

**OCCUPATIONAL STRESS, COPING, BURNOUT AND WORK
ENGAGEMENT OF HOSPITAL PHARMACISTS IN SOUTH
AFRICA**

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Promoter: Prof. S. Rothmann

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COMMENTS

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 Psychological Association (APA) were followed in this thesis. This practice is in line 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 research article as it will be submitted for publication in national and international journals.

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SUMMARY

Topic: Occupational stress, coping, burnout and work engagement of hospital pharmacists in South Africa.

Key terms: Burnout, work engagement, occupational stress, job demands, job resources, coping strategies, hospital pharmacists.

The environment in which hospital pharmacists currently function demands more of them than did any previous period. Employees in pharmacy companies have to cope with the demands that arise from fulfilling various roles, as well as with increased pressures such as managed health care and primary health care. Tracking and addressing their effectiveness in coping with new demands and stimulating their growth in areas that could possibly impact on the standard of pharmacy services are therefore of great importance. The first step in the enhancement of the work-related well-being of hospital pharmacists is the successful diagnosis of occupational stress, burnout and work engagement. However, in order to measure these constructs, it is important to use reliable and valid instruments, and at the same time take biographical differences into account.

The objectives of this study were to validate the Maslach Burnout Inventory – Human Services Survey (MBI-HSS), Utrecht Work Engagement Scale (UWES) and the Pharmacist Stress Inventory (PSI) for hospital pharmacists in South Africa, to assess the effect of biographical factors on the levels of burnout, engagement and occupational stress, and to investigate the role of job stress and coping strategies in the work-related well-being (burnout and work engagement) of hospital pharmacists in South Africa.

A cross-sectional survey design was used. The study population consisted of an accidental sample ($N = 187$) of South African hospital pharmacists in both public and private hospital facilities on a national basis. The MBI-HSS, UWES, PSI, the Coping Orientation for Problem Experienced (COPE) as well as a biographical questionnaire were administered. Descriptive statistics, Cronbach alpha coefficients, confirmatory and exploratory factor analyses, multivariate analysis of variance (MANOVA), one-way analysis of variance (ANOVA), t-tests and multiple regression analysis were used to analyse the data.

Confirmatory factor analysis by means of structural equation modelling of the MBI-HSS, confirmed a three-factor model of burnout, consisting of Emotional Exhaustion, Depersonalisation and Personal Accomplishment. The scales showed acceptable reliabilities. The results indicated that 35% of the hospital pharmacists showed high levels of emotional exhaustion, while 25% showed high levels of depersonalisation. Biographical factors such as age, years in pharmacy practice, home language, average number of hours worked per week, as well as the level of job satisfaction were related to the burnout levels of hospital pharmacists.

Exploratory factor analysis of the UWES resulted in two factors, namely Vigour/Dedication and Absorption. These factors showed acceptable Cronbach alpha coefficients. In the same sample (but in a different analysis where the two factors were used separately), it was indicated that compared to a South African norm, 38,5% and 48,9% of the hospital pharmacists showed low levels of vigour and dedication respectively. Position, home-language, and the educational level were related to work engagement of hospital pharmacists.

The PSI was developed as a measuring instrument for the purposes of this study. Three internally consistent factors, namely Job Demands, Pharmacy-Specific Stressors and Lack of Resources were extracted. The level of severity of the various stressors was calculated and the unavailability of medicine proved to be the most severe stressor. Other severe stressors included frequent interruptions, co-workers not doing their jobs, workload and insufficient salaries.

Finally it was investigated whether job stress and coping strategies could predict the work-related well-being of hospital pharmacists in South Africa. The results showed that job stress (as a result of job demands and lack of job resources), as well as three coping strategies (approach coping, avoidance coping and turning to religion) predicted burnout and work engagement of South African hospital pharmacists.

Recommendations for future research were made.

OPSOMMING

Onderwerp: Beroepstres, coping, uitbranding en werksbegeestering van hospitaalptekers in Suid-Afrika.

Sleutelterme: Uitbranding, werksbegeestering, beroepstres, werkseise, werks hulpsbronne, copingstrategieë, hospitaalptekers.

Hospitaalptekers funksioneer tans in 'n meer veeleisende omgewing as ooit vantevore. Werknemers in apteekmaatskappye moet cope met eise as gevolg van veelvuldige rolle wat hulle moet vervul asook met toenemende druk soos bestuurde en primêre gesondheidsorg. Die navolging en aanspreek van hulle effektiwiteit is derhalwe van groot belang – enersyds om hulle in staat te stel om met nuwe eise te kan cope en andersyds om groei te stimuleer in areas wat moontlik 'n uitwerking op die standaard van apteekdienste kan hê. Die eerste stap in die verbetering van werksverwante welstand is die suksesvolle diagnose van stres, uitbranding en werksbegeestering. Om hierdie konstrakte te kan meet, is dit egter belangrik om betroubare en geldige meetinstrumente te gebruik, en terselfdertyd ook die biografiese verskille in ag te neem.

Die doelstellings van hierdie studie was om die Maslach Uitbrandingsvraelys – Menslike Dienste Opname (MBI-HSS), Utrecht-werksbegeesteringskaal (UWES) asook die Aptekerstresvraelys (ASV) vir Suid-Afrikaanse hospitaalptekers te valideer, die invloed van biografiese veranderlikes op die vlakke van uitbranding, werksbegeestering en werksstres te bepaal, en die verband tussen werksstres, copingstrategieë en werksverwante welstand (uitbranding en werksbegeestering) van hospitaalptekers in Suid-Afrika te bepaal.

'n Dwarssnee opname-ontwerp is gebruik. Die studiepulasie het bestaan uit 'n beskikbaarheidsteekproef ($N = 187$) van Suid-Afrikaanse hospitaalptekers in beide publieke en privaathospitale op 'n nasionale basis. Die MBI-HSS, UWES, ASV, die "Coping Orientation for Problem Experienced" (COPE) asook 'n biografiese vraelys is afgeneem. Beskrywende statistiek, Cronbach alfakoëffisiënte, bevestigende en verkennende faktorontledings, meerveranderlike variansie-analise (MANOVA), eenrigting variansie-

analise (ANOVA), t-toetse en meervoudige regressie-analises is gebruik om die data te ontleed.

Bevestigende faktorontleding deur die gebruik van strukturele vergelykingsmodellering het 'n driefaktormodel van uitbranding, bestaande uit Emosionele Uitputting, Depersonalisasie en Persoonlike Bereiking, bevestig. Die skale het aanvaarbare betroubaarheid getoon. Die resultate het aangetoon dat 35% van die hospitaalptekers hoë vlakke van emosionele uitputting getoon het, terwyl 25% hoë vlakke van depersonalisasie getoon het. Biografiese faktore soos ouderdom, dienstyd, huistaal, gemiddelde aantal werksure per week, sowel as die vlak van werkstevredenheid het 'n verband met die vlakke van uitbranding van hospitaalptekers getoon.

Verkennde faktorontleding van die UWES het 'n tweefaktormodel van werksbegeesting, bestaande uit Energie/Toewyding en Absorpsie tot gevolg gehad. Die Cronbach alfa-koëffisiënt van die faktore was aanvaarbaar. In dieselfde steekproef (maar in 'n ander analise waar die faktore apart gebruik is) het dit geblyk dat vergeleke met 'n Suid-Afrikaanse norm het 38,5% en 48,9% van die hospitaalptekers lae vlakke van onderskeidelik energie en toewyding getoon. Posvlak, huistaal en opleidingsvlak het 'n verband met hospitaalptekers se werksbegeesting getoon.

Die ASV is as 'n meetinstrument vir die doeleindes van die studie ontwikkel. Drie interne konsekwente faktore, naamlik Werkseise, Apteekspesifieke Stressore en Tekort aan Hulpbronne is onttrek. Die onbeskikbaarheid van medikasie was die stressor met die hoogste ernstigheidsgraad. Ander ernstige stressore was gereelde onderbrekings, medewerkers wat nie hulle kant bring nie, hoë werkslading en onvoldoende salarisse.

Laastens is daar bepaal of werkstressore en copingstrategieë werksverwante welstand van hospitaalptekers in Suid-Afrika kan voorspel. Die resultate het getoon dat werkstres (as gevolg van werkseise en die gebrek aan hulpbronne), asook drie copingstrategieë (aktiewe coping, vermyding asook die steun op geloof) psigiiese uitbranding en werksbegeesting van Suid-Afrikaanse hospitaalptekers voorspel het.

Aanbevelings vir toekomstige navorsing word aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This thesis focuses on burnout and work engagement of hospital pharmacists in both private and public health facilities in South Africa.

In this chapter, the problem statement is discussed. The research objectives, including the general and specific objectives, are set out. Following this, the research method is explained and a division of the chapters of this thesis is given.

1.1 PROBLEM STATEMENT

The environment in which employees currently function demands more of them than did any previous period. Employees in pharmacy companies have to cope with the demands that arise from fulfilling various roles, as well as with increased pressures such as managed health care and primary health care. Tracking and addressing their effectiveness in coping with new demands and stimulating their growth in areas that could possibly impact on the standard of pharmacy services is therefore of great importance (Gupchup, Singhal, Dole, & Lively, 1998). One area that should be researched in this regard is burnout (Maslach & Jackson, 1986).

However, two trends recently emerged in burnout research and both of them boil down to a broadening of the traditional concept and scope (Maslach, Schaufeli, & Leiter, 2001). First, the concept of burnout that was initially closely linked to the human services such as health care, education and social work where people do “people” work of some kind, has been expanded to include all other professions and occupational groups. Second, burnout research seems to shift towards its opposite: *work engagement*. Researchers recently extended their interest to include the positive pole of employees’ well-being, instead of looking exclusively at the negative pole. Seen from this perspective, burnout is rephrased as an erosion of engagement with the job (Schaufeli, Salanova, González-Romá, & Bakker, 2002). This development indicates an emerging trend towards a “positive psychology” that focuses on

human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000).

Rothmann, Rothmann, Van Rensburg, and Malan (2000) regard burnout as one of the key factors that contribute to impairment of pharmacists. This is especially important since pharmacists work in an environment where drugs are available and impairment may affect their judgement during day-to-day practice – therefore those who are inclined to burnout should be identified. More specifically, hospital pharmacists in South Africa, especially in the public sector, are confronted with various situational difficulties. Pharmaceutical services, particularly in the public sector, are hampered by a shortage of pharmacy personnel (Conry, Gray, & Summers, 1999; Pretorius, 2001).

The work conditions of hospital pharmacists in the public sector are a major concern and have resulted in pharmacists being charged by the Disciplinary Committee of the South African Pharmacy Council with dispensing errors (Beukes, 2002). The Disciplinary Committee expressed their concern regarding the workload of pharmacists in the public sector and stated that it is twice the acceptable norm (Beukes, 2002). In contrast, pharmacists in the private hospital sector seem to be better off in terms of conditions and staff proficiency (Conry et al., 1999). These discrepancies between the public sector and private sector pose a great concern to authorities taking into consideration that the public sector serves 80% of the population (Conry et al., 1999). Therefore, research regarding the burnout and engagement of hospital pharmacists in public and private hospitals is highly relevant.

Schaufeli and Enzmann (1998, p. 36) define 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 behaviors at work”. Burnout has been recognised as a serious threat, particularly for employees who work with people (Van Dierendonck, Schaufeli, & Buunk, 1993). It is the end result of consistent unmoderated or unsuccessful attempts at mediating stressors in the environment on the part of the individual (Levert, Lucas, & Ortlepp, 2000). Burnout is in general viewed as a syndrome consisting of three dimensions, namely emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Jackson, 1986).

Research over the past two decades has shown that burnout is not only related to negative outcomes for the individual, including depression, a sense of failure, fatigue, and loss of motivation; it is also related to negative outcomes for the organisation, including absenteeism, turnover rates and lowered productivity. According to Levert et al. (2000), burned-out workers show a lack of commitment and are less capable of providing adequate services, especially along dimensions of decision-making and initiating involvement with clients (Fryer, Poland, Bross, & Krugman, 1988; Maslach, 1982). Burned-out workers are also too depleted to give of themselves in a creative, co-operative fashion (Sammut, 1997).

Barnett, Hopkins, and Jackson (1986) and Gupchup et al. (1998) found in their research that pharmacists experience moderate levels of burnout. Daily demands of the job and dealing with patients, the professional role, counter prescribing and time pressures may contribute to emotional exhaustion and depersonalisation (Willett & Cooper, 1996). A recent study on burnout of a small sample of pharmacists using the Maslach Burnout Inventory (MBI) indicated that they experience low to moderate levels of burnout on emotional exhaustion and depersonalisation, and a relatively high level of personal accomplishment (Malan, Rothmann, & Rothmann, 2002). However, the MBI is not yet standardised for hospital pharmacists in South Africa and little information is available on its reliability and construct validity (see Rothmann, 2002), making it difficult to place the research results into context. Therefore, the first research problem is that the MBI is not validated and standardised for hospital pharmacists in South Africa. This makes it difficult to assess the levels of burnout of hospital pharmacists and to compare the levels of burnout of hospital pharmacists in various biographical groups.

Researchers elsewhere in the world have found that the possible causes of burnout can be classified into organisational, biographical and personality factors.

Organisational factors that contribute to burnout are work overload (Landsbergis, 1988), poor collegial support (Golembiewski & Munzenrider, 1988), role conflict and role ambiguity (Miller, Ellis, Zook, & Lyles, 1990), and lack of feedback (participation in decision-making and autonomy). These factors represent “demands” on employees (also referred to as job stressors), which are included in most models of burnout (Schaufeli & Enzmann, 1998). Burnout was found to be related to job stressors, including low levels of perceived control (Shirom, 1989), work overload (Bacharach, Bamberger, & Conley, 1991), poor collegial

support (Golembiewski & Munzenrider, 1988), role conflict and role ambiguity (Miller et al., 1990) as well as a lack of feedback.

Biographical characteristics that could explain burnout include age, work experience and gender. Burnout is observed more often among younger employees compared with those older than 30 to 40 years. Burnout is negatively related to work experience. Künzel and Schulte (1986) interpret the greater incidence of burnout in younger and less experienced employees in terms of reality shock, while Cherniss (1980) regards it as an indicator of an identity crisis due to unsuccessful occupational socialisation. Maslach, Jackson, and Leiter (1996) showed that burnout symptoms decrease as people grow older or gain more work experience. Women tend to score higher on emotional exhaustion, whereas men score higher on depersonalisation. According to Schaufeli and Enzmann (1998), this can partly be explained by gender role-dependent stereotypes. For example, men hold instrumental attitudes, whereas women are more emotionally responsive and seem to disclose emotions and health problems more easily. Furthermore, due to additional responsibilities at home, working women experience higher workloads compared to men. Workload, in turn, is positively related to burnout, particularly to emotional exhaustion. Single people (especially men) seem to be more prone to burnout compared to those who are married. Furthermore, Cash (1988) found that individuals with a higher level of education were more prone to burnout than less educated employees. This could be attributed to the higher expectations of the more educated individuals.

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 does it impede the attainment of professional goals, but it also depletes coping resources.

From the above-mentioned discussion it is clear that job stressors, biographical factors and coping might be related to burnout of hospital pharmacists. However, no studies including these factors in a causal model of burnout of hospital pharmacists were found in the literature. Therefore, the second research problem is that there is a lack of a causal model of burnout of hospital pharmacists in South Africa.

Maslach and Leiter (1997) state that *engagement* is characterised by energy, involvement and efficacy, which are considered the direct opposites of the three burnout dimensions namely, exhaustion, cynicism and lack of professional efficacy – the three dimensions of burnout according to the MBI-GS (*Maslach Burnout Inventory – General Survey*). Employees who are engaged in their jobs have a sense of energetic and effective connection with their job activities and regard themselves as able to deal totally with their job demands. According to Maslach and Leiter (1997), engagement is indicated by the opposite pattern of scores on the three MBI dimensions. According to these authors, low scores on exhaustion and cynicism and high scores on efficacy are indicative of engagement. By using the MBI to measure the level of engagement, an empirical study of the relationship between burnout and engagement is possible since both these concepts are considered to be opposite poles of a continuum that is covered by one single instrument.

Schaufeli et al. (2002, p.74) describe burnout and engagement as opposite concepts that should be measured independently with different instruments. They define *engagement* as “a positive, fulfilling, work-related state of mind that is characterised by *vigour, dedication and absorption*”. Engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular job, event, individual or behaviour. Vigour refers to high levels of energy and mental resilience while working as well as a willingness to exert effort and persistence even through difficult situations. Dedication is described as a sense of significance, enthusiasm, inspiration, pride and challenge. Absorption refers to a tendency to be fully concentrated and deeply engrossed in work, whereby time passes quickly and one has difficulty in detaching oneself from work. Absorption includes focused attention, clear minds, mind and body unison, effortless concentration, complete control, loss of self-consciousness, distortion of time, and intrinsic enjoyment (Csikszentmihalyi, 1990). Schaufeli et al. (2002) developed the Utrecht Work Engagement Scale (UWES) and found acceptable reliability and validity for the scale in a study conducted in Spain.

The above-mentioned discussion shows that hospital pharmacists' adaptation at work could be studied in a positive way by focusing on the concept of engagement. However, the UWES is not yet standardised for hospital pharmacists in South Africa and no information is available on its reliability and construct validity (see Rothmann, 2002), which makes it difficult to place the research results into context. Therefore, the third research problem is that the UWES is not validated and standardised for hospital pharmacists in South Africa. This makes it difficult to assess the levels of engagement of hospital pharmacists, and to compare the levels of engagement of hospital pharmacists in various biographical groups. Furthermore, no information is available regarding the relationships between job stressors, biographical factors and coping that might be related to engagement of hospital pharmacists. Accordingly, no studies including these factors in a causal model of engagement of hospital pharmacists were found in the literature. Therefore, the fourth research problem is that there is a lack of a causal model of engagement of hospital pharmacists in South Africa.

This research will make the following contributions to Industrial Psychology as a science:

- It will result in a standardised measuring instrument for burnout of hospital pharmacists, which has been proven to be reliable and valid.
- It will result in a standardised measuring instrument for engagement of hospital pharmacists, which has been proven to be reliable and valid.
- It will result in a standardised measuring instrument for determining levels and frequency of occupational stress in hospital pharmacist which has been proven reliable and valid.
- A model of burnout and engagement will be available through which occupational stressors and coping strategies will be evaluated to determine whether these factors can predict expected levels of burnout and engagement of hospital pharmacists.

1.2 RESEARCH OBJECTIVES

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

1.2.1 General objectives

The general objectives of this research were to standardise the Maslach Burnout Inventory – Human Services Survey (MBI-HSS), the Utrecht Work Engagement Scale (UWES) as well

as the Pharmacist Stress Inventory (PSI) for hospital pharmacists in the public and private hospital pharmacy sector in South Africa, and to investigate the role of occupational stress and coping in the burnout and engagement of hospital pharmacists.

1.2.2 Specific objectives

The specific objectives of this study were:

- to investigate the reliability and validity of the MBI for hospital pharmacists in South Africa;
- to assess the levels of burnout of hospital pharmacists in South Africa and to determine whether certain biographical factors influenced the level of burnout experienced;
- to determine the reliability and validity of the UWES for hospital pharmacists in South Africa;
- to assess the levels of engagement of hospital pharmacists in South Africa and to determine whether certain biographical factors influenced the level of engagement experienced;
- to develop a reliable and valid measuring instrument of occupational stress for the hospital pharmacists in South Africa;
- to assess the levels of occupational stress of hospital pharmacists in South Africa and to determine whether certain biographical factors influenced the levels of stress experienced;
- to investigate the role of occupational stress and coping strategies in the burnout and work engagement of hospital pharmacists in South Africa.

1.3 RESEARCH METHOD

The research method consisted of a brief literature review and an empirical study. The results obtained will be presented in the form of research articles. In the following paragraph, relevant aspects of the empirical studies conducted in this research are discussed.

1.3.1 Research design

A cross-sectional survey design whereby a sample is drawn from a population at one point in time was used to achieve the desired research objectives. Schaufeli and Enzmann (1998) criticise the use of cross-sectional designs in burnout research, and recommend that experiments and longitudinal studies should be used whenever possible. However, a cross-sectional design is the most appropriate design for the validation of the MBI and the UWES. Furthermore, structural equation modelling was used to address the problems associated with this design (Byrne, 2001).

1.3.2 Participants

The study population can be described as a convenience sample of hospital pharmacists employed by various private and public sector health facilities in the different provinces of South Africa (Public Health facilities in the North West Province, KwaZulu-Natal and Free State Province as well as private hospital facilities on a national basis). The total population of approximately 2000 hospital pharmacists nationally was targeted.

1.3.3 Measuring battery

The *Maslach Burnout Inventory* (MBI) (Maslach & Jackson, 1986) was used to determine the levels of burnout in the participants. The MBI consists of three subscales, namely Emotional Exhaustion, Depersonalisation and Personal Accomplishment (Maslach & Jackson, 1981, 1986). The three subscales of the MBI will be dealt with separately in this study, based on considerable factor-analytical support for their separation (Maslach & Jackson, 1986; Schaufeli & Janczur, 1994). Maslach and Jackson (1984, 1986) as well as Lahoz and Mason (1989) reported Cronbach alpha coefficients varying from 0,71 to 0,90 for the three subscales of the MBI. Test-retest reliability varied from 0,60 to 0,82 and 0,54 to 0,60 (applied after one year). External validation of the MBI has been obtained from its convergence with peer ratings, job dimensions associated with burnout, and stress outcomes (Maslach & Jackson, 1984).

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli et al., 2002) was used to measure the levels of engagement. Although engagement is conceptually seen as the positive

antithesis of burnout, it is operationalised in its own right. Work engagement is a concept that includes three dimensions: Vigour, Dedication and Absorption. Engaged workers are characterised by high levels of vigour and dedication, and they are immersed in their jobs. The question whether engagement and burnout are endpoints of the same continuum, or whether they are two distinct but related concepts remains an empirical one. The UWES is scored on a seven-point frequency rating scale, varying from 0 (*never*) to 6 (*always*). The alpha coefficients for the three subscales varied between 0,68 and 0,91. The alpha coefficient could be improved (α varies between 0,78 and 0,89 for the three subscales) by eliminating a few items without substantially decreasing the scales' internal consistency.

An adapted version of the *Job Stress Survey* (JSS) (Spielberger & Vagg, 1999), namely the *Pharmacist Job Stress Survey* (PSI) was used to measure the job stress levels of participants. The PSI focuses on common work situations that often result in psychological strain. Each of the 106 items describes a stressful job-related event and measures both the perceived severity and frequency of occurrence of that event. The PSI consists of three scales, namely the *severity scale*, the *frequency scale* and the *stress index scale*. The Severity and Frequency scales provide information on the average level of perceived severity and frequency of occurrence of 53 PSI stressor events. The Stress Index assesses the overall level of stress derived from the combined ratings on the severity and frequency scales over all 53 stressor events. Subscales measure occupational stress associated with the job itself (*Job Pressure*) and with lack of support from supervisors, co-workers, or the policies and procedures of the organisation (*Lack of Organisational Support*).

The *Coping Orientation for Problem Experiences Questionnaire - COPE Questionnaire* (COPE) (Carver, Scheier, & Weintraub, 1989) was used to measure coping strategies applied by participants. The COPE is a multidimensional 54-item coping questionnaire that indicates the different ways people cope in different circumstances (Carver et al., 1989). Respondents rate themselves on a four-point frequency scale, ranging from 1 (*usually not doing it at all*) to 4 (*usually doing it a lot*). In total, 13 different coping strategies are measured. Five subscales (four items each) measure different aspects of problem-focused coping, namely Active Coping, Planning, Suppressing of Competing Activities, Restraint Coping and Seeking Social Support for Instrumental Reasons. Five subscales (four items each) measure aspects of emotion-focused coping, namely Seeking Social Support for Emotional Reasons, Positive Reinterpretation and Growth, Acceptance, Denial, and Turning to Religion. Lastly, four

subscales measure coping strategies which are used less often, namely Focus on and Venting of Emotions, Behavioural Disengagement, Mental Disengagement and Alcohol-drug Disengagement (Carver et al., 1989). Carver et al. (1989) reported Cronbach alpha coefficients varying from 0,45 to 0,92. All of the subscales have sufficient levels of reliability, except for Mental Disengagement (MD), which measures lower than 0,60. Test-retest reliability varies from 0,46 to 0,86 and from 0,42 tot 0,89 (applied after two weeks) (Carver et al., 1989). Acceptable reliability and validity levels have been determined for the COPE in the South African context, rendering it suitable for usage in the South African context (Van der Wateren, 1997; Wissing & Du Toit, 1994).

A questionnaire was also developed to gather information about the biographical characteristics of the sample. Participants were given the option of providing their names and contact details in the case of requiring feedback. Other information gathered includes position, area, education, gender, marital status and language.

1.3.4 Statistical analysis

The statistical analysis was conducted with the aid of the SAS program (SAS Institute, 2000), the SPSS-program (SPSS Inc., 2003) and the Amos program (Arbuckle, 1999). The SAS program was used to carry out statistical analysis regarding reliability and validity of the MBI measuring instrument, while the SPSS-program was used to do the statistical analysis regarding reliability and validity of the UWES and PSI, descriptive statistics, t-tests, analysis of variance (ANOVA and MANOVA), correlation coefficients, and multiple regression analyses. The Amos program was used to carry out structural equation modelling for the MBI.

Cronbach alpha coefficients and factor analysis were used to assess the reliability and validity of the measuring instruments (Clark & Watson, 1995). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) and inferential statistics were used to analyse the data. A cut-off point of $p \leq 0,05$ was set for the statistical significance of the results. Effect sizes (Cohen, 1988) were used to decide on the practical significance of the findings. 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) was set for the practical significance of correlation coefficients. T-tests and analysis of variance were used to

determine the differences between groups. Multiple regression analysis was conducted to determine the percentage of the variance in the dependent variables (burnout and engagement) that is predicted by the independent variables.

1.4 RESEARCH METHODOLOGY

The measuring battery was compiled from the various questionnaires. Approval was obtained from the Director Generals of the various provinces or the Head of the various Private Hospital Pharmacy Groups. Next, the questionnaires, including letters stating the details of the motivation for the study and the approval obtained, as well as a request for participation in the research, were mailed to the relevant pharmacy managers. Ethical aspects regarding the research have been discussed with the various approving bodies and the nature of the research was explained to the participant in the accompanying letter. Self-addressed envelopes were included for the return of the questionnaires and individualised envelopes were provided to ensure confidentiality where there was more than one pharmacist at a specific site.

1.5 OVERVIEW OF CHAPTERS

In Chapter 2 the construct validity and internal consistency of the MBI-HSS is discussed and the hypothesised model is confirmed. In Chapter 3, the work engagement levels of hospital pharmacists are evaluated, more specifically in terms of the construct validity and internal consistency of the UWES. An exploratory factor analysis is performed to determine the factors displayed in the UWES for hospital pharmacists in South Africa. In Chapter 4, the results of an exploratory factor analysis are analysed to determine the factors that influence job stress in hospital pharmacists. In Chapter 5 a model of burnout and engagement, including occupational stress and coping strategies, is developed and tested for hospital pharmacists in South Africa. Chapter 6 presents conclusions, shortcomings and recommendations.

1.6 CHAPTER SUMMARY

This chapter discussed the problem statement and research objectives. The measuring instruments and research methodology of this study were also explained, followed by a brief discussion on the subsequent chapter outline in this thesis.

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CHAPTER 2: RESEARCH ARTICLE 1

BURNOUT OF HOSPITAL PHARMACISTS IN SOUTH AFRICA

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ABSTRACT

The objectives of this study were to validate the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) for hospital pharmacists in South Africa and to investigate the differences between the burnout levels of biographical groups. A cross-sectional survey design with a convenience sample ($N = 187$) was used. The MBI-HSS and a biographical questionnaire were administered. Structural equation modelling confirmed a three-factor model of burnout, consisting of Emotional Exhaustion, Depersonalisation and Personal Accomplishment. The scales showed acceptable reliabilities. The results showed that 35% of the hospital pharmacists showed high levels of emotional exhaustion, while 25% showed high levels of depersonalisation. Biographical factors such as age, years in pharmacy practice, home language, average number of hours worked per week, as well as the level of job satisfaction were related to the burnout levels of hospital pharmacists.

OPSOMMING

Die doelstellings van hierdie studie was om die Maslach Uitbrandingsvraelys – Menslike Dienste Opname (MBI-HSS) vir hospitaalptekers in Suid-Afrika te valideer en om die verskille tussen die uitbrandingsvlakke van verskillende biografiese groepe te bepaal. 'n Dwaarsnee opname-ontwerp met 'n beskikbaarheidsteekproef ($N = 187$) is gebruik. Die MBI-HSS asook 'n biografiese vraelys is afgeneem. Strukturele vergelykingsmodellering het 'n driefaktormodel van uitbranding, bestaande uit Emosionele Uitputting, Depersonalisasie en Persoonlike Bereiking, bevestig. Die skale het aanvaarbare betroubaarheid getoon. Die resultate het aangetoon dat 35% van die hospitaalptekers hoë vlakke van emosionele uitputting getoon het, terwyl 25% hoë vlakke van depersonalisasie getoon het. Biografiese faktore soos ouderdom, dienstyd, huistaal, gemiddelde aantal werksure per week, sowel as die vlak van werkstevredenheid het 'n verband met die vlakke van uitbranding van hospitaalptekers getoon.

Pharmacy plays a key role in managed healthcare and primary healthcare. Tracking and addressing workforce problems of pharmacies that could possibly impact on the standard of pharmacy services, for instance burnout, is therefore of great importance (Gupchup, Singhal, Dole, & Lively, 1998). Rothmann, Rothmann, Van Rensburg, and Malan (2000) regard burnout as one of the key factors that contribute to impairment of pharmacists. Since pharmacists work in an environment where drugs are available and because impairment may affect their judgement during day-to-day practice, those who are inclined to suffer from burnout should be identified.

Hospital pharmacists in South Africa, especially in the public sector, are confronted with various situational difficulties. Pharmaceutical services are hampered by a shortage of pharmacy personnel (Conry, Gray, & Summers, 1999; Pretorius, 2001). Furthermore, the work conditions of hospital pharmacists in the public sector are a major concern and have resulted in pharmacists being charged by the Disciplinary Committee of the South African Pharmacy Council with dispensing errors (Beukes, 2002). The Disciplinary Committee expressed their concern regarding the workload of pharmacists in the public sector and stated that it is twice the acceptable norm (Beukes, 2002). In contrast, pharmacists in the private hospital sector seem to be better off in terms of conditions and staff proficiency (Conry et al., 1999). These discrepancies between the public sector and private sector pose a great concern to authorities taking into consideration that the public sector serves 80% of the population (Conry et al., 1999). Therefore, research regarding the levels of burnout in hospital pharmacists in public and private hospitals is highly relevant.

Another change in the world of work of hospital pharmacists arises from the development of the pharmacy profession from a product-oriented profession to a patient-oriented profession (Penna, 1983). Clinical pharmacy has been defined simply as a patient-orientated practice of pharmacy (Miller, 1983). As pharmacy has moved into the field of patient care, pharmacists have expanded their roles and become involved in patient education, patient monitoring, pharmacokinetic monitoring, nutritional supplementation, drug prescribing, dosage adjustment, physical assessment and diagnostic functions (Fedder, 1984). All of these new roles have also led to increased responsibilities and role diversity, which can lead to increased levels of stress and burnout in the long term (Barnett, Hopkins, & Jackson, 1986).

Burnout as a phenomenon was originally observed primarily among people helpers such as nurses, social workers and police workers. However, today it is acknowledged that people in almost any occupation could develop burnout (Dubrin, 1990). Schaufeli and Enzmann (1998, p. 36) define burnout as “a persistent, negative, work-related state of mind in ‘normal’ individuals that is primarily characterised by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviours at work”. Burnout has been recognised as a serious threat, particularly for employees who work with people (Van Dierendonck, Schaufeli, & Buunk, 1993). It is the end result of consistent unmoderated or unsuccessful attempts at mediating stressors in the environment on the part of the individual (Levert, Lucas, & Ortlepp, 2000).

Burnout is in general viewed as a syndrome consisting of three dimensions, namely emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach, 1982b; Maslach & Jackson, 1986). Emotional exhaustion describes a reduction in the emotional resources of an individual. When asked how they feel, burned-out employees typically answer that they feel drained or used up and physically fatigued. Depersonalisation refers to an increase in negative, cynical and insensitive attitudes towards colleagues, clients and/or patients. Low personal accomplishment refers to a feeling of being unable to meet clients’ needs and to meet essential elements of job performance.

Stress should not be confused with burnout. According to Schaufeli and Enzmann (1998), burnout can be considered as a particular kind of prolonged job stress. An individual experiences job stress when the demands of the workplace exceed his or her adaptive responses. Burnout is a particular, multidimensional, chronic stress reaction 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.

Research over the past two decades has shown that burnout is not only related to negative outcomes for the individual, including depression, a sense of failure, fatigue, and loss of motivation; it is also related to negative outcomes for the organisation, including absenteeism, high turnover rates and lowered productivity. According to Levert et al. (2000), burned-out workers show a lack of commitment and are less capable of providing adequate services, especially along dimensions of decision-making and initiating involvement with clients (Fryer, Poland, Bross, & Krugman, 1988; Maslach, 1982b). Burned-out workers are

also too depleted to give of themselves in a creative, co-operative fashion (Sammut, 1997). Burnout has also been associated with insomnia, perceptions of physical exhaustion and increased substance abuse (Jackson & Maslach, 1982; Maslach, 1979, 1981, 1982a; Maslach & Pines, 1977; Muchinsky, 1987; Pines & Aronson, 1981; Pines & Maslach, 1978; Turnipseed, 1988). The study of burnout, therefore, certainly seems beneficial to the general welfare of companies and their workers in various organisational contexts.

Barnett et al. (1986) and Gupchup et al. (1998) found in their research that pharmacists experience moderate levels of burnout. Daily demands of the job and dealing with patients, the professional role, counter prescribing and time pressures may contribute to emotional exhaustion and depersonalisation (Willett & Cooper, 1996). A recent study on burnout of a small sample of South African pharmacists using the Maslach Burnout Inventory (MBI) indicated that they experience low to moderate levels of emotional exhaustion and depersonalisation and a relatively high level of personal accomplishment (Malan, Rothmann, & Rothmann, 2002). However, the MBI is not yet standardised for hospital pharmacists in South Africa and little information is available on its reliability and construct validity (Rothmann, 2002), which makes it difficult to put the research results into context.

The MBI-HSS is however used in the current study and to date no validation studies on the MBI-HSS in the South African hospital pharmacist context could be found, which means that burnout norms for hospital pharmacists in South Africa still need to be developed. The objectives of this study were to assess the factorial validity and internal consistency of the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) for hospital pharmacists in various provinces of South Africa, as well as to determine levels of burnout in South African hospital pharmacists and the differences in burnout levels of various biographical groups.

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

Probably the most significant development in terms of scientific exploration of the burnout construct was the development of the Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter, 1996 for the most recent edition). This is the only burnout measure that assesses all three the core dimensions of burnout (Maslach, Schaufeli, & Leiter, 2001). The MBI-Human Services Survey (MBI-HSS) was designed for use with people working in the human services and healthcare environment. In the MBI-HSS the labels for the three dimensions, namely

emotional exhaustion, depersonalisation and reduced personal accomplishment reflected the focus on occupations where workers interacted extensively with other people (clients, patients, and students).

The importance of establishing a reliable and valid instrument to assess burnout in the hospital pharmacist setting is not only essential for empirical research purposes, but also for the practical, standardised application in the individual assessment setting. A large number of research articles seem to support the psychometrical soundness of the MBI-HSS in various occupational settings (Byrne, 1991, 1994; Enzmann, Schaufeli, & Girault, 1994; Green & Walkey, 1988; Maslach & Jackson, 1981a).

The MBI-HSS is a 22-item instrument that was originally created from data based on samples of workers from a variety of human service organisations. Most exploratory factor analysis of the MBI has indicated three burnout factors representing Emotional Exhaustion, Depersonalisation and Personal Accomplishment for human service professionals in general (Green & Walkey, 1988; Maslach & Jackson, 1981b). Some recent confirmatory factor analysis studies of the MBI also found a three-factor solution to be optimal (Byrne, 1991; Gold, Bachelor, & Michael, 1989). Some other researchers have nevertheless found a two-factor model (Brookings, Bolton, Brown, & McEvoy, 1985), or four-factor models (Firth, McIntee, McKeown, & Britton, 1985; Iwanicki & Schwab, 1981; Powers & Gose, 1986). Although it is clear that the MBI is best described by a three-factor solution, a number of construct validity research articles suggest the need for possible improvement to item content. A number of researchers have noted problematic loading patterns for five particular items, namely items 6, 11, 12, 16 and 20. Items 6, 16 and 20, designed to measure Emotional Exhaustion, have been found either to load incorrectly or to cross-load onto the Depersonalisation factor (Belcastro, Gold, & Hays, 1983; Byrne, 1991; Fimian & Blanton, 1987).

Lahoz and Mason (1989) conducted a study to establish normative data as well as to evaluate the construct validity and reliability of the three subscales of the MBI-HSS when given to a national sample of USA licensed practising pharmacists. A total of 1 258 scoreable responses were used for data analyses. Data obtained was subjected to principle factor analysis with iteration and a varimax rotation to obtain a three-factor solution. Visual analysis and statistical comparison provided empirical support for the presence of the hypothesised

constructs of Emotional Exhaustion, Depersonalisation, and a lack of Personal Accomplishment. Internal consistency of the derived subscales, as measured by Cronbach's alpha coefficient, was comparable with previous data. Pharmacists' subscale scores were significantly lower than those obtained in studies of the helping professions. The demographic characteristics of the sample of pharmacists included: 70,8% male; 91,8% Caucasian; mean age of 41,3 years; 78,5% married; mean years of experience in pharmacy = 16,3 years; mean years in current job = 9,1; mean weekly work hours = 42,6. Visual examination of the loadings of inventory items on the derived factors showed that the composition of the items comprising the frequency and intensity dimensions of Factor I, II and III were relatively consistent with those identified by Maslach and Jackson (1981b). Internal consistency estimates of reliability of each derived subscale were determined using Cronbach's alpha coefficient. Coefficients obtained ranged from 0,74 to 0,90 and are comparable to those obtained by Maslach and Jackson (1981a) through their work in the helping professions. Cronbach alpha's obtained on each factor are: Emotional Exhaustion - 0,90 for pharmacists and 0,90 human service professionals; Depersonalisation - 0,74 for pharmacists and 0,79 for human service professionals; Personal Accomplishment - 0,79 for pharmacists and 0,71 for human service professionals.

The results of the study among American pharmacists provided empirical support for the reliability and validity of the MBI-HSS. The three-factor solution was consistent with the constructs of Emotional Exhaustion, Depersonalisation and a lack of Personal Accomplishment described by Maslach and Jackson (1981b). In the South African context, research evidence seems to confirm these findings. Basson and Rothmann (2002) found internal consistencies of 0,67 (Depersonalisation); 0,73 (Personal Accomplishment); and 0,89 for Emotional Exhaustion in a pharmacist sample.

Within the South African context, there seems to be an apparent shortage of research regarding the validity, reliability and the establishment of norms for various occupational settings of the MBI-HSS. Although many associated studies were conducted in the United States and Europe during the early stages of scale development, a lack of research in this field within a South African setting necessitates the current research. Rothmann (2002) stressed the need for burnout research in South Africa by stating that serious limitations of burnout research in South Africa include poorly designed studies (i.e. small sample size), a lack of

sophisticated statistical analyses (i.e. confirmatory factor-analytical analysis by means of structural equation modelling) and poorly controlled studies.

Burnout is observed more often among younger employees compared to employees older than 30. Burnout is negatively related to work experience. Künzel and Schulte (1986) interpret the greater incidence of burnout in younger and less experienced employees in terms of reality shock, while Cherniss (1980) regards it as an indicator of an identity crisis due to unsuccessful occupational socialisation. Maslach, Jackson, and Leiter (1996) showed that burnout symptoms decline as employees grow older or gain more work experience.

Women tend to score higher on emotional exhaustion, whereas men score higher on depersonalisation. According to Schaufeli and Enzmann (1998), this can partly be explained by gender role-dependent stereotypes. For example, men hold instrumental attitudes, whereas women are more emotionally responsive and seem to disclose emotions and health problems more easily. Furthermore, due to additional responsibilities at home, working women experience higher workloads compared to men. Workload, in turn, is positively related to burnout, particularly to emotional exhaustion.

Single people (especially men) seem to be more prone to burnout compared to those who are married. Furthermore, Cash (1988) found that individuals with a higher level of education were more prone to burnout than less educated employees. This could be attributed to the higher expectations of the more educated individuals.

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

- H1: Burnout, as measured by the MBI-HSS, can be defined as a three-dimensional construct with acceptable levels of reliability for each of its subscales, namely Emotional Exhaustion, Depersonalisation and Personal Accomplishment.
- H2: Biographical factors such as age, language, level of experience, level of qualification, gender, illness, and position held by pharmacist influence the level of burnout experienced by individuals.

METHOD

Research design

A cross-sectional survey design was used. Cross-sectional designs are relevant 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 (Burns & Grove, 1993). Although it is recommended that experiments and longitudinal designs should be used as far as possible (Schaufeli & Enzmann, 1998) rather than cross-sectional designs, it still offers the best possible design for the validation of the MBI-HSS.

Participants

The study population can be described as a convenience sample of hospital pharmacists employed by various private and public sector health facilities in the different provinces of South Africa (Public Health facilities in North West, KwaZulu-Natal and Free State provinces as well as private hospital facilities on a national basis). The entire population of approximately 2 000 hospital pharmacists nationally was targeted. A response rate of 21,6% was achieved, which can be ascribed to the nature of the job, e.g. call-outs, rotating working schedules and leave as well as difficulties in obtaining permission from the various State facilities. Of these only 187 responses (19,3% of all the questionnaires distributed) could be utilised. Descriptive information of the sample is given in Table 1.

The sample consisted mainly of Afrikaans and English-speaking hospital pharmacists (54,5% and 34,8%). They were mostly married (62,7%), mainly female (79,1%) with a mean age of 35,51 years. The average number of years in pharmacy was 12,37 years and the majority of respondents held positions as normal pharmacists (56,2%).

Table 1

Characteristics of the Participants

Item	Category	Percentage
Language	Afrikaans	54,5
	English	34,8
	Other	11,7
Position	Pharmacy owner/partner and manager – Private hospital sector	1,6
	Pharmacy owner/partner but not manager	0,5
	Pharmacy manager but not owner/partner	16,2
	Pharmacy manager – Public sector	8,1
	Pharmacist	56,2
	Community service pharmacist	7,6
	Intern	7,0
	Other	2,7
Number of years in pharmacy	Average number of years in pharmacy	12,4
	Average number of years in hospital pharmacy (Private sector)	5,1
	Average number of years in hospital pharmacy (Public sector)	4,5
	Average number of years in current position	3,9
Province	Eastern Cape	1,1
	Free State	14,1
	Gauteng	21,7
	Kwa-Zulu Natal	18,5
	Limpopo	2,7
	Mpumalanga	2,2
	Northern Cape	2,2
	North West	19,0
	Western Cape	18,5
Education	B. Pharm / Dip. Pharm	89,2
	Hons. Pharm	1,6
	M. Pharm	1,6
	M.Sc	1,6
	Other	5,9
Gender	Male	20,9
	Female	79,1
Marital status	Single	23,2
	Engaged	10,3
	Married	62,7
	Separated/Divorced/Widow/Widower	3,8

The average age of respondents was 35,5 years.

Measuring battery

The Maslach Burnout Inventory – Human Services Survey (MBI-HSS) (Maslach & Jackson, 1986; Maslach, Jackson, & Leiter, 1996) was used in this study. Also, biographical information was gathered regarding language, position, education, gender, marital status as well as a few other variables.

The *Maslach Burnout Inventory – Human Services Survey* (MBI-HSS) (Maslach & Jackson, 1986; Maslach et al., 1996) 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, which is 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"). Internal consistencies of the MBI-HSS scales are satisfactory with α -values ranging from 0,70 to 0,90 (Maslach et al., 1996). Regarding test-retest reliability, the MBI-scores seem to be rather stable over time. Test-retest coefficients of the MBI-HSS range from 0,60 to 0,82 across short periods of up to one month and only drop slightly when longer periods of up to one year are considered ($0,57 < r < 0,60$) (Maslach et al., 1996). The factorial validity of the MBI has been confirmed by a number of recent studies that used advanced statistical techniques such as confirmatory factor analysis using linear structural equation modelling (Gold et al., 1989). These studies all indicate that the assumed three-dimensional structure indeed fits better to the data than a one-dimensional structure. Thus, burnout as assessed by the MBI is a multidimensional construct. Convergent validity studies show that the MBI-HSS scale measures to a large extent the same construct as do other burnout instruments.

Statistical analysis

The statistical analysis was carried out with the SAS-program (SAS Institute, 2000) and the SPSS-program (SPSS Inc., 2003). In the first step, means, standard deviations, skewness and kurtosis were determined to describe the data. The reliability and validity of the MBI-HSS

were also determined by means of Cronbach alpha coefficients and confirmatory factor analysis with the use of the AMOS-program (Arbuckle, 1997).

In order to test the factorial validity of the MBI-HSS, structural equation modelling (SEM) methods were used with the maximum likelihood method of the AMOS program (Arbuckle, 1997). Among the fit indices produced by the AMOS programme is the Chi-square statistic (χ^2) which is the test of absolute fit of the model. However, the χ^2 value is sensitive to sample size. Therefore, additional fit indices such as the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Means Square Error of Approximation (RMSEA) were used in this study.

RESULTS

Structural equation modelling with the aid of the AMOS-program (Arbuckle, 1999) was used in order to test the original theoretical factorial model of the MBI-HSS (Maslach & Jackson, 1986) with the empirical data. Firstly, data analysis was done by initial evaluation of the overall χ^2 goodness-of-fit statistic in conjunction with its degrees of freedom and statistical significance or probability value. Comparative fit indices, such as the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Normed-Fit Index (NFI), the Comparative-Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA) were also evaluated. Secondly, exploratory model modification analysis was initiated, based on the information obtained from the modification indices where misspecifications in the empirical model were found. Alternative model construction and re-specification resulted in the alternative model being fitted to the data and evaