25	3,20
	Community/occupational services (Primary health care)	67	8,70
	Management	67	8,70
Specialised Unit	Intensive and High care	107	13,90
	Surgery, Urology, Ear Nose and Throat, Orthopaedic	140	18,20
	Theatre and Trauma/Casualties	184	24,00
	Medical, Oncology, Outpatients, Paediatrics	110	14,30
	Obstetrics	59	7,70
	Psychiatry and other, e.g. Community nursing/Management	168	21,90
Years employed in current unit	0 – 2 years	271	33,10
	2,01 – 4 years	114	13,90
	4,01 – 6 years	213	26,00
	6,01 - 8 years	50	6,10
	8,01 – 10	45	5,50
	Longer than 10,01 years	125	15,30
Specially trained to work in current unit	Yes	373	46,70
	No	425	53,30
Years employed in nursing profession	0 - 10 years	162	19,80
	10,01 – 15 years	159	19,40
	15,01 – 20 years	180	22,00
	20,01 – 25 years	130	15,90
	25,01 – 30 years	107	13,10
	30,01 and longer	80	9,80
Provinces	Eastern Cape	58	8,00
	Free State	42	5,80
	Gauteng	350	48,50
	Kwa-Zulu Natal	135	18,70
	Mpumalanga	46	6,40
	North West	57	7,90
	Western Cape	33	4,60

Table 1

Characteristics of the Participants (continue)

Item	Category	Frequency	Percentage
Nursing related educational level	Nursing Diploma	641	82,70
	Nursing Degree	134	17,30
Age	20 – 30	164	20,00
	30,1 – 35	129	15,80
	35,01 – 40	117	14,30
	40,01 - 45	175	21,40
	45,01 – 50	112	13,70
	50,01 – 60	121	14,80
Gender	Male	21	2,60
	Female	791	97,40
Marital status	Single	189	23,20
	Married	481	58,90
	Divorced	119	14,60
	Widow or widower	27	3,30
Home language	Afrikaans	427	52,20
	English	236	28,90
	African	155	18,90

The sample consisted mainly of female, married, Afrikaans speaking registered nurses with a nursing diploma, working full-time on day duty in hospital wards in the private sector in the Gauteng province. The mean age of the participants was 40 years, while the average duration of service in the nursing profession was 19 years. A total of 52,20% of the participants were Afrikaans Speaking, 28,90% were English speaking, while 18,90% spoke an African language. The majority of the group took at least 21 days of leave during the year prior to the survey and 86,50% took sick-leave constituting fewer than eight days.

Measuring instrument

The Nursing Stress Indicator (NSI) was developed for the purpose of this study. The NSI was developed to identify the job stressors specific to the nursing environment and measures the intensity, as well as frequency of the stressful events. Items for the NSI were generated based on a literature review of occupational stress in nursing and by interviewing registered nurses. The NSI consists of 62 statements and thus 124 items. Firstly, participants rated each of the 62 statements in terms of perceived intensity of the particular stressor on a 9-point scale,

ranging from 1 (*low*) to 9 (*high*). In the second part of the questionnaire, consisting of the same 62 statements, the participants were asked to respond in terms of perceived frequency in experiencing these stressors over a period of the past 6 months on a 10 point scale ranging from 0 (*no days*) to 9+ (*more than 9 days*). The severity of a stressor is expressed as the product of the intensity and frequency thereof.

A biographical questionnaire was also included. Participants were given the option of providing their names and contact details if they wanted feedback. Other information included in the questionnaire was rank, working full-time or part-time, unit working in, years in unit, specialised training received for unit, time in profession, shifts, province, education, gender, marital status, language and health.

Statistical analysis

The statistical analysis was conducted by means of the SPSS programme (SPSS Inc., 2003). Principal component analysis with a direct oblimin rotation was performed on the 62 statements of the NSI for a sample of 818 registered nurses. Cronbach alpha coefficients were used to assess the internal consistency of the NSI (Clark & Watson, 1995).

Multivariate analysis of variance (MANOVA) was used to determine the significance of differences between occupational stress of race, rank and gender groups. MANOVA tests whether or not mean differences amongst groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable, which maximises group differences, is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda was used to test the significance of the effects. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Because multiple ANOVAs were used, a Bonferroni-type adjustment was made for inflated Type 1 error.

RESULTS

The results of the factor analysis are reported in Table 2. Loadings of variance on factors, communalities and percentage of variance and covariance are reflected. Variables are ordered and grouped according to size of loading to facilitate interpretation. Labels for each factor are suggested in the footnote.

Table 2

Factor Loadings and Communalities (h^2)for Principal Component Extraction and Varimax Rotation on NSI Items (N = 818)

Item	F_1	F_2	F_3	h^2
8. Inadequate support by manager	0,81	0,00	0,00	0,63
24. Inadequate management	0,79	0,00	0,00	0,66
15. Difficult getting along with manager	0,74	0,00	0,00	0,75
10. Lack of recognition for good work	0,72	0,00	0,00	0,57
16. Negative attitudes towards organisation	0,62	0,00	0,00	0,48
21. Lack of participative decision making	0,61	0,00	0,00	0,55
31. Poorly motivated co-workers	0,61	0,00	0,00	0,64
46. Conflict with a supervisor / manager	0,61	0,00	0,00	0,69
12. Inadequate or poor quality of equipment	0,60	0,00	0,00	0,44
7. Fellow workers not doing their job	0,56	0,00	0,00	0,61
17. Insufficient personnel to handle workload	0,56	0,00	0,00	0,63
51. Lack of support from colleagues	0,54	0,00	0,00	0,59
5. Lack of opportunity for advancement	0,53	0,00	0,00	0,61
30. Covering work for another employee	0,51	0,00	0,00	0,59
11. Performing tasks not in job descriptions	0,49	0,00	0,00	0,47
32. Conflict with other departments	0,49	0,00	0,00	0,55
25. Frequent interruptions	0,46	0,00	0,00	0,60
22. Inadequate salary	0,40	0,00	0,00	0,55
23. Competition for advancement	0,38	0,00	0,00	0,60
61. Staff shortage	0,35	0,00	0,00	0,60
6. Assignment of new or unfamiliar duties	0,32	0,00	0,00	0,62
39. Demands of clients/patients	0,00	0,83	0,00	0,70
37. Stock control	0,00	0,76	0,00	0,67
38. Management of staff	0,00	0,70	0,00	0,57
36. Adhering to the budget	0,00	0,64	0,00	0,65
13. Increased responsibility	0,00	0,64	0,00	0,45
28. Meeting deadlines	0,00	0,59	0,00	0,63
35. Dealing with other healthcare professionals	0,00	0,59	0,00	0,51
43. Health risks posed by contact with patients	0,00	0,54	0,00	0,55
33. Dealing with difficult patients	0,00	0,53	0,00	0,70
27. Excessive administrative duties (paper work)	0,00	0,51	0,00	0,53
40. Language and communication barriers with clients/patients	0,00	0,50	0,00	0,50
26. Frequent changes of activities	0,00	0,50	0,00	0,57
9. Dealing with crisis situations	0,00	0,49	0,00	0,64
18. Making critical on-the-spot decisions	0,00	0,49	0,00	0,59
54. Caring for emotional and spiritual needs of patients and their family	0,00	0,49	0,00	0,59
41. Excessive committee meetings	0,00	0,47	0,00	0,53
29. Insufficient personal time (Coffee breaks; lunch)	0,00	0,43	0,00	0,52

Table 2 (continued)

Factor Loadings and Communalities (h^2) for Principal Component Extraction and Varimax Rotation on NSI Items (N = 818)

Item	F_1	F_2	F_3	h^2
52. Death of a patient with whom you developed a close relationship	0,00	0,00	0,83	0,71
57. Watching a patient suffer	0,00	0,00	0,79	0,65
50. Making a mistake during treatment of patient	0,00	0,00	0,76	0,70
49. Death of a patient	0,00	0,00	0,76	0,65
53. Disagreement with doctor/colleagues regarding treatment of patient	0,00	0,00	0,70	0,65
47. Communicating with a patient about death	0,00	0,00	0,70	0,64
45. Patients who fail to improve	0,00	0,00	0,64	0,61
55. Inadequate information from doctor regarding condition of patient	0,00	0,00	0,62	0,62
44. Performing painful procedures to patients	0,00	0,00	0,47	0,56
20. Personal insult from doctors	0,00	0,00	0,46	0,66
19. Personal insult from patients or their families	0,00	0,00	0,45	0,74

F_1 = Lack of Organisational Support F_2 = Job Demands F_3 = Nursing-specific demands (Patient Care)

Principal component analysis was done with a direct oblimin rotation. Inspection of the table shows that three factors were extracted, accounting for 45,43% of the total variance in the data. As indicated by the squared multiple correlations (SMC), all factors were internally consistent and well defined by the variables. Communality values, as seen in the table, tend to be moderate. With a cut-off of 0,32 for inclusion of a variable in interpretation of a factor, 13 of 62 items did not load on the three factors.

The first stress factor dealt with lack of organisational support such as inadequate support by manager and inadequate management. This factor was labelled *lack of organisational support*. The second stress factor included items such as demands of patients and stock control. This factor was labelled *job demands*. The third stress factor included items such as death of a patient and watching a patient suffer. This factor was labelled *nursing-specific demands.*

Descriptive statistics for the intensity, frequency and severity of stressors for registered nurses are given in Table 3. Severity is expressed as the product of intensity and frequency.

Table 3

Descriptive Statistics of Stressor Intensity and Frequency Items: Professional Nurses

Item	Intensity		Frequency		Severity
	Mean	*SD*	Mean	*SD*	
Factor 1: Lack of organisational support					
8. Inadequate support by manager	5,42	2,62	3,15	3,09	17,07
24. Inadequate management	4,93	2,61	2,85	2,96	14,05
15. Difficult getting along with manager	4,22	2,72	2,06	2,67	8,69
10. Lack of recognition for good work	5,69	2,42	4,30	3,28	24,47
16. Negative attitudes towards organisation	4,93	2,49	3,73	3,19	18,39
21. Lack of participative decision making	5,08	2,48	3,00	3,10	15,24
31. Poorly motivated co-workers	5,93	2,43	4,94	3,10	29,29
46. Conflict with a supervisor / manager	4,61	2,78	2,16	2,70	9,96
12. Inadequate or poor quality of equipment	5,38	2,75	3,13	3,07	16,84
7. Fellow workers not doing their job	6,18	2,36	5,00	3,08	30,90
17. Insufficient personnel to handle workload	6,48	2,39	5,83	3,08	37,78
51. Lack of support from colleagues	4,99	2,51	2,84	2,76	14,17
5. Lack of opportunity for advancement	4,69	2,59	2,46	3,09	11,54
30. Covering work for another employee	5,13	2,63	4,33	3,27	22,21
11. Performing tasks not in job descriptions	5,12	2,47	4,14	3,34	21,20
32. Conflict with other departments	4,74	2,52	2,90	2,94	13,75
25. Frequent interruptions	5,42	2,37	4,90	3,27	26,56
22. Inadequate salary	6,94	2,45	5,97	3,48	**41,43**
23. Competition for advancement	4,71	2,34	2,68	3,02	12,62
61. Staff shortage	6,88	2,29	6,21	3,12	**42,72**
6. Assignment of new or unfamiliar duties	5,03	2,31	3,41	2,94	17,15
Factor 2: Job demands					
39. Demands of clients/patients	5,14	2,33	5,88	3,13	30,22
37. Stock control	4,93	2,40	5,54	3,27	27,31
38. Management of staff	4,68	2,40	5,15	3,39	24,10
36. Adhering to the budget	4,72	2,43	4,96	3,33	23,41
13. Increased responsibility	5,29	2,25	4,95	3,08	26,19
28. Meeting deadlines	5,12	2,36	4,65	3,18	23,81
35. Dealing with other healthcare professionals	3,38	2,04	4,02	3,37	7,40
43. Health risks posed by contact with patients	5,50	2,67	5,51	3,38	30,31
33. Dealing with difficult patients	5,23	2,42	4,67	3,14	24,42
27. Excessive administrative duties (paper work)	6,34	2,35	6,51	2,93	**41,27**
40. Language and communication barriers with clients/patients	4,20	2,22	3,49	2,88	14,66
26. Frequent changes of activities	4,63	2,34	4,37	3,24	20,23
9. Dealing with crisis situations	5,47	2,23	4,94	3,00	27,02
18. Making critical on-the-spot decisions	5,17	2,19	4,88	3,05	25,23
54. Caring for emotional and spiritual needs of patients and their family	4,69	2,44	4,87	3,32	22,84
41. Excessive committee meetings	4,13	2,41	3,33	3,06	13,75
29. Insufficient personal time (Coffee breaks, lunch)	4,93	2,58	4,72	3,39	23,27

Table 3

Descriptive Statistics of Stressor Intensity and Frequency Items: Professional Nurses (continued)

Item	Intensity		Frequency		Severity
	Mean	*SD*	Mean	*SD*	
Factor 3: Nursing-specific demands					
52. Death of a patient with whom you developed a close relationship	5,51	3,06	1,94	2,71	10,69
57. Watching a patient suffer	6,17	2,76	3,88	3,33	23,94
50. Making a mistake during treatment of patient	5,65	3,08	1,25	2,02	7,06
49. Death of a patient	5,25	2,73	3,06	3,14	16,07
53. Disagreement with doctor/colleagues regarding treatment of patient	4,99	2,63	2,37	2,57	11,83
47. Communicating with a patient about death	4,73	2,68	2,72	2,92	12,87
45. Patients who fail to improve	5,02	2,52	4,15	3,25	20,83
55. Inadequate information from doctor regarding condition of patient	5,36	2,62	3,28	3,04	17,59
44. Performing painful procedures to patients	4,70	2,37	5,14	3,34	24,16
20. Personal insult from doctors	5,33	2,82	2,32	2,89	12,37
19. Personal insult from patients or their families	5,06	2,68	2,43	2,92	12,30

The results in Table 3 indicate that the most severe stressors for professional nurses were staff shortages and inadequate salaries on the part of lack of organisational support and excessive administrative duties (paper work) regarding job demands. Other stressors that also measured fairly high on the severity scale of factor 1 (lack of organisational support) includes insufficient personnel to handle the workload and fellow workers not doing their job, and for factor 2 (job demands) were the following additional stressors identified: health risks posed by contact with patients, and demands of clients/patients.

The stressors which loaded on the third factor, namely nursing-specific demands (patient care), were less severe in comparison to the stressors which loaded on the first two factors, though the item "watching a patient suffer" is identified as being a stressor of very high intensity, but measured less high on the frequency scale. Performing painful procedures to patients was identified as the most severe stressor in this category. Moreover, it is evident from the results in table 3 that the first factor (lack of organisational support) comprises of the most severe stressors for registered nurses.

Descriptive statistics and alpha coefficients of the NSI factors are reported in Table 4.

Table 4

Descriptive Statistics and Alpha Coefficients of the NSI factors

Item	*Mean*	*SD*	Skewness	Kurtosis	α
Lack of organisational support	112,50	33,70	-0,47	-0,20	0,93
Job demands	83,56	25,40	-0,22	-0,28	0,91
Nursing-specific demands	57,77	21,94	-0,51	-0,44	0,91

Table 4 indicates that the alpha coefficients of the three extracted factors of the NSI are highly acceptable to the guideline of 0,70 (Nunnally & Bernstein, 1994). The values can be considered high and thus explain a large portion of the variance in the different scales (Clark & Watson, 1995).

Next, multivariate analysis of variance (MANOVA) was used to analyse the differences between the stress levels of different biographical groups, namely different language and age groups, different ranks, nurses working in different units (hospital ward, psychiatric ward, community/occupational services or management), the number of years they have been working in certain units, the number of years spent in nursing, the levels of education (nursing diploma as compared to nursing degrees) and gender differences. (see Table 5). In MANOVA, several dependent variables (in this case *stress*: lack of organisational support; *stress*: job demands and *stress*: nursing-specific demands) are considered together in the same analysis.

Table 5

MANOVA of the Stress Levels of Biographical Groups

Item	Value	*F*	df	*p*	η^2
Language (Culture)	0,98	3.17	6,00	0,00*	0,01
Age	0,94	3,13	15,00	0,00*	0,02
Rank	0,95	7,68	6,00	0,00*	0,03
Units	0,94	5,15	9,00	0,00*	0,02
Years worked in specialised unit	0,93	4,12	15,00	0,00*	0,03
Years in nursing	0,94	3,57	15,00	0,00*	0,02
Level of education	0,99	3,33	3,00	0,02	0,01
Gender	1,00	0,57	3,00	0,63	0,00

* $p < 0,01$

According to Table 5 there was a significant effect of age on the combined variable stress ($F_{(15, 2236)} = 3,13$, $p < 0,01$; Wilks' Lambda = 0,94; $\eta^2 = 0,02$). This effect was small (1,9% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of Stress: Lack of organisational support ($p = 0,04$) and Stress: Job demands (0,31) in the six age groups of registered nurses in South Africa. The groups differed in terms of the level of Stress: Nursing-specific demands ($p = 0,00$) where the youngest age group (20-30 years) of registered nurses showed higher levels of stress.

A significant effect of rank (junior registered nurses, chief professional nurses and nurse managers) on the combined dependent variable stress was also evident ($F_{(6, 1626)} = 7,68$, $p < 0,01$; Wilks' Lambda = 0,96; $\eta^2 = 0,03$). However being larger than the previous effect, this effect was still small (2,8% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of stress: lack of organisational support ($p = 0,20$) and stress: job demands ($p = 0,67$) in the three ranks of registered nurses in South Africa. The three groups differed in terms of the level of stress: Nursing-specific demands ($p = 0,00$), where the middle rank of registered nurses (chief professional nurses) showed the highest levels of stress.

Table 5 also reflects the fact that a significant effect of the unit (hospital ward, psychiatric ward, community/occupational health services and management) registered nurses worked in was detected on the combined dependent variable stress ($F_{(9, 1864)} = 5,15$, $p < 0,00$; Wilks' Lambda = 0,94; $\eta^2 = 0,02$). However, this effect was small (2% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of stress: lack of organisational support ($p = 0,14$) and stress: job demands in the four different units that professional nurses in South Africa works in. The groups differed in terms of the level of stress: nursing-specific demands ($p = 0,00$), where higher levels of stress were prevalent in nurses working in hospital wards than in the other three groups.

Years worked in a specific unit also proved to have a significant effect on the combined dependent variable stress ($F_{(15, 2236)} = 4,12$, $p < 0,00$; Wilks' Lambda = 0,93; $\eta^2 = 0,25$).). Once again, this effect was small (2,5% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were no significant differences between the levels of stress: lack of organisational support ($p = 0,04$) and stress: job demands ($p = 0,10$) regarding the years spend in a specific unit. The group who indicated the highest levels of stress regarding stress: nursing-specific demands ($p = 0,00$), were registered nurses who have been working for 25-30 years (the fifth group) in a specific unit.

The years spend in nursing altogether also proved to have a significant effect on the combined dependent variable stress ($F_{(15, 2236)} = 3,57$, $p < 0,01$; Wilks' Lambda = 0,94; $\eta^2 = 0,02$). This was however also a small effect (explaining 2,2% of the variance). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,017, showed that there were significant differences between the levels of stress: lack of organisational support ($p = 0,01$) and stress: nursing-specific demands ($p = 0,00$). The group of professional nurses being involved in nursing for 10-15 years experienced the highest levels of stress due to lack of organisational support while those who have been in nursing for 0-15 years (first two groups) showed the highest levels of stress because of duties involving patient care (nursing-specific demands). There were no significant differences regarding stress due to job demands.

The Manova tests showed that different groups, different educational levels (diploma versus degree) and gender had no significant effect on the stress levels of professional nurses.

DISCUSSION

It was the objective of this study to determine the internal consistency and construct validity of the NSI and to identify the occupational stressors for registered nurses in South Africa. Three occupational stress factors were extracted, namely lack of organisational support, job demands, and nursing-specific demands (patient care). The results showed that the factorial validity and reliability of the NSI were satisfactory, which confirms the first hypothesis.

The first factor indicates stress because of a lack of support in the organisation, as well as stress regarding supervisors and colleagues. This confirms the results of McGrath, Reid, and Boore (2003), who stated that nurses involved in their study reported that they perceived their employers as providing no assistance of any significant importance. The items loading on this factor include the following: lack of recognition for good work, inadequate support by supervisor/manager, inadequate or poor quality equipment and lack of support from colleagues. The two most severe stressors loading on this factor were staff shortages and inadequate salaries, confirming the results of McGrath et al. (2003), which revealed the fact that this was also the most severe stressor for nurses in their study. Stressors related to lack of organisational support were clearly the most severe of all stressors measured by the NSI for registered nurses.

The items loading on the second factor refer to the demands associated with the job of the nurse, including workload, confirming the results of Tummers et al. (2001). Job demands include stressors such as health risk posed by contact with patients, meeting deadlines, dealing with difficult patients and demands of clients/patients. These stressors coincide with those reported by McGrath et al. (2003). In this category, excessive administrative duties (paper work) comprised the most severe stressor for registered nurses. Excessive administrative duties was identified as a severe stressor for nurses in many previous research studies since the early eighties (see Cronin-Stubbs & Brophy, 1984; Dawkins, Depp, & Selzer, 1985; Jones, Janman, Payne, & Rick, 1987; McGrath et al., 2003).

Demands of clients/patients and health risks posed by contact with patients were second in line in terms of the severity of stressors in the category Stress: Job demands. These findings contradict the results of a study conducted by McGrath et al. (2003) regarding occupational stress in nursing, who listed contact with patients as one of the least stressful factors. The result of this current research could probably be explained against the background of a high incidence of HIV/AIDS in South Africa and the subsequent health risk posed by contact with patients.

Nurses are not always aware of the HIV/AIDS status of their patients and are thus under constant strain of being infected with HIV during contact with patients. These fears are not unrealistic, as Venter (2003) reported that nurses have to face situations where patients deliberately attempt to infect the nurses through spitting and biting. Few patients disclose their HIV status voluntarily, making it difficult for the nurses to prevent the spreading of the disease or to make a contribution to prevent further infection (Rothmann, 2005). It was also reported that 13,7% of nurses working in hospitals have already contracted HIV (Pienaar, 2005). The means of contracting the disease was apparently not reported.

The third factor emphasises the physical help/care provided by nurses to patients and was labelled nursing-specific demands. This category includes death of a patient with whom you have developed a close relationship, watching a patient suffer, making a mistake when treating a patient, communicating with a patient about death and disagreement with a medical practitioner or colleague concerning the treatment of a patient. Mawson (1994) and Obholzer and Roberts (1994) regard these as severe stressors for nurses. However, the results showed that severity of stress because of nursing-specific demands (patient care) was substantially lower than other stressors. Kop and Euwema (2001) confirm that stressors related to the specific occupation individuals find themselves in, are often less severe than organisational stressors. Although less severe, the two most severe stressors in this category were watching a patient suffer and performing painful procedures to patients. A study of psychiatric nurses conducted by Happel, Pinikahana, and Martin (2003) revealed similar results, namely that 98% of respondents listed exposure to the dying patient and performing painful procedures to patients as very stressful.

The three most severe stressors (in hierarchical order) were a shortage of staff, inadequate salaries and excessive administrative duties. Inadequate salaries seem to create many

problems for the nursing profession, apart from causing high levels of stress for the nurses. Rothmann (2005) reported that insufficient salaries force many nurses to seek additional means of income by, for example, taking on additional jobs or extra shifts on their free days ("moonlighting"). These nurses, experiencing fatigue due to all the extra work, also put extra strain on their colleagues working with them by overloading them with activities they are too tired to carry out themselves. This unhealthy situation creates opportunities for negligence in patient care. It was recently reported by the Democratic Nurses Organisation of South Africa that over 300 disciplinary cases of nurses regarding negligence towards patients are handled each month (Maponya, 2005).

Stressors that showed a medium intensity and frequency can typically be defined as chronic stressors. For the registered nurses, this category includes the following items that deal exclusively with events that can be considered daily occurrences in the nursing environment: fellow workers not doing their job, insufficient personnel to handle workload, demands of clients/patients, and health risks posed by contact with patients.

Multivariate analysis of variance (MANOVA) identified that regarding nursing-specific demands, the youngest age group (20-30 years of age) of registered nurses showed higher levels of stress than the older age groups. According to Demir, Ulusoy, and Ulusoy (2003), this result is to be expected, as it was proven that burnout and thus stress in nurses decrease as their experience increase. This also confirms the results of Beaver, Sharp, and Cotsonis (1986). The results further revealed that the middle rank of registered nurses (chief professional nurses) showed the highest levels of stress in comparison to the other more junior and more senior ranks. These results could possibly be explained by the fact that registered nurses in the middle rank are still involved in patient care and, because of their seniority in the wards/workplace, have more responsibilities than the junior registered nurses.

The results indicated that nurses working in hospital wards showed higher levels of stress than those working in psychiatric wards or in community/occupational or management settings, contradicting the research results of Clinton and Hazelton (2000); Coffey and Coleman (2001); de Jonge (1995); Edwards, Burnard, Coyle, Fothergill, and Hannigan (2000); Happel et al. (2003); and Prosser et al. (1999). All of these authors identified mental health nurses and community mental health nurses as the professional groups with the highest sources of stress. Further, those registered nurses who have been working for 25-30 years in a

specific unit experience more stress and the group of registered nurses having been involved in nursing for 0-15 years showed the highest levels of stress in comparison to those being involved in nursing for longer periods of time. The group that has been functioning in the nursing profession for 10-15 years experienced higher levels of stress due to lack of organisational support.

The above results confirm the second hypothesis in part, in that biographical differences were detected regarding age, rank, unit working in, years in current unit, and years spent in nursing. No differences were detected for either different educational levels (diploma versus degree) or gender.

In order to realise the importance and impact of the above results, it should preferably be evaluated against and compared to similar analyses of other occupations. According to a study by Rothmann (2005), where the occurrence of stress in different occupations (call centre operators, city council staff, electricians, hospital pharmacists, nurses, emergency health workers and police officers) was analysed, results revealed that, regarding the intensity of stressors, nursing was rated second – thus giving rise to the second highest levels of stress, as far as intensity is concerned, of all the occupations analysed. Although nurses experience stressors as very intense, some of the stressors do not occur on a daily basis. In calculating the severity of stressors perceived (i.e., the product of the intensity and frequency of stressors), nursing was placed third in order of perceiving stressors as severe, after hospital pharmacists and emergency health workers (paramedics).

Comparison of the severity of the two most severe stressors for nurses identified in the current study – namely staff shortage and inadequate salaries – to other occupations revealed that regarding staff shortage, the nursing profession is third in line, after emergency health workers and hospital pharmacists. Regarding inadequate salaries, nursing was rated second, next to call centre operators (Rothmann, 2005).

There are some limitations to this study. Firstly, the analysis in this study is correlational and, therefore, does not confirm causality. In addition, since the design of the study was cross-sectional, more complex forms of non-recursive linkages could not be examined. Secondly, the present study is based on self-reports. Self-report data might be contaminated by common method variance, seeing that both the dependent and independent variables are based upon

one source of information, i.e. the participants (Demerouti, Bakker, Nachreiner & Schaufeli, 2000).

RECOMMENDATIONS

Based on the findings of this study it is recommended that organisations that employ nurses should implement programmes to reduce stress because of lack of organisational support and job demands. If these stressors are allowed to continue unattended, organisations may encounter negative costs such as burnout, employee turnover and lowered levels of service. Programmes that improve recruitment, selection and performance management (including performance appraisal, training and creating a motivational environment) should specifically be implemented. Furthermore, intervention schemes and social support systems, such as counselling services, should be made available to nursing staff of all categories.

By using job redesign methods, a careful analysis of nurses' daily tasks should be done that may give more insight into the aspects of their tasks that are particularly demanding or poorly designed (Demerouti et al., 2000). Supervisors (senior personnel) should play a key role in creating a healthy working environment. These roles may range from instrumental support to nurses during task execution to conflict management and emotional support. Special care should be taken of the junior nurses as they seem to be more vulnerable to occupational stress, probably because of inexperience. Supervisors should thus be trained in adopting a coaching leadership style, to give adequate feedback about nurses' performance and to avoid role conflicts (Demerouti et al., 2000).

As inadequate salaries were identified as a factor creating much stress for nurses, it is important to establish congruence between nurses' workload and their reward. As staff shortages was identified as the stressor creating the most stress, with consequently creating work overload for nurses, their remuneration packages should be re-addressed accordingly.

Further refining and testing of the NSI is needed in other nursing samples. Future studies could focus on the lack of organisational support, and more specific on the issue of staff shortage and its possible link to the mass exodus of South African nurses. It is recommended that future studies validate findings with regard to the equal comparison of the perceived

strain construct across cultural groups. Cross-cultural comparisons would greatly enhance validity of findings in terms of the multi-cultural South African context.

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CHAPTER 5

ARTICLE 4

OCCUPATIONAL STRESS, SENSE OF COHERENCE, COPING, BURNOUT AND WORK ENGAGEMENT OF REGISTERED NURSES IN SOUTH AFRICA

J.J. VAN DER COLFF

S. ROTHMANN

WorkWell: Research Unit for People, Policy and Performance, North-West University, Potchefstroom

ABSTRACT

The aim of this study was to assess the relationship between occupational stress, sense of coherence, coping, burnout and work engagement in registered nurses in South Africa. A cross-sectional survey design was used. The study population consisted of 818 registered nurses in South Africa. The Maslach Burnout Inventory – Human Services Survey, the Nursing Stress Inventory, the COPE, the Utrecht Work Engagement Scale and the Orientation to Life Questionnaire were administered. The results showed that the experience of depletion in emotional resources and depersonalisation of registered nurses were associated with stress due to job demands and a lack of organisational support, focus on and ventilation of emotions as a coping strategy and a weak sense of coherence. Work engagement was predicted by a strong sense of coherence and approach coping strategies.

OPSOMMING

Die doelstelling van hierdie studie was om die verwantskap tussen werkstres, koherensiesin, coping, uitbranding en werksbegeestering van geregistreerde verpleegkundiges in Suid-Afrika te bepaal. Die studiepopulasie het bestaan uit 818 geregistreerde verpleegkundiges in Suid-Afrika. Die Maslach Uitbrandingsvraelys – Menslike Dienste Opname, die Verpleegstres-indikator, die COPE, die Utrecht Werksbegeesteringskaal en die Lewensoriëntasievraelys is afgeneem. Die resultate het aangedui dat die ervaring van verlaagde emosionele energie en depersonalisasie deur die geregistreerde verpleegkundiges verband hou met stres as gevolg van werkseise, asook gebrek aan organisasieondersteuning, fokus op en ontlading van emosies as 'n hanteringsmeganisme en 'n swak koherensiesin. Werksbegeestering is voorspel deur 'n sterk koherensiesin en aktiewe coping-strategieë.

According to popular opinion the changing social, cultural and ideological climates in countries also influence the climates in organisations and thus contribute to occupational stress and eventually burnout among people (Schaufeli & Enzmann, 1998). South Africa is a country known for its cultural diversity and social changes that have occurred during the past ten years with the process of transformation being implemented. These changes have given rise to much uncertainty and occupational stress in all sectors of society, including health services.

A stable and productive health service is of vital importance to any country. This would include the nursing profession, which comprises by far the greatest component of this service section. Nursing is seen as a stressful and emotionally demanding profession (Carson, Bartlett, & Croucher, 1991; Coffey & Coleman, 2001; Dolan, 1987; Fagin, Brown, Bartlett, Leary, & Carson, 1995; Moores & Grant, 1977; Schaufeli & Janczur, 1994; Snelgrove, 1998; Sullivan, 1993), which makes nurses exceptionally susceptible to burnout.

The voluminous body of stress literature is quite clear about the negative effects of occupational stress. These effects include impaired performance and effectiveness, reduction in productivity, diminishing levels of customer service, health problems, absenteeism, turnover, industrial accidents, alcohol and drug usage, purposefully destructive behaviours, e.g. spreading of rumours and stealing (Happel, Pinikahana, & Martin, 2003, Karasek & Theorell, 1990; Perrewé, 1991; Quick, Quick, Nelson, & Hurrell, 1997; Wright & Smye, 1996), and even suicide (McGrath, Reid, & Boore, 2003). The potential direct and indirect costs associated with various stress-related consequences command more than just adequate attention from the manager of any business. In the United States alone it is estimated that the overall business and industry costs associated with burnt-out or dispirited employees are in the range of $150 to $180 billion per annum (Wright & Smye, 1996). Stress is seen by Cherniss (1995) as the main causative factor of burnout.

Stress is but one aspect that influences a person's well-being negatively. Studies confirmed that one's sense of coherence is an important component of one's health and well-being (Antonovsky, 1987, 1993). Sense of coherence has been defined as a relatively stable dispositional orientation, which is represented by the concepts of comprehensibility, manageability and meaningfulness (Antonovsky, 1987). A strong sense of coherence is related to general well-being (Feldt, 1997). In theory, this means that individuals with high

levels of burnout would be expected to demonstrate lower levels of sense of coherence. Specifically, the manageability component of sense of coherence has been proven to be related to the exhaustion component of burnout (Rothmann & Malan, 2003).

According to Antonovsky (1987), a strong sense of coherence is not a particular coping style, and the stressors life poses are many and varied. To adopt one pattern of coping consistently is precisely to fail to respond to the nature of the stressor, and hence, to decrease the chances of successful coping. A person with a strong sense of coherence selects the particular coping strategy that seems most appropriate to deal with the stressor being confronted. Subsequently, the availability of a wide repertoire of coping strategies and flexibility in choice at any given time are crucial (Antonovsky, 1987; Feldt, 1997). The stronger the sense of coherence a person has, the better the ability he/she has to employ cognitive, affective and instrumental strategies, which are likely to improve coping and, subsequently, well-being.

Coping refers to the perceptual, cognitive or behavioural responses used to manage, avoid or control situations that could be regarded as difficult (Folkman & Lazarus, 1984, Moos, 1994; Zeidner & Endler, 1996). Lazarus and Folkman (1984) initially identified two coping strategies, namely problem-focused or active coping and emotion-focused or passive coping. Problem-focused strategies include such strategies as defining the problem, generating and weighing alternative solutions, and following a plan of action, whereas emotion-focused strategies include processes such as avoidance, denial, seeking emotional support, and positive appraisal (Folkman & Lazarus, 1984).

According to Alsoofi, Al-Heeti, and Alwashli (2000), burnout and coping strategies seem to be significantly related. The use of withdrawal or avoidance (passive) coping strategies is associated with high levels of burnout, while low burnout levels are associated with constructive or active (problem-focused) coping strategies (Schaufeli & Enzmann, 1998).

Although burnout can occur in any occupation, nursing is considered as being inherently stressful and an above-average risk group regarding work stress (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000; Levert, Lucas, & Ortlepp, 2000; Schaufeli & Janczur, 1994; Trummers, Janssen, Landeweerd, & Houkes, 2001), causing more stress-related illnesses than in any other occupational group (Surmann, 1999). Schaufeli and Janczur (1994, p. 99) stated in this regard: "Every day the nurse confronts stark suffering, grief and death as few other

people do. Many nursing tasks are mundane and unrewarding. Many are by normal standards distasteful, even disgusting, others are often degrading; some are simply frightening".

Although occupational stressors, giving rise to stress and ultimately to burnout, are a reality within the nursing profession, there is also another (positive) side to the coin, namely being dedicated to and immersed in one's work, referred to in literature as *engagement* (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002). Engaged employees see themselves as competent in dealing with the demands of their job. They are energetic and have a sense of effective connection with their work activities.

The impact of burnout – regarded as the opposite concept of engagement – on the quality of care in the nursing profession should not be underestimated. The prevalence rates of occupational stress are rising continuously in most industrialised countries, as indicated by the increase in stress-related absenteeism. The expenditure involved in absenteeism, work turnover, loss of work, lack of productivity and under-achievement is in fact incalculable. Literature also reports an increase in the number of disability recipients due to mental (possibly stress related) disorders (Schaufeli & Enzmann, 1998). Low job satisfaction among nurses furthermore has a negative influence on the quality of patient care (Muldoon & Kremer, 1995).

In the light of these facts, the importance of identifying personality traits and job stressors related to burnout as well as engagement is indisputably of great importance to improve the standard of health services and care in the nursing profession. The negative impact of burnout does not apply only to the individual, but also – and in particular – to the government, as well as to private organisations.

The objective of this study was to investigate the relationship between occupational stress, sense of coherence, coping, burnout and work engagement in registered nurses in South Africa.

Occupational stress

In the literature many approaches exist towards the understanding of the stress response in occupational settings, such as the Person-Environment Fit model (French, Kaplan, &

Harrison, 1982) and the Demand-Control Model of Karasek (Fox, Dwyer, & Ganster, 1993). The former approach views psychological and physical stress consequences as a result of an incongruent person-environment fit, while the Demand-Control Model looks at the interaction between the demands of the situation and the individual's decisional freedom in terms of meeting the job requirements. Although these models influenced a considerable body of research on stress, they focus on general demands of the job and the skills and abilities of the incumbent, not taking into account the specific pressures and the role of individual differences in personality and coping resources (Spielberger & Vagg, 1999).

The transactional approach as offered by Lazarus (1991) views the interaction between the individual and his/her environment as a transaction, allowing for the individual's cognitive appraisal of stressful situations, and the selective identification and utilisation of coping resources. According to Dewe, Cox, and Ferguson (1993), stress is not a factor that resides in either the individual or the environment. Stress is viewed rather as a dynamic cognitive state where the individual's interaction with the environment can be described as an ongoing transaction. In this transaction, individuals make appraisals of their encounters with their environment and attempt to cope with the issues arising from this interaction.

According to Spielberger and Vagg (1999), the identification of major sources of stress at work offers a twofold benefit for both management and employees. First, information about stress could be used to make changes in the work environment that reduce stress and increase productivity. Second, information about stress could be used to facilitate the development of effective interventions that could reduce the debilitating effects of occupational stress. Meyerson (1994) and Handy (1988, 1991) pointed out important considerations in terms of stress research. According to these authors, stress occurs in a particular context, since individuals differ in the meaning they attribute to stressful experiences. The influence of social construction of stressful experiences should also be taken into account.

Based on the Demand-Control model of Karasek (Fox et al., 1993) and research results on the Maslach Burnout Inventory (MBI), Maslach and Jackson (1986) postulated that the presence of particular demands (i.e. work overload and personal conflicts) and the absence of particular resources (i.e. control coping, social support, autonomy and decision involvement) would lead to the prevalence of burnout, resulting in other expected negative outcomes, such as physical illness, turnover, absenteeism, and diminished organisational commitment.

Subsequent research used this descriptive heuristic framework to understand the well-being of employees in stressful occupational environments.

Cavanagh (1997) and Cocco, Gatti, de Mendonça Lima, and Camus (2003) divide stressors within the nursing profession into three categories, namely personal (or intrapersonal), interpersonal and work environment or organisational stressors. *Personal stressors* include an inability to manage home, work and sometimes also study responsibilities and an inadequate preparation of personnel for the demanding tasks of nursing. *Interpersonal stressors* reflect on relationships with doctors, supervisors, other senior personnel and colleagues (Basson & van der Merwe, 1994). *Work environment stressors* include modern technology being, in essence, inhumane and depersonalised (Cavanach, 1997; Lewis, 1988); a high work load and long working hours that do not contribute to a personal and social lifestyle (Basson & van der Merwe, 1994; Cavanach, 1997); procedures that endanger nurses' lives; caring for and especially dealing with pain, suffering and dying; the strain of being exposed to making mistakes and managing demanding responsibilities (Cavanach, 1997); lack of autonomy (Schaufeli & Enzman, 1998); role conflict and role ambiguity (Levert et al., 2000) and under-staffing (Erasmus, Poggenpoel, & Gmeiner, 1998; Kilfedder, Power, & Wells, 2001).

Sense of coherence

Antonovsky (1987) predicted that sense of coherence, as being defined as a relatively stable dispositional orientation, might cause employees with a strong sense of coherence to experience less job stress. A strong sense of coherence might help employees understand stressors and regard them as manageable and meaningful. A weak sense of coherence might therefore lead to job stress, which in turn could lead to burnout.

Each person's sense of coherence, or sense of well-being, requires certain inherent prerequisites for coping successfully, which are represented by the concepts of comprehensibility, manageability and meaningfulness (Antonovsky, 1987). *Comprehensibility* refers to the extent to which people find or structure their world to be understandable, meaningful, orderly and consistent instead of chaotic, random and unpredictable. The person perceives his or her world as comprehensible and making sense on a cognitive level. *Manageability* refers to the extent to which people experience events in life as situations that are endurable or manageable, and that can even be regarded as new

challenges. Individuals feel that they have the resources to meet the demands, or feel that they know where to go in order to find help. *Meaningfulness* refers to the extent to which one feels that life makes sense on an emotional and not just a cognitive level, and that life's demands are worthy of commitment. It is, essentially, seeing coping as desirable. Rothmann, Jackson and Kruger (2003) found that sense of coherence contributes to professional efficacy of employees.

Amirkhan and Greaves (2003) studied three mechanisms that could underlie the health-promoting benefits of sense of coherence, namely perceptual, cognitive and behavioural mechanisms. They showed that a strong sense of coherence impacts on perception as such that individuals with a strong orientation are likely to view a greater number of events as having coherence. This perceptual process seems to be subtle: it influences individuals' perceptions of stressful events, but it does so without their conscious awareness. Evidence of a behavioural influence was also obtained: individuals with a strong sense of coherence used more instrumental and fewer avoidant responses to cope with stressors in their lives (Amirkhan & Greaves, 2003). As far as the cognitive dimension is concerned, sense of coherence does not appear to influence individuals' attributions, i.e. individuals with a strong sense of coherence (compared to those with a weak sense of coherence) did not make different attributions (Amirkhan & Greaves, 2003).

Coping

The literature on stress research is frequently linked to coping mechanisms. According to Bhagat et al. (2001), the level of stress experienced and the extent to which adverse psychological and physiological effects of stress occur depends on how well the individual utilises coping strategies in the organisational setting.

Coping can be defined as the cognitive and behavioural efforts that individuals make to manage situations appraised as potentially harmful or stressful (Kleinke, 1991; McElfatrick et al., 2000). According to Fleishman (1984), coping could refer to either strategies or results. As a strategy, coping refers to the different methods that individuals employ to manage their specific circumstances, while coping as a result refers to the eventual outcomes of the chosen strategy for the individual. Non-coping is defined by Callan (1993) as failed efforts to cope, accompanied by various physical and psycho-social disturbances, eventually resulting in

higher stress levels. Non-copers experience that things just do not make sense and that they lose perspective on issues. According to Carver, Scheier, and Weintraub (1989), non-coping results in higher levels of depression and anxiety.

Recently, hierarchical factor analysis revealed a more fundamental distinction in terms of coping strategies, namely approach-oriented and avoidance-oriented processes in coping strategies (Tobin, Holroyd, Reynolds, & Wigal, 1989). Consequently, coping strategies could be viewed from an active as well as a passive approach, where movement towards or away from the stressor is taken as broad strategies.

According to Lazarus (1991), the individual processing or appraisal of a stressful event takes place on two levels. In primary appraisal, significance is attached to the situation to determine whether or not the particular situation poses a potential or actual threat to the individual's well-being. In the secondary appraisal process the perceived ability of coping resources to deal with the event is evaluated. These appraisal processes can be viewed as interdependent, influencing each other and shaping the nature of any encounter on an individual level (Folkman & Lazarus, 1984). Consequently, coping is regarded as a process whereby the individual interacts with his/her environment in order to comprehend what people actually think and do in a stressful encounter (Holroyd & Lazarus, 1982).

Burnout

Burnout has long been a proven reality within the nursing profession (Glass, Mcknight, & Valdimarsdottir, 1993; Lewis, 1988; McKnight & Glass, 1995; Schaufeli & Janczur, 1994; Tarolli-Jager, 1994;), with symptoms such as low energy levels, feelings of lack of control, helplessness, low motivational levels, negative attitudes towards work, self and others, emotional exhaustion, absenteeism and turnover, performance deficits and substance abuse (Glass et al., 1993).

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

in workers to distance themselves emotionally and cognitively from their work, presumably as a way to cope with work overload. The interpersonal context dimension is represented by *depersonalisation,* which entails negative, callous and cynical attitudes or excessively detached responses towards the recipients of service and care (e.g. patients), reducing the recipient to an impersonal object. These two dimensions are generally considered to be the core symptoms of burnout (Demerouti et al., 2000). The third dimension, *lack of personal accomplishment,* (often studied only as an afterthought (Demerouti et al., 2000)), represents the self-evaluation dimension of burnout and refers to feelings of insufficiency (Schaufeli & Buunk, 1996), incompetence, lack of achievement and unproductiveness (Maslach et al., 2001).

Schaufeli and Enzmann (1998) identified exhaustion as a core indicator of burnout and a sense of reduced effectiveness as an accompanying symptom, but also name another three accompanying general symptoms, namely distress (affective, cognitive, physical and behavioural), decreased motivation, and dysfunctional attitudes and behaviours at work. Schaufeli and Enzmann (1998) defined burnout as "... a persistent, negative, work-related state of mind in 'normal' individuals that is primarily characterized 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 further viewed by the authors as self-perpetuating due to inadequate coping strategies and frustrated intentions. Burnout should furthermore be seen as a process, occurring progressively over time, rather than as a state (Carson & Fagin, 1996; Maslach & Schaufeli, 1993; Prosser et al., 1999; Williams, Mitchie, & Pattani, 1998), which could, according to Schaufeli and Enzmann (1998), be determined by personality traits such as hardiness or neuroticism, or by high job demands.

Work engagement

Empirical studies revealed that some employees, regardless of high job demands and long working hours, do not develop burnout in comparison to others, but seem to find pleasure in hard work and dealing with job demands (Schaufeli & Bakker, 2001).

Development of the engagement construct took two different but related avenues. Firstly, Maslach and Leiter (1997) rephrased burnout as an "erosion of engagement with the job."

Subjective experience of work that started out as important, meaningful and challenging becomes unpleasant, unfulfilling and meaningless. Engagement, according to these authors, is characterised by energy, involvement and efficacy, the direct opposites of burnout, namely exhaustion, cynicism (depersonalisation) and lack of professional efficacy or personal accomplishment respectively. Consequently, engagement could theoretically be measured by means of the Maslach Burnout Inventory (MBI), when low scores on exhaustion and cynicism or depersonalisation, and high scores on professional efficacy or personal accomplishment are obtained.

Schaufeli, Salanova, et al. (2002) argued that the simultaneous empirical investigation of burnout and engagement would be impossible with one instrument. Based on a theoretical analysis, burnout and engagement were conceptually related to each other, resulting in two work-related dimensions of well-being identified, namely (1) *activation*, ranging from exhaustion to vigour, and (2) *identification*, ranging from cynicism to dedication (Schaufeli & Bakker, 2001). Personal accomplishment and absorption were also included in the burnout and engagement constructs respectively, but not in an antithetical manner. It was argued that personal accomplishment was added only afterwards in the development of the Maslach Burnout Inventory (MBI), when a third factor was discovered during a factor analysis of a preliminary version of the MBI (Maslach, 1993).

Engagement is therefore defined as a positive, fulfilling, work-related state of mind that is characterised by three dimensions, namely vigour, dedication and absorption (Schaufeli, Salanova, et al., 2002). *Vigour* refers to having high energy levels, resilience regarding work activities, investing effort in one's work and persistence in difficult circumstances. *Dedication* includes a sense of significance, enthusiasm, inspiration, pride and challenge, while *absorption* is characterised by full concentration on and engrossment in one's work, and finding it difficult to detach oneself from work (Schaufeli, Salanova, et al., 2002). Absorption comes close to the concept of "flow", which is characterised by an optimal state of experience where focused attention, a clear mind, unison of body and mind, effortless concentration, complete control, loss of self-consciousness, time distortion and intrinsic enjoyment are experienced (Csikszentmihalyi, 1997). Work engagement is furthermore not a momentary and specific state, but a more persistent and pervasive affective-cognitive state which is not focused on a particular object, event, individual or behaviour (Schaufeli, Salanova, et al., 2002). Engagement is theoretically viewed as the opposite end of the continuum from

burnout, which cannot be effectively measured by the Maslach Burnout Inventory (MBI), but with its own survey, the Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al., 2002).

A study done by Mostert and Rothmann (in press) revealed that work engagement was best predicted by conscientiousness, emotional stability, and low stress due to job demands. Persons with a strong sense of coherence were also found to experience more work engagement (Naudè & Rothmann, in press). This result is consistent with previous findings (e.g. Basson & Rothmann, 2002; Schaufeli & Bakker, 2004; Wissing, De Waal, & De Beer, 1992). The study of Naudé and Rothmann (in press) also showed that the availability of job resources (i.e. when distress regarding their job resources was low) and personal resources (i.e. when the sense of coherence was strong) enhanced work engagement levels.

The above discussion leads to the following hypotheses:

Hypothesis 1: Occupational stress and a weak sense of coherence predict burnout (i.e. exhaustion and depersonalisation) and low work engagement.

Hypothesis 2: Approach coping and seeking emotional/social support predict low burnout and high work engagement; whilst passive coping strategies (i.e. avoidance, turning to religion and focus on and ventilation of emotions) predict burnout and low work engagement.

METHOD

Research design

A cross-sectional survey design was used.

Participants

The study population consisted of registered nurses in private and public hospitals in South Africa. Descriptive information of the sample of registered nurses is provided in Table 1.

Table 1

Characteristics of Registered Nurses in the Sample

Item	Category	Frequency	Percentage
Sector	Private	686	83,92
	Public	132	16,08
Rank	Registered nurses	554	67,70
	Unit managers/ Chief professional nurses	122	14,90
	Middle and top managers	142	17,40
Unit	Hospital ward	613	79,40
	Psychiatric ward	25	3,20
	Community/occupational services (Primary health care)	67	8,70
	Management	67	8,70
Specialised Unit	Intensive and High care	107	13,90
	Surgery, Urology, Ear, Nose and Throat, Orthopaedic	140	18,20
	Theatre and Trauma/Casualties	184	24,00
	Medical, Oncology, Outpatients, Paediatrics	110	14,30
	Obstetrics	59	7,70
	Psychiatry and other, e.g. Community nursing/Management	168	21,90
Years employed in nursing profession	0 - 10 years	162	19,80
	10,01 - 15 years	159	19,40
	15,01 – 20 years	180	22,00
	20,01 – 25 years	130	15,90
	25,01 – 30 years	107	13,10
	30,01 and longer	80	9,80
Provinces	Eastern Cape	58	8,00
	Free State	42	5,80
	Gauteng	350	48,50
	Kwa-Zulu Natal	135	18,70
	Mpumalanga	46	6,40
	North West	57	7,90
	Western Cape	33	4,60
Age	20 – 30	164	20,00
	30,1 – 35	129	15,80
	35,01 – 40	117	14,30
	40,01 – 45	175	21,40
	45,01 – 50	112	13,70
	50,01 – 60	121	14,80
Home language	Afrikaans	427	52,20
	English	236	28,90
	African	155	18,90
Gender	Male	21	2,60
	Female	791	97,40

The sample consisted mainly of female, Afrikaans speaking registered nurses, working in hospital wards in the private sector in the Gauteng province. The mean age of the participants was 40 years, while the average duration of service in the nursing profession was 19 years. A total of 52,20% of the participants were Afrikaans Speaking, 28,90% were English speaking, while 18,90% spoke an African language. The majority of the group took at least 21 days of leave during the year prior to the survey and 86,50% took sick leave comprising fewer than 8 days.

Measuring battery

The *Nursing Stress Inventory* (NSI) consists of 62 statements and was developed by Van der Colff and Rothmann (in press). Firstly, participants rated each of the 39 statements in terms of perceived intensity of the particular stressor on a 9-point scale, ranging from 1 (*low*) to 9 (*high*). In the second part of the questionnaire, the participants were asked to respond in terms of perceived frequency in experiencing these stressors over a period of the past 6 months on a 10 point scale ranging from 0 (*no days*) to 9+ (*more than 9 days*). Exploratory factor analyses of the NSI in a sample of nurses resulted in three reliable factors, namely *lack of organisational support* (e.g. lack of supervisory or managerial support, and colleagues not doing their jobs), *demands of the job* (e.g. having to deal with constant unfamiliar situations, and making critical on-the-spot decisions) and *nursing-specific demands* (e.g. death of a patient, making a mistake during the treatment of a patient, and watching a patient suffer).

The *Orientation to Life Questionnaire* (OLQ) (Antonovsky, 1987) was used to measure the participants' sense of coherence. The OLQ consists of 29 items. Antonovsky (1993) reported Chronbach alpha coefficients of the OLQ in 29 research studies varying between 0,85 and 0,91. Test-retest reliability studies found coefficients between 0,41 and 0,97 (Antonovsky, 1993). Rothmann (2002) reported an alpha coefficient of 0,89 for the OLQ, which may be regarded as acceptable (Nunnally & Bernstein, 1994). In terms of the construct validity of the OLQ, it was found that a negative relationship exists between OLQ and experienced stress and that the OLQ correlates negatively with the "State-Trait Anxiety Inventory-Trait" and the "Beck Depression Inventory" (Frenz, Carey, & Jorgensen, 1993).

The *Coping Orientation for Problem Experienced Questionnaire* (COPE) (Carver et al., 1989) was used to measure the participants' general coping strategies. The COPE is a multi-

dimensional 53-item questionnaire indicating the different ways in which individuals cope in different circumstances. Five factors were extracted for registered nurses, namely approach coping, seeking emotional or social support, avoidance as a strategy of coping, turning to religion and focus on and ventilation of emotions. The COPE has been proven both reliable and valid in different cultural groups (Clark, Bornman, Cropanzano, & James, 1995; Van der Wateren, 1997). Carver et al. (1989) also reported alpha coefficients for the COPE ranging from 0,45 to 0,92. With the exception of mental disengagement which measures less than 0,60, all the sub-scales demonstrate good levels of reliability. Test-retest reliability varies from 0,46 to 0,86 and 0,42 to 0,89 after 2 weeks (Carver et al., 1989). Acceptable reliability and validity levels have been determined for the COPE in South Africa, rendering it suitable for use in this context (Van der Wateren, 1997).

The *Maslach Burnout Inventory – Human Services Survey* (MBI-HSS) (Maslach & Jackson, 1986) was used to measure burnout in this study. The MBI-HSS consists of 22 items phrased as statements about personal feelings and attitudes, which are self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The three subscales of the MBI-HSS include emotional exhaustion (nine items; e.g. "I feel emotionally drained from my work"), depersonalisation (five items; e.g. "I feel I treat some recipients as if they were impersonal objects"), and personal accomplishment (eight items; e.g. "I have accomplished many worthwhile things in this job"). The psychometric soundness of the MBI-HSS is well documented in the literature, with internal consistencies usually well above the 0,70 Cronbach alpha level, except for the depersonalisation scale in some samples (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). Test-retest reliability ranging from three months to one year has been reported in the range of 0,50 to 0,82 (Leiter & Durup, 1996). The three-factor structure of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) was confirmed. The factors showed acceptable construct equivalence for different language groups.

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli, Salanova, et al., 2002) measures levels of engagement. The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). Three dimensions of engagement can be distinguished, namely vigour (6 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 (6 items; e.g. "When I am working, I forget everything else around me"). In terms of internal consistency, reliability

coefficients for the three subscales have been determined between 0,68 and 0,91. Improvement of the alpha coefficient (ranging from 0,78 to 0,89) seems possible without adversely affecting the internal consistency of the scale (Storm & Rothmann, 2003). The three-factor structure of work engagement (vigour, dedication and absorption) was not confirmed. Instead a one-factor model of engagement reflected the best data fit. Van der Colff and Rothmann (in press) also found evidence for a one-factor model of work engagement.

A biographical questionnaire was also administered. Participants were given the option of providing their names and contact details in the case of feedback. Other information gathered included rank, unit, education, gender and language.

Statistical analysis

The statistical analysis was conducted by means of the SPSS Programme (SPSS Inc., 2003). Cronbach alpha coefficients (α) were used to assess the reliability of the measuring instruments (Clark & Watson, 1995). Coefficient alpha conveys important information regarding the proportion of error variance contained in a scale. Descriptive statistics (e.g. means, and standard deviations) were used to analyse the data. Pearson product-moment correlation coefficients were used to specify the relationships between the variables. The level of statistical significance was set at $p < 0,01$. Effect sizes were computed to assess the practical significance of relationships in this study. A cut-off point of 0,30, which represents a medium effect (Cohen, 1988; Steyn, 1999), was set for the practical significance of correlation coefficients. Standard multiple regression analysis was carried out to assess the contribution of the independent variables (occupational stress and job satisfaction) to burnout and work engagement.

RESULTS

The descriptive statistics, alpha coefficients, and Pearson correlations for the extracted factors of the measuring instruments for registered nurses are reported in Table 2.

Table 2

Descriptive Statistics, Alpha Coefficients and Pearson Correlations between the Scales

	Mean	*SD*	α	1	2	3	4	5	6	7	8	9	10	11	12
1. Emotional exhaustion	22,15	11,28	0,88	-	-	-	-	-	-	-	-	-	-		
2. Depersonalisation	4,86	4,46	0,73	0,59*++	-	-	-	-	-	-	-	-	-	-	-
3. Personal accomplishment	22,60	5,20	0,71	-0,20*	-0,31*+	-	-	-	-	-	-	-	-	-	-
4. Engagement	65,47	16,69	0,94	-0,41*+	-0,33*+	0,39*+	-	-	-	-	-	-	-	-	-
5. Lack of organisational support	112,50	33,70	0,93	0,32*+	0,22*	-0,05	-0,13*	-	-	-	-	-	-	-	-
6. Job demands	83,05	25,58	0,91	0,35*+	0,26*	-0,12*	-0,14*	0,64*++	-	-	-	-	-	-	-
7. Nursing-specific demands	58,02	22,36	0,91	0,20*	0,14*	-0,02	-0,10*	0,65*++	0,54*++	-	-	-	-	-	-
8. Approach coping	3,01	0,44	0,89	-0,07*	-0,12*	0,22*	0,35*+	0,03	0,02	-0,02	-	-	-	-	-
9. Seeking emotional/social support	2,91	0,62	0,86	-0,09*	-0,07	0,19*	0,19*	0,06	0,03	0,07	0,45*+	-	-	-	-
10. Avoidance	1,61	0,42	0,77	0,24*	0,27*	-0,23*	-0,11*	0,12*	0,18*	0,05	0,09*	0,08*	-	-	-
11. Turning to religion	3,25	0,84	0,90	-0,04	-0,12*	0,04	0,16*	0,07	0,06	0,04	0,29*	0,23*	0,15*	-	-
12. Focus on and ventilation of emotions	2,44	0,77	0,67	0,32*+	0,26*	-0,08*	-0,13*	0,23*	0,25*	0,18*	0,08*	0,28*	0,37*+	0,09*	-
13. Sense of coherence	137,92	20,46	0,86	-0,49*+	-0,47*+	0,34*+	0,42*+	-0,23*	-0,28*	-0,15*	0,30*+	0,18*	-0,35*+	0,11*	-0,29*

* $p < 0,05$

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

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

According to Table 2, the scores of the MBI-HSS, UWES, NSI, COPE and OLQ are normally distributed. The Cronbach alpha coefficients of all the measuring instruments are considered to be acceptable compared to the guideline of $\alpha > 0,70$ (Nunnally & Bernstein, 1994), accept for focus on and ventilation of emotions as a coping strategy, where the Cronbach alpha coefficient is slightly lower than 0,70 (i.e. 0,67). This correlates with the results reported by Carver et al. (1989), who reported alpha coefficients for the COPE ranging from 0,45 to 0,92. It therefore appears that MBI-HSS, UWES, NSI, COPE and OLQ have acceptable levels of reliability.

Moreover, Table 2 shows that emotional exhaustion is practically significantly related to depersonalisation (large effect), as well as lack of organisational support, job demands, and focus on and ventilation of emotions (all medium effects). Emotional exhaustion is also negatively related to work engagement and sense of coherence (both medium effects). Depersonalisation is practically significantly negatively related to personal accomplishment, work engagement, as well as sense of coherence (all medium effects). Personal accomplishment is practically significantly related to work engagement and sense of coherence (both medium effects), whereas work engagement is practically significantly related to approach coping as well as sense of coherence (also medium effects in both instances).

Stress due to lack of organisational support is practically significantly related to stress arising from job- and nursing specific demands (large effects); whereas stress: job demands is related to nursing-specific demands (large effect), approach coping is related to seeking of emotional/social support and sense of coherence (medium effects), and avoidance to focus on and ventilation of emotions (medium effect) negatively relate to sense of coherence (medium effect).

Multiple regression analysis was conducted to assess whether or not occupational stress, sense of coherence and coping strategies predict burnout and work engagement of registered nurses. Table 3 shows the results of multiple regression analysis, with exhaustion (as measured by the MBI-HSS) as dependent variable, and occupational stressors (as measured by the NSI), coping strategies (as measured by the COPE) and sense of coherence (as measured by the OLQ) as independent variables.

Table 3

Multiple Regression Analysis with Emotional Exhaustion as Dependent Variable and Occupational Stressors, Coping Strategies and Sense of Coherence as Independent Variables

Model		Unstandardised Coefficients		Standardised Coefficients	*t*	*p*	*F*	*R*	R^2	ΔR^2
		B	SE	Beta						
1	(Constant)	7,11	1,40	-	5,10	0,00	44,21*	0,37	0,14	0,14*
	Stress: Lack of organisational support	0,06	0,02	0,19	3,89	0,00*				
	Stress: Job demands	0,12	0,02	0,27	6,14	0,00*				
	Stress: Nursing-specific demands	-0,03	0,02	-0,06	-1,45	0,15				
2	(Constant)	43,479	2,96	-	14,70	0,00	86,79*	0,55	0,30	0,16*
	Stress: Lack of organisational support	0,05	0,02	0,14	3,21	0,00*				
	Stress: Job demands	0,08	0,02	0,17	4,32	0,00*				
	Stress: Nursing-specific demands	-0,02	0,02	-0,04	-1,13	0,27				
	Sense of coherence	-0,23	0,02	-0,42	-13,59	0,00*				
3	(Constant)	35,44	3,76	-	9,41	0,00	43,90*	0,57	0,33	0,03*
	Stress: Lack of organisational support	0,04	0,01	0,13	2,92	0,00*				
	Stress: Job demands	0,07	0,02	0,15	3,77	0,00*				
	Stress: Nursing-specific demands	-0,02	0,02	-0,04	-0,93	0,35				
	Sense of coherence	-0,20	0,02	-0,37	-10,45	0,00*				
	Approach coping	0,07	0,04	0,07	1,97	0,05*				
	Seeking emotional/ social support	-0,21	0,07	-0,11	-3,13	0,00*				
	Avoidance	0,04	0,07	0,02	0,62	0,54				
	Turning to religion	-0,10	0,10	-0,03	-0,99	0,32				
	Focus on and ventilation of emotions	0,84	0,17	0,17	5,08	0,00*				

* $p < 0,05$

The results in Table 3 indicate that two occupational stress dimensions, namely lack of organisational support and job demands, predicted 14% of the variance in emotional exhaustion ($F = 44,21$, $p < 0,01$, $\Delta R^2 = 0,14$). Adding sense of coherence as independent variable (in step 2) resulted in a statistically significant increase in the prediction of the variance in emotional exhaustion ($\Delta F = 184,61$, $p < 0,01$, $\Delta R^2 = 0,16$). Furthermore, entering coping strategies into the regression analysis (step 3), resulted in a statistically significant

increase in the variance of emotional exhaustion predicted ($\Delta F = 7,02$, $p < 0,01$, $\Delta R^2 = 0,03$). The regression coefficients of three coping strategies, namely approach coping (beta = 0,07, $p < 0,05$), seeking emotional/social support (beta = -0,11, $p < 0,01$) and focus on and ventilation of emotions (beta = 0,17, $p < 0,01$) were statistically significant. In sum, occupational stress, a weak sense of coherence, approach coping, focus on and ventilation of emotions, and low seeking of emotional/social support predicted 33% of the variance in emotional exhaustion.

Table 4 shows the results of multiple regression analysis with depersonalisation (as measured by the MBI-HSS) as dependent variable, and occupational stressors (as measured by the NSI), coping strategies (as measured by the COPE) and sense of coherence (as measured by the OLQ) as independent variables.

The results in Table 4 indicate that two occupational stress dimensions, namely lack of organisational support and job demands predicted 7% of the variance in depersonalisation ($F = 678,51$, $p < 0,01$, $\Delta R^2 = 0,07$). Adding sense of coherence as independent variable (in step 2), resulted in a statistically significant increase in the prediction of the variance in depersonalisation ($\Delta F = 180,10$, $p < 0,01$, $\Delta R^2 = 0,17$). Furthermore, entering coping strategies into the regression analysis (step 3), resulted in a further statistically significant increase in the variance of depersonalisation predicted ($\Delta F = 6,16$, $p < 0,01$, $\Delta R^2 = 0,03$). The regression coefficients of three coping strategies, namely avoidance (beta = 0,11, $p < 0,01$), turning to religion (beta = -0,11, $p < 0,01$) and focus on and ventilation of emotions (beta = 0,10, $p < 0,01$) were statistically significant. In total, occupational stress, a weak sense of coherence, avoidance coping, focus on and ventilation of emotions, and a low turning to religion predicted 27% of the variance in depersonalisation.

Table 4

Multiple Regression Analysis with Depersonalisation as Dependent Variable and Occupational Stressors, Coping Strategies and Sense of Coherence as Independent Variables

Model		Unstandardised Coefficients		Standardised Coefficients	*t*	*p*	*F*	*R*	R^2	ΔR^2
		B	SE	Beta						
1	(Constant)	1,64	0,76	-	2,16	0,03	20,74*	0,27	0,07	0,07*
	Stress Lack of organisational support	0,02	0,01	0,11	2,28	0,02*				
	Stress: Job demands	0,05	0,01	0,21	4,56	0,00*				
	Stress: Nursing-specific demands	-0,01	0,01	-0,04	-0,95	0,34				
2	(Constant)	21,29	1,62	-	13,16	0,00	64,00*	0,49	0,24	0,17*
	Stress: Lack of organisational support	0,01	0,01	0,07	1,44	0,15				
	Stress: Job demands	0,03	0,01	0,11	2,61	0,01*				
	Stress: Nursing-specific demands	-0,01	0,01	-0,02	-0,57	0,57				
	Sense of coherence	-0,12	0,01	-0,43	-13,42	0,00*				
3	(Constant)	17,08	2,07	-	8,27	0,00*	32,77*	0,52	0,27	0,07*
	Stress: Lack of organisational support	0,01	0,01	0,06	1,42	0,16				
	Stress: Job demands	0,02	0,01	0,09	2,21	0,03*				
	Stress: Nursing-specific demands	-0,01	0,01	-0,02	-0,45	0,65				
	Sense of coherence	-0,10	0,01	-0,35	-9,66	0,00*				
	Approach coping	0,01	0,02	0,01	0,22	0,83				
	Seeking emotional/ social support	-0,03	0,04	-0,03	-0,69	0,49				
	Avoidance	0,12	0,04	0,11	3,19	0,00*				
	Turning to Religion	-0,19	0,06	-0,11	-3,32	0,00*				
	Focus on and ventilation of emotions	0,84	0,17	0,17	5,08	0,00*				

* $p < 0,05$

The results of a multiple regression analysis with occupational stressors (as measured by the NSI), coping strategies (as measured by the COPE), and sense of coherence (as measured by the OLQ) as independent variables, and personal accomplishment (as measured by the MBI-HSS) as dependent variable are reported in Table 5.

Table 5

Multiple Regression Analysis with Personal Accomplishment as Dependent Variable and Occupational Stressors, Coping Strategies and Sense of Coherence as Independent Variables

Model		Unstandardised Coefficients		Standardised Coefficients	*T*	*p*	*F*	*R*	R^2	ΔR^2
		B	SE	Beta						
1	(Constant)	36,88	1,00	-	36,81	0,00*	4,63	0,13	0,02	0,02
	Stress: Lack of organisational support	0,01	0,01	0,02	0,42	0,68				
	Stress: Job demands	-0,05	0,01	-0,16	-3,46	0,00*				
	Stress: Nursing-specific demands	0,02	0,02	0,06	1,20	0,23				
2	(Constant)	17,29	2,23	-	7,76	0,00*	27,47*	0,35	0,12	0,10*
	Stress: Lack of organisational support	0,01	0,01	0,06	1,22	0,22				
	Stress: Job demands	-0,03	0,01	-0,09	-1,90	0,06				
	Stress: Nursing-specific demands	0,01	0,02	0,04	0,92	0,36				
	Sense of coherence	0,12	0,01	0,33	9,72	0,00*				
3	(Constant)	18,30	2,81	-	6,50	0,00*	18,13*	0,41	0,17	0,05*
	Stress: Lack of organisational support	0,01	0,01	0,04	0,87	0,39				
	Stress: Job demands	-0,02	0,01	-0,08	-1,77	0,08				
	Stress: Nursing-specific demands	0,01	0,02	0,03	0,77	0,44				
	Sense of coherence	0,08	0,01	0,22	5,67	0,00*				
	Approach coping	0,10	0,03	0,13	3,46	0,00*				
	Seeking emotional/ social support	0,14	0,05	0,11	2,74	0,01*				
	Avoidance	-0,24	0,05	-0,17	-4,58	0,00*				
	Turning to religion	-0,06	0,08	-0,03	-0,78	0,43				
	Focus on and ventilation of emotions	0,04	0,12	0,01	0,29	0,77				

* $p < 0,05$

The results in Table 5 reveal that one occupational stress dimension, namely job demands, predicted 2% of the variance in personal accomplishment ($F = 2,62$, $p < 0,01$, $\Delta R^2 = 0,02$). Adding sense of coherence as independent variable (in step 2), resulted in a statistically significant increase in the prediction of the variance in personal accomplishment ($\Delta F = 94,42$, $p < 0,01$, $\Delta R^2 = 0,10$). Furthermore, entering coping strategies into the regression analysis (step 3) resulted in a statistically significant increase in the variance of personal accomplishment predicted ($\Delta F = 9,51$, $p < 0,01$, $\Delta R^2 = 0,05$). The regression coefficients of

three coping strategies, namely approach coping (beta = 0,13, $p < 0,01$), seeking emotional/social support (beta = 0,11, $p < 0,01$) and avoidance (beta = -0,17, $p < 0,01$) were statistically significant. In total, occupational stress because of job demands, a weak sense of coherence, approach coping strategies, focus on and ventilation of emotion, and not making use of avoidance as a coping strategy predicted 17% of the variance in personal accomplishment.

Table 6 shows the results of a multiple regression analysis with work engagement (as measured by the UWES) as dependent variable and occupational stressors (as measured by the NSI), coping strategies (as measured by the COPE) and sense of coherence (as measured by the OLQ) as independent variables.

The results in Table 6 indicate that one occupational stress dimension, namely job demands, predicted 2% of the variance in engagement ($F = 1683,06$, $p < 0,01$, $\Delta R^2 = 0,02$). Adding sense of coherence as independent variable (in step 2), resulted in a statistically significant increase in the prediction of the variance in engagement ($\Delta F = 152,90$, $p < 0,01$, $\Delta R^2 = 0,16$). Furthermore, entering coping strategies into the regression analysis (step 3), resulted in a statistically significant increase in the variance of engagement predicted ($\Delta F = 13,36$, $p < 0,01$, $\Delta R^2 = 0,06$). The regression coefficients of one coping strategy, namely approach coping (beta = 0,25, $p < 0,01$), were statistically significant. In total, low levels of occupational stress because of job demands, a weak sense of coherence, and approach coping strategies predicted 24% of the variance in engagement.

Table 6

Multiple Regression Analysis with Work Engagement as Dependent Variable and Occupational Stressors, Coping Strategies and Sense of Coherence as Independent Variables

Model		Unstandardised Coefficients		Standardised Coefficients	*T*	*p*	*F*	*R*	R^2	ΔR^2
		B	SE	Beta						
1	(Constant)	74,52	2,20	-	33,87	0,00*	6,16	0,15	0,02	0,02
	Stress: Lack of organisational support	-0,03	0,03	-0,06	-1,11	0,27				
	Stress: Job demands	-0,07	0,03	-0,10	-2,13	0,03*				
	Stress: Nursing-specific demands	-0,01	0,04	-0,01	-0,24	0,81				
2	(Constant)	21,48	4,74	-	4,53	0,00*	43,71*	0,42	0,18	0,16*
	Stress: Lack of organisational support	-0,01	0,02	-0,01	-0,21	0,83				
	Stress: Job demands	-0,00	0,03	-0,01	-0,12	0,90				
	Stress: Nursing-specific demands	-0,02	0,03	-0,03	-0,71	0,48				
	Sense of coherence	0,34	0,03	0,41	12,37	0,00*				
3	(Constant)	5,83	5,93	-	0,98	0,33	28,32*	0,49	0,24	0,06*
	Stress: Lack of organisational support	-0,02	0,02	-0,04	-0,78	0,44				
	Stress: Job demands	-0,01	0,03	-0,02	-0,52	0,61				
	Stress: Nursing-specific demands	-0,01	0,32	-0,01	-0,24	0,81				
	Sense of coherence	0,25	0,03	0,30	8,18	0,00*				
	Approach coping	0,39	0,06	0,25	6,73	0,00*				
	Seeking emotional/social support	0,13	0,11	0,04	1,16	0,25				
	Avoidance	-0,02	0,11	-0,01	-0,15	0,88				
	Turning to religion	0,04	0,16	0,01	0,22	0,83				
	Focus on and ventilation of emotions	-0,39	0,26	-0,53	-1,48	0,14				

* $p < 0,05$

DISCUSSION

The objective of this study was to investigate the relationship between occupational stress, sense of coherence, coping, burnout and work engagement in registered nurses in South Africa, using a cross-sectional survey design. The sample consisted of 818 registered nurses in South Africa.

In this study, three factors relating to stress were identified, namely lack of organisational support, job demands and nursing-specific demands (patient care). Registered nurses experience the following stressors regarding lack of organisational support as relatively severe: staff shortage, inadequate salary, insufficient personnel to handle the workload, fellow workers not doing their jobs and poorly motivated co-workers. The following stressors regarding job demands were also experienced as relatively severe: excessive administrative duties, demands from clients/patients and health risks posed by contact with patients. It seems that nursing-specific demands are not regarded as severe stressors, compared to a lack of organisational support (lack of resources) and job demands. This coincide with the results of Kop and Euwema (2001), who confirm that stressors related to the specific occupation individuals find themselves in, are often less severe than organisational stressors. Regarding stress due to nursing-specific demands, performing painful procedures to patients and watching a patient suffer were identified as the two most intense stressors, though these items measured low on the frequency scale, hence the lower scores on the severity scale.

Of all the stressors, staff shortage was rated as the most severe, with inadequate salaries and excessive administrative duties next in line. Most of the above stressors were already noted in literature (see McGrath et al., 2003; Cocco et al., 2002; Happel et al., 2003), except for health risks posed by contact with patients. This could be explained by the high incidence of HIV and AIDS in South Africa. Nurses in South Africa are exposed to HIV and AIDS, and the subsequent health threats, on a daily basis.

Occupational stress due to a lack of organisational support and job demands contributed significantly to emotional exhaustion and depersonalisation. This confirms the results of Demerouti et al. (2000), who explain that the relationship between a lack of resources (organisational support) and depersonalisation is to be found in theories about work motivation, e.g. Herzberg's two-factor hygiene theory and Maslow's hierarchy of needs theory. Lack in fulfilment of basic hygiene factors or basic needs (enough resources) will cause employees to withdraw and develop indifferent attitudes towards their job. In light of the results of this study, regarding lack of organisational support (lack of resources), this should be a concern for organisations as disengagement or depersonalisation towards patients (treating patients as nothing more than mere objects) should be prevented at all cost.

While occupational stressors seemed to contribute to distress of registered nurses (as indicated by emotional exhaustion and depersonalisation), in terms of engagement and personal accomplishment, the results suggest that no practically significant relationships exist between occupational stress on the one hand, and engagement and personal accomplishment on the other. In this regard, Schaufeli and Bakker (2004) stated that personal accomplishment and work engagement form part of an extended engagement factor, while emotional exhaustion and depersonalisation form part of a burnout factor.

Moreover, the results of this study showed that burnout (emotional exhaustion) was moderately related to work engagement, and depersonalisation to both personal accomplishment and work engagement. Therefore, occupational stress could possibly impact on work engagement through its effect on burnout (emotional exhaustion and depersonalisation). However, empirical studies revealed that engagement at work can prevail despite high job demands and long working hours (Schaufeli & Bakker, 2001). If one considers that statements regarding occupational stress were formulated in a negative way in the present study, the expected relationship with engagement would never be achieved due to the positive formulation of items measuring engagement. Furthermore, the measurement of job demands and lack of job resources was not done independently from experienced strain in the present study, which could have influenced the findings.

Statistical analysis of the effects of sense of coherence on burnout and work engagement revealed that a strong sense of coherence predicted lower levels of emotional exhaustion and depersonalisation, and vice versa. Thus, registered nurses seem to experience a depletion of emotional resources when they demonstrate a weak sense of coherence. This result was also found to be true for personal accomplishment and work engagement, where a strong sense of coherence predicted higher levels of personal accomplishment and work engagement, and vice versa. This could possibly be explained by a predisposition to experience stimuli from the environment in a positive interpretative manner. They could also perceive stimuli as making sense on a cognitive level, perceive to be in control of events by means of support networks, and view events as motivationally relevant and meaningful. This result is consistent with previous findings (e.g. Basson & Rothmann, 2002; Naudè & Rothmann, in press; Schaufeli & Bakker, 2004; Wissing et al., 1992). According to Hobfoll (2001), burnout and low work engagement are the result of failure to acquire sufficient resources. Burnout

and low work engagement might thus occur due to a lack of resources. Demerouti et al. (2000) stated in this regard that job demands are related to feelings of exhaustion, but also agree with Hobfoll that a lack of job resources is related to disengagement or depersonalisation towards patients.

It was also evident from the results that registered nurses with a strong sense of coherence coped better with occupational stress due to lack of organisational support and job demands. Registered nurses with a weak sense of coherence would probably find it difficult to structure their world to be understandable, orderly and consistent. They might tend to experience the events of life as unmanageable, perceive that they lack the resources to meet the demands and thus feel that life does not make sense on an emotional level (Antonovsky, 1987). They would therefore understandably perceive situations as stressful. Amirkhan and Greaves (2003) warn against the harmful effects of a low sense of coherence in managing stress. The authors noted that a strong sense of coherence had a direct effect on the protection of people against the physiological and psychological harmful effects of stress. The results further revealed that a strong sense of coherence allows nurses to make use of active coping strategies (i.e. seeking emotional/social support) and thus to deal with occupational stressors in a positive, problem-solving manner.

Sense of coherence was the only variable in this study related to personal accomplishment. Several scholars have argued that personal accomplishment reflects a personality characteristic rather than a genuine burnout component (Cordes & Dougherty, 1993; Shirom, 1989). Antonovsky (1987) also regards sense of coherence as a personality disposition.

Five coping factors were extracted for registered nurses, namely approach coping, seeking emotional or social support, avoidance as a strategy of coping, turning to religion and focus on and ventilation of emotions. The results regarding coping strategies showed that a relationship exists between emotional exhaustion and focus on and venting of emotions, meaning that nurses who make use of this coping strategy revealed higher levels of emotional exhaustion. The other side of the coin might also be true, namely that focus on and ventilation of emotions might be a result of depleted energy levels due to burnout (emotional exhaustion), causing nurses to feel frustrated because they cannot perform their duties effectively. However, Payne (2001) warns that focus on and ventilation of emotions as a

coping strategy will always be part of coping for nurses, since many stressors in nursing cannot be changed. On the other hand, approach coping was found to be related to work engagement and sense of coherence, where nurses with a strong sense of coherence make use of approach coping as a coping strategy en therefore are taking charge of their situation and problems or stressors in the workplace, which also enhances work engagement.

In summary, occupational stress, a weak sense of coherence, approach coping, focus on and ventilation of emotions, and low seeking of emotional/social support predicted 33% of the variance in emotional exhaustion. Twenty-seven percent of the variance in depersonalisation was predicted by occupational stress, a weak sense of coherence, avoidance coping, focus on and ventilation of emotions, and a low turning to religion. Occupational stress because of job demands, a weak sense of coherence, approach coping strategies, focus on and ventilation of emotion, and not making use of avoidance as a coping strategy predicted 17% of the variance in personal accomplishment, while low levels of occupational stress because of job demands, a weak sense of coherence, and approach coping strategies predicted 24% of the variance in engagement.

The above results confirm both hypothesis, namely that 1) Occupational stress and a weak sense of coherence predict burnout (i.e. exhaustion and depersonalisation) and low work engagement; and 2) Approach coping and seeking emotional/social support predict low burnout and high work engagement; whilst passive coping strategies (i.e. avoidance, turning to religion and focus on and ventilation of emotions) predict burnout and low work engagement.

In this study, emotional exhaustion and depersonalisation correlated relatively strongly (see also Lee & Ashforth, 1996). Emotional exhaustion predicted depersonalisation, which means that nurses could develop cynical and detached attitudes towards patients once their emotional resources have been depleted. Research findings regarding the process model of burnout support the notion that depersonalisation develops as an alternative to the experience of emotional exhaustion when other coping mechanisms are not available (Ashforth & Lee, 1990; Leiter, 1990).

The findings also highlighted the relationship between burnout and engagement. Low levels of burnout were found to be related to high levels of engagement, confirming the findings of Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002) that burnout and engagement are related but distinct concepts. Furthermore, existing theoretical relationships regarding burnout and engagement were partially confirmed in the present study. The personal accomplishment subscale of burnout was found to be a constituting element of engagement, which coincides with reports in the literature (Maslach & Leiter, 1997).

Interaction effects on emotional exhaustion were detected in this study. The results showed interaction effects between stress caused by job demands, lack of organisational support, (lack of job resources), seeking emotional/social support and sense of coherence. These findings suggest that coping strategies and sense of coherence might act as moderators of the stress-emotional exhaustion relationship.

Limitations of the present study include the use of a cross-sectional survey design, which makes it difficult to prove causal relationships. A longitudinal design would have been the preferred method to analyse causal relationships. Another limitation is the exclusive use of self-report measures, a strategy often associated with method variance. Sample size further limits the research results in such a way that results cannot be generally applied to all registered nurses in South Africa.

RECOMMENDATIONS

Intervention strategies should be considered to ensure the wellness of registered nurses. Kompier and Cooper (1999), describe three levels of intervention. Primary-level interventions are concerned with modifying or eliminating the stressors inherent in the workplace in order to adapt the environment to better fit the individual. Secondary-level interventions focus on the individual and are concerned with increasing awareness and extending the physical and psychological resources of employees to enable them to minimise the damaging effects of stress and to manage stress more effectively. Tertiary-level interventions are targeted at individuals, but their role is recuperative rather than preventative. Kompier and Cooper (1999) further state that counselling is effective in improving the psychological well-being of employees and has considerable cost benefits in terms of reduced

sickness absence. According to McElfatrick et al. (2000), social support programmes enabling work groups to support each other (McGrath et al., 2003) might also reduce work related stress.

Organisations can start by developing effective selection tools whereby individuals who have a strong sense of coherence, a low external locus of control and a high level of autonomy, will be selected for the profession. However, before organisations begin selecting employees on the basis of these characteristics, more research is required, especially because these characteristics were not studied in a selection context. Organisations can further contribute to the development of employees' sense of coherence by providing information in a consistent, structured, ordered and understandable format. The importance of constructive and regular feedback was also emphasised by Demerouti et al. (2000). Employees should further be able to identify their roles within the greater whole and, as such, the comprehensibility component of sense of coherence will be enhanced.

In order for employees to perceive that work expectations are manageable and within their, or important other's, power, employers should ensure that employees are equipped with the necessary knowledge, skills, material, instruments and other resources, and that a balance in the load of tasks to be handled exists. Employees should also be given the opportunity to perform work that requires thought and independent judgement. This will strengthen their task-based self-efficacy. Training and development programmes that are directed at developing healthy attributions, as well as training programmes that provide special training for specific, specialised units or job requirements, should be investigated.

Employees will regard their work as meaningful when a degree of independence and freedom of choice in the performance of their tasks is allowed. Participation in decision-making will enhance the employees' feeling of membership and contribute to the meaningfulness component of sense of coherence. Moreover, the employee should have the freedom to disagree with his/her supervisor, to be able to discuss what to do with his/her supervisor (rather than to be told what to do) and to act autonomously (without being supervised too closely).

Job demands and lack of organisational support (lack of job resources) should be managed by the organisation to prevent burnout of nurses and to contribute to their work engagement. Burnout seems to start with a gradual depletion of the emotional resources of the nurse, followed by the development of cynical attitudes towards patients and the treatment of recipients as impersonal objects.

Coping strategies are also important areas of intervention. It is necessary to analyse the results of this study in each hospital or institution before any intervention is planned. While some occupational stressors were consistently found in all the hospitals included in this study, the stressors in the different hospitals were quite different. Tailor-made interventions for a specific hospital are necessary to ensure that the planned effects are yielded (Kompier & Cooper, 1999).

Better relationships amongst members of the professional team (e.g. doctors and other nurses, including supervisors), may also relieve stress. McGrath et al. (2003) suggests that this could be achieved by means of closer integration during training to enhance understanding of each other's role, as well as implementing a higher level of education for nurses, which might lead to increased confidence and an ability to discuss issues as equals with professional colleagues.

The problem of staff shortages needs to be addressed. A re-evaluation of salaries might be a good point of departure in addressing this problem. Inadequate salaries might cause registered nurses to leave the profession, and often even the country, for the sake of opportunities that offer better financial resources. Inadequate salaries were also identified by McGrath et al. (2003) as a causative factor of stress. Moreover, administrative processes should be streamlined in order to minimise paper work. Appointment of administrative clerks might relieve the administrative burden on nurses.

Further refinement of measuring instruments that were used in this study is necessary. This includes the translation of questionnaires into Afrikaans, Tswana, Zulu, Sotho and other languages. No clinical cut-off points for burnout currently exist in South Africa, and using international cut-off points in this regard is not considered good practice (Schaufeli, 2003). Therefore, research is necessary to identify clinical cut-off-points for the MBI-HSS. Future

studies should include cynicism combined with depersonalisation to test whether or not there is an occurrence of mental disengagement in nurses. Further research is needed regarding the organisational factors that affect burnout and work engagement. In future studies, ill-health should be included as a construct.

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CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter, conclusions are drawn from the four articles that formed part of this study, according to the research objectives. Limitations of the study are discussed and recommendations for the organisations are made in order to either manage or prevent both burnout and low work engagement. The chapter ends with recommendations regarding future research opportunities that have become evident during this research.

6.1 CONCLUSIONS

The following conclusions from the empirical studies are made:

Burnout of registered nurses

The first objective of this study was to assess the factorial validity, construct equivalence and internal consistency of the MBI-HSS for registered nurses in South Africa and to analyse the differences between the levels of burnout of different biographical groups.

The MBI-HSS (Human Services Survey) was used to measure burnout among registered nurses in South Africa. A biographical questionnaire was also administered. The MBI-HSS was designed to measure burnout of people working in the human services and health care occupations. The results revealed a three-factor model for burnout, consisting of emotional exhaustion, depersonalisation and personal accomplishment. This is in accordance with many other literature findings (see for example Cocco, Gatti, de Mendonça Lima, & Camus, 2003; Happel, Pinikahana, & Martin, 2003; McGrath, Reid, & Boore, 2003; Naudé & Rothmann, 2004a; Schutte, Toppinen, Kalimo, & Schaufeli, 2000). Evidence of low construct validity and cross loading was found for Item 4 (*I can easily understand how my recipients feel about things*); Item 6 (*Working with people all day is really a strain for me*), and Item 16 (*Working with people directly puts too much stress on me).* Previous studies also revealed the problematic stance of these items. The results of this study therefore confirm the results of Yadama and Drake (1995) regarding item 4, Byrne (1991, 1994) regarding item 6, and Byrne

(1991, 1994); Kalliath, O'Driscoll, Gillespie, and Bluedorn (2000); Leiter and Durup (1994), Schaufeli and Van Dierendonck (1993); and Yadama and Drake (1995) regarding item 16.

Despite the above results, it was decided to retain all 22 items of the standard MBI-HSS, supported by the recommendation of Beckstead (2002) and by the results of the Tucker's phi coefficients > 0,90, which proved that the construct equivalence was acceptable for all three language groups. These results thus confirm the construct equivalence of the MBI-HSS for Afrikaans, English and African language speaking nurses in South Africa, and coincide with the findings by Naudé and Rothmann (2004a) for emergency workers. It can therefore be deducted that the mean score of these groups can be compared to other analyses. The results further confirmed the factorial validity and reliability of the MBI-HSS for registered nurses, with Cronbach alpha values exceeding the 0,70 mark.

Afrikaans-speaking registered nurses and those with the lowest rank displayed lower levels of personal accomplishment and, together with the English speaking nurses and those in the age group 20-30 years, higher levels of depersonalisation. A low level of job satisfaction was related to high levels of emotional exhaustion and depersonalisation, while groups with high levels of reciprocity showed low levels of both emotional exhaustion and depersonalisation and higher levels of personal accomplishment.

It was also significant that the younger and more junior nurses were more prone to burnout than their older and more senior colleagues, with higher levels of depersonalisation and lower levels of personal accomplishment. Low job satisfaction and low levels of reciprocity were related to emotional exhaustion, depersonalisation, and low levels of personal accomplishment, and vice versa. All of these results confirm the research results of Kilfedder, Power, and Wells (2001). Analysis further indicated that 34,6% of the nurses in the sample displayed high levels of emotional exhaustion, while 20,4% showed high levels of depersonalisation.

Finally, the results indicated that higher levels of emotional exhaustion were detected in nurses with a medical condition, in nurses who had received no special training for the job they needed to do, as well as in nurses who are employed full-time. The latter was also related to higher levels of depersonalisation. The above results confirm the results of Demir,

Ulusoy, and Ulusoy (2003), Kilfedder et al. (2001), and Schaufeli and Enzmann (1998). No practically or statistically significant differences were found between groups with a nursing diploma or a nursing degree, between groups who work day shifts or night shifts, or regarding gender.

Work engagement of registered nurses

The objectives of this study was to validate the Utrecht Work Engagement Scale (UWES) for registered nurses in South Africa and to analyse the differences between the levels of work engagement of different biographical groups.

The Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, González-Romá, & Bakker, 2002), consisting of 15 items, was used in the present study to measure the levels of work engagement of registered nurses. The results supported a one-factor structure of the UWES. Although the one-factor model is not congruent with most studies as described in the literature, where three-factor (Schaufeli, Salanova, et al., 2002) or two-factor models (Naudé & Rothmann, 2004b) were found, it confirms the results of the research study conducted by Storm and Rothmann (2003).

An exploratory factor analysis (principal component analysis) was conducted separately for nurses in three language groups, namely Afrikaans, English and African. The score of all 15 items was evenly distributed for all three language groups, except for Item 1: *I am bursting with energy in my work,* where a significantly lower score was noticed for the African language speaking group. This might be attributed to a language problem for the African speaking group in that they did not understand the diction of the statement properly. Despite this problem, the results still showed that the factorial validity, reliability and construct equivalence of the engagement scales, consisting of 15 items, were satisfactory, thus implicating that the UWES can be regarded as a valid and reliable instrument to measure the work engagement levels of registered nurses.

The results further revealed that the youngest nurses with the lowest ranks (the junior nurses) who have been nursing for a period shorter than 10 years, are the least engaged in their work. This effect also relates to these nurses' level of burnout (see article 1), where this selfsame

group displayed the highest levels of emotional exhaustion. The age group 45–50 and nurses with the highest rank (middle and top management), who have been nursing for more than 30 years, demonstrated the highest levels of engagement. Moreover, this study yielded evidence of a relationship between job satisfaction and work engagement levels. The group displaying the lowest level of engagement also demonstrated low levels of job satisfaction.

T-tests revealed that staff members with a medical condition, as well as those who indicated that they had received no special training for the specific unit they were working in, were less engaged in their job. No practically or statistically significant differences were revealed between groups who were employed full- or part-time; between nurses with a nursing diploma or a nursing degree, between groups who work different shifts (day shift or night shift), or regarding gender.

Occupational stress of registered nurses

The third objective of this study was to investigate the construct validity and reliability of an occupational stress measure and to identify occupational stressors for registered nurses in South Africa.

The Nursing Stress Indicator (NSI), developed by Van der Colff and Rothmann (in press), was utilised to identify occupational stressors for nurses in South Africa. Three factors were extracted, namely lack of organisational support, job demands and nursing-specific demands (patient care). The construct validity and reliability of the NSI were confirmed.

The first factor indicates stress because of a lack of support in the organisation, as well as stress regarding supervisors and colleagues. The two most severe stressors loading on this factor were staff shortages and inadequate salaries. Stressors related to lack of organisational support were clearly the most severe of all stressors measured by the NSI for registered nurses. The items loading on the second factor refer to demands associated with the job of the nurse, including workload (Tummers, Jansen, Landeweerd, & Houkes, 2001). In this category, excessive administrative duties (paper work) constituted the most severe stressor for registered nurses. Demands of clients/patients and health risks posed by contact with patients were second in terms of the severity of stressors in this category. These findings

contradict the results of a study conducted by McGrath et al. (2003), who listed contact with patients as one of the least stressful factors. The third factor emphasised the physical help/care provided by nurses to patients and was labelled nursing-specific demands. Mawson (1994) and Obholzer and Roberts (1994) regard these as severe stressors for nurses. Although less severe, the two most severe stressors in this category were watching a patient suffer and performing painful procedures to patients. The study of psychiatric nurses done by Happel et al. (2003) also revealed that 98% of respondents listed exposure to the dying patient and performing painful procedures to patients as very stressful. Studies in other contexts (e.g. Kop & Euwema, 2001) confirm that stressors related to the specific occupation individuals find themselves in, are often less severe than organisational stressors.

The three most severe stressors for registered nurses (in hierarchical order) comprised a shortage of staff, inadequate salaries and excessive administrative duties. Stressors that showed a medium intensity and frequency can typically be defined as chronic stressors. For the registered nurses, these items deal exclusively with events that can be considered daily occurrences in the nursing environment. These stressors include fellow workers not doing their job, insufficient personnel to handle workload, demands of clients/patients, and health risks posed by contact with patients.

As in the assessment of burnout and work engagement levels in the first two articles, it was once again the youngest age group of nurses in this sample, having been involved in nursing for fewer than 15 years, that experienced the most occupational stress, mainly due to lack of organisational support. In this case, the middle rank (chief professional nurses or senior sisters) experienced high levels of stress. Nurses working in hospital wards tend to experience more stress than those working in psychiatric wards or in community/occupational or management settings, contradicting the research results of Clinton and Hazelton (2000); Coffey and Coleman (2001); de Jonge (1995); Edwards, Burnard, Coyle, Fothergill, and Hannigan (2000); Happel et al. (2003); and Prosser et al. (1999). All of these authors identified mental health nurses and community mental health nurses as the professional groups with the highest sources of stress. Educational level and gender had no significant effect on the levels of stress of registered nurses.

Occupational stress, sense of coherence, coping, burnout and work engagement of registered nurses

The fourth and final objective of this study was to investigate the relationship between occupational stress, sense of coherence, coping, burnout and work engagement in registered nurses in South Africa. The Maslach Burnout Inventory - Human Services Survey (MBI-HSS), the Nursing Stress Indicator (NSI), the Orientation to Life Questionnaire (OLQ), the Utrecht Work Engagement Scale (UWES), the Coping Orientation for Problem Experienced Questionnaire (COPE), as well as a biographical questionnaire were administered for the purpose of data collection.

These results revealed that occupational stress due to a lack of organisational support and job demands contributed significantly to emotional exhaustion and depersonalisation. This confirms the results of Demerouti, Bakker, Nachreiner, and Schaufeli (2000), and should be a major concern for organisations as disengagement or depersonalisation towards patients (treating patients as nothing more than mere objects) should be prevented at all cost.

In terms of engagement and personal accomplishment, the results suggest that no practically significant relationships exist between occupational stress on the one hand, and engagement and personal accomplishment on the other. In this regard, Schaufeli and Bakker (2004) stated that personal accomplishment and work engagement form part of an extended engagement factor, while emotional exhaustion and depersonalisation form part of a burnout factor.

Burnout (emotional exhaustion) was moderately related to work engagement, and depersonalisation to both personal accomplishment and work engagement. Therefore, occupational stress could possibly impact on work engagement through its effect on burnout (emotional exhaustion and depersonalisation). However, empirical studies revealed that engagement at work can prevail despite high job demands and long working hours (Schaufeli & Bakker, 2001).

Statistical analysis of the effects of sense of coherence on burnout and work engagement revealed that a strong sense of coherence predicted lower levels of emotional exhaustion and depersonalization, and vice versa. This result was also found to be true for personal

accomplishment and work engagement, where a strong sense of coherence predicted higher levels of personal accomplishment and work engagement, and vice versa. These results are consistent with previous findings (e.g. Basson & Rothmann, 2002; Naudè & Rothmann, in press; Schaufeli & Bakker, 2004; Wissing, De Waal, & De Beer, 1992). According to Hobfoll (2001), failure to acquire sufficient resources, in other words, a lack of resources, results in low work engagement. Demerouti et al. (2000) stated in this regard that job demands are related to feelings of exhaustion, but also agree with Hobfoll that a lack of job resources is related to disengagement or depersonalisation towards patients.

It was also evident from the results that registered nurses with a strong sense of coherence coped better with occupational stress due to lack of organisational support and job demands. Registered nurses with a weak sense of coherence would probably find it difficult to structure their world to be understandable, orderly and consistent. The authors noted that a strong sense of coherence had a direct effect on the protection of people against the physiological and psychological harmful effects of stress. The results further revealed that a strong sense of coherence allows nurses to make use of active coping strategies (i.e. seeking emotional/social support) and, thus, to deal with occupational stressors in a positive, problem-solving manner. Sense of coherence was the only variable in this study that was related to personal accomplishment.

Five coping factors were extracted for registered nurses, namely approach coping, seeking emotional or social support, avoidance as a strategy of coping, turning to religion and focus on and ventilation of emotions. The results regarding coping strategies showed that a relationship exists between emotional exhaustion and focus on and ventilation of emotions, meaning that nurses who employed this coping strategy revealed higher levels of emotional exhaustion. Payne (2001) notes that focus on and ventilation of emotions as a coping strategy will always be part of coping for nurses, since many stressors in nursing cannot be altered. On the other hand, approach coping was found to be related to work engagement and sense of coherence, whereby nurses with a strong sense of coherence utilise approach coping as a coping strategy, en therefore take charge of their situation, in terms of problems or stressors in the workplace. This was found to enhance work engagement.

In summary of the above results (according to multiple regression analysis), occupational stress, a weak sense of coherence, approach coping, focus on and ventilation of emotions, and low seeking of emotional/social support predicted 33% of the variance in emotional exhaustion, while occupational stress, a weak sense of coherence, avoidance coping, focus on and ventilation of emotions, and a low turning to religion predicted 27% of the variance in depersonalisation. Occupational stress because of job demands, a weak sense of coherence, approach coping strategies, focus on and ventilation of emotion, and not making use of avoidance as a coping strategy predicted 17% of the variance in personal accomplishment, and low levels of occupational stress because of job demands, a weak sense of coherence, and approach coping strategies predicted 24% of the variance in engagement.

In this study, emotional exhaustion and depersonalisation correlated relatively strongly (see also Lee & Ashforth, 1996). Emotional exhaustion predicted depersonalisation, which means that nurses could develop cynical and detached attitudes towards their patients once their emotional resources have been depleted. Research findings regarding the process model of burnout support the notion that depersonalisation develops as an alternative to the experience of emotional exhaustion when other coping mechanisms are not available (Ashforth & Lee, 1990; Leiter, 1990).

Moreover, the findings highlighted the relationship between burnout and engagement. Low levels of burnout were found to be related to high levels of engagement, confirming the findings of Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002) that burnout and engagement are related but distinct concepts. Furthermore, existing theoretical relationships regarding burnout and engagement were partially confirmed in the present study. The personal accomplishment subscale of burnout was found to be a constituent of engagement, which coincides with reports in the literature (Maslach & Leiter, 1997).

6.2 LIMITATIONS

In the first instance, this study includes the use of a cross-sectional survey design. This design can be used for the description of the population at a specific point in time (Shaughnessy & Zechmeister, 1997), but makes it difficult to prove causal relationships. Consequently, more complex forms of non-recursive linkages could not be examined. At best, these relationships

could only be analysed and described. According to Schaufeli and Enzmann (1998), a longitudinal design would have been the preferred method to analyse causal relationships. Therefore, the relationships in the present study serve only to set up certain patterns of the different variables being studied. However, according to Byrne (1994), a cross-sectional design is the most appropriate design for the validation of the MBI.

Another limitation is the exclusive use of self-report measures, a strategy often associated with method variance. According to Schaufeli, Enzmann, and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variance between measures can be attributed to method variance. However, former researchers have demonstrated that even if interactions between the constructs are found, they pose no real threat with regard to the findings obtained (Dollard & Winefield, 1998).

The sample size, due to a relatively low response rate, further limits the research results in such a way that results cannot be generally applied to all registered nurses in South Africa.

A further limitation of this study is the unequal distribution of the population in the sample regarding language (cultural) groups, where one would have preferred to include a larger portion of nurses speaking African languages (in the study this group represents only about 19% of the total population of the sample). One would also want to see a better distribution between nurses working in private hospitals, compared to those working in government (public) settings. In this study, nurses in the public sector represent only about 16% of the total sample size. Future studies could benefit from a stratified random-sample design, which would ensure sufficient representation of the different groups in the total population.

6.3 RECOMMENDATIONS

According to the literature review, research results and conclusions based on these results, the following recommendations are offered regarding the solution of research problems, and also pertaining to future research.

6.3.1 Recommendations in order to solve the research problems

According to the results obtained in this study, the use of both the MBI-HSS and UWES is recommended to assess burnout and work engagement respectively in registered nurses in South Africa, including all items for both instruments. It might be necessary to translate the MBI-HSS and UWES into other languages spoken in South Africa.

Based on the findings of this study it is recommended that organisations that employ nurses should implement programmes to reduce stress caused by lack of organisational support, especially regarding the issue of staff shortages and job demands, to prevent burnout of nurses and to contribute to their work engagement. If these stressors are allowed to continue unattended, organisations may encounter negative costs implied by burnout, employee turnover and lowered levels of service. Burnout seems to start with a gradual depletion of the emotional resources of the nurse, followed by the development of cynical attitudes towards patients and the treatment of patients as impersonal objects. Programmes improving recruitment, selection and performance management (including performance appraisal, training and creating a motivational environment) should specifically be implemented. According to McElfatrick et al. (2000), intervention schemes and social support programmes that enable work groups to support each other (McGrath et al., 2003) might reduce work related stress and should be made available to nursing staff of all categories

Three levels of intervention strategies should be considered to ensure the wellness of registered nurses (Kompier & Cooper, 1999). Primary-level interventions are concerned with modifying or eliminating the stressors inherent in the workplace in order to adapt the environment to better fit the individual. Secondary-level interventions focus on the individual and are concerned with increasing awareness and extending the physical and psychological resources of employees to enable them to minimise the damaging effects of stress and to manage stress more effectively. Tertiary-level interventions are targeted at individuals, but their role is recuperative rather than preventative. There is well-documented evidence (Kompier & Cooper, 1999) to suggest that counselling is effective in improving the psychological well-being of employees and has considerable cost benefits in terms of reduced sickness absence.

Organisations can start by developing effective selection tools whereby individuals who have a strong sense of coherence, a low external locus of control and a high level of autonomy, will be selected for the profession. However, before organisations begin selecting employees on the basis of these characteristics, more research is required, especially due to the fact that these characteristics were not studied in a selection context. Organisations can further contribute to the development of employees' sense of coherence by supplying information in a consistent, structured, ordered and comprehensible format. The importance of constructive and regular feedback was emphasised by Demerouti et al. (2000). Employees should further be able to identify their roles within the greater whole, thus enhancing the comprehensibility component of sense of coherence.

In order for employees to perceive that work expectations are manageable and within their or important others' power, employers should ensure that employees are equipped with the necessary knowledge, skills, material, instruments and other resources, and that a balance in the load of tasks to be handled exists. Employees should also be given the opportunity to perform work that requires thought and independent judgement. This will strengthen their task-based self-efficacy.

Training and development programmes that are directed at developing healthy attributions, as well as training programmes that provide special training for specific, specialised units or job requirements, should be investigated. Organisations can no longer rely on staff with basic (generic) training alone. A previous study (Kushnir, Cohen, & Kitai, 2000) provided proof of the effectiveness of continuing education programmes in burnout prevention, and should therefore be considered by organisations. Moreover, literature revealed that there is a direct relation between education and job satisfaction. As education levels increase, the individual experiences higher levels of personal accomplishment and professional satisfaction and copes better with the stressors in his/her environment (Demir et al., 2003). The research results of Gilbert (2001) also confirm the importance of further training, stating that highly educated workers tend to be more absorbed in their work.

Employees will regard their work as meaningful when a degree of independence and freedom of choice in the performance of employees' tasks is allowed. Participation in decision-making will enhance the employees' feeling of membership and contribute to the meaningfulness

component of sense of coherence. The employee should also have the freedom to disagree with his/ her supervisor, to be able to discuss what to do with his/her supervisor (rather than to be told what to do) and to act autonomously (without being supervised too closely). Gilbert (2001), Winefield, Gillespie, Stough, Dua, and Hapuararchchi (2002) and Winter, Taylor, and Sarros (2002) emphasised the important role of job autonomy in ensuring higher levels of work engagement and better commitment of employees towards organisations. Organisations should therefore adjust especially junior personnel's job descriptions in such a way that they have more decision making opportunities and, thus, more job autonomy, as the junior nurses are more prone to a lack of autonomy.

Furthermore, it is important to focus on employees' coping strategies as an important area of intervention. It is necessary to analyse the results of this study in each hospital or institution before any interventions are planned. While some occupational stressors were consistently found in all the hospitals included in this study, the stressors in the different hospitals were quite different. Tailor-made interventions for a specific hospital are necessary to ensure that the planned effects are yielded (Kompier & Cooper, 1999).

Better relationships amongst members of the professional team, (e.g. doctors and other nurses, including supervisors) may also relieve stress. McGrath et al. (2003) suggest that this could be achieved by means of closer integration during training to enhance understanding of each other's role, as well as implementing a higher level of education for nurses that might lead to increased confidence and an ability to discuss issues with professional colleagues as equals.

The problem of staff shortages needs to be addressed. A re-evaluation of salaries might be a good point of departure to address this problem. Seeing that inadequate salaries were identified as a factor creating much stress for nurses, it is important to establish congruence between nurses' workload and their reward. Staff shortage was identified as the stressor creating the most stress, consequently creating work overload for nurses. Their remuneration packages should therefore be re-addressed accordingly. Inadequate salaries might cause registered nurses to leave the profession, and often even the country, for the sake of opportunities that offer better financial resources, thus making the problem of staff shortages

even worse. Inadequate salaries were also identified by McGrath et al. (2003) as a causative factor of stress.

Administrative processes should be streamlined in order to minimise paper work, thus reducing occupational stress for nurses. Appointment of administrative clerks might relieve the administrative burden on nurses.

It was evident from the results that the presence of a medical condition (chronic illness) in personnel is related to emotional exhaustion. Demir et al. (2003) state that health problems may increase burnout in nurses, but might also be a sign of burnout. Thus, optimum health care is an important factor in coping with or prevent burnout. If staff members present with medical conditions, organisations should provide adequate treatment and care facilities. Above all, burnout should be managed in such a way that it is prevented before illness symptoms arise.

Although it is important to assist individuals, should their psychological well-being be affected by their work, an organisational rather than an individual approach is more likely to be effective, as most stressors were found to occur at organisational level. A more desirable strategy will thus be to render the organisation inherently less stressful. Since stressful job demands play a central role in burnout, it is necessary to implement preventive organisationally based strategies to tackle high job demands. By using job re-design methods, a careful analysis of nurses' daily tasks can be conducted and may thus provide more insight into the aspects of their tasks that are particularly demanding or poorly designed (Demerouti et al., 2000).

Supervisors (senior personnel) should play a key role in creating a healthy working environment. These roles may range from instrumental support to nurses during task execution, to conflict management and emotional support. Special care should be taken of the junior nurses, as they seem to be more vulnerable to occupational stress, probably due to a lack of experience. Supervisors should thus be trained in adopting a coaching leadership style, to give adequate feedback about nurses' performance and to avoid role conflicts (Demerouti et al., 2000).

6.3.2 Recommendations for future research

Although the MBI-HSS and UWES were found to be reliable and valid for this sample, other occupational settings should be investigated in a similar manner. Future research should focus on the development of clinical guidelines in terms of burnout and work engagement in various occupational settings to enable comparison and identification across occupations according to national guidelines. Moreover, it is important to determine norm levels for other occupations in South Africa. It is recommended that larger samples with a more powerful sampling method be utilised to enable generalisation of the findings to other similar groups.

In accordance with recent critique in terms of the negative wording of the items of the MBI-HSS, it is also recommended that future burnout research should focus on the usage of both positively and negatively phrased items to measure burnout. Furthermore, positively phrased items of the depersonalisation scale of the MBI-HSS should be developed and tested in future studies to determine whether or not this scale is an artefact of the MBI-HSS due to its one-sidedness. In the general sense, the measurement of burnout could be improved psychometrically by including positively phrased items that could even lead to the expansion of the burnout construct beyond depersonalisation to a factor measuring mental disengagement from the work object, work content and work in general.

In future studies, the diction of item 1 of the work engagement scale could be altered in order for it to be more comprehensible across the span of different language groups. According to a suggestion of Van de Vijver and Leung (1997), no metaphors should be included in the questionnaire, as English is not the first language of many people in South Africa.

In terms of perceived strain, this study is a first step towards the development of a perceived stressor profile for nurses in South Africa. It is recommended that the study be expanded to all the provinces of South Africa. Moreover, it is important for future research in the nursing environment to take into account the physiological, psychological and behavioural strains. The NSI should be further tested and refined in other nursing samples. Future studies could focus on the staff issue stressors and their link to the mass exodus of South African nurses. It is recommended that future studies validate findings with regard to the equal comparison of

the perceived strain construct across cultural groups. Cross-cultural comparisons would greatly enhance validity of findings in terms of the multi-cultural South African context.

Refinement of measuring instruments that were used in this study is necessary. This includes the translation of questionnaires into Afrikaans, Tswana, Zulu, Sotho and other languages. No clinical cut-off points for burnout currently exist in South Africa, and using international cut-off points in this regard is not considered good practice (Schaufeli, 2003). Therefore, research is necessary to identify clinical cut-off-points for the MBI-HSS. Future studies should include cynicism combined with depersonalisation to test whether or not mental disengagement of nurses takes place. More research is needed regarding the organisational factors that affect burnout and work engagement. In future studies, ill-health should be included as a construct.

Finally, based on the criticism of Schaufeli and Enzmann (1998) relating to cross-sectional designs, it is recommended longitudinal studies be used in future, where possible. Longitudinal studies, although much more difficult to achieve, are crucial for three reasons. Firstly, they might enhance our understanding of the development of stress and burnout over time. Secondly, longitudinal studies can be useful not only to validate hypothesised causal relationships between antecedents and possible consequences of constructs such as burnout, engagement and occupational stress, but also to expand our knowledge in terms of the inclusion of other variables in the study of human wellness. Finally, longitudinal studies would be useful to track the possible differential effects of moderators during different phases of stress and burnout.

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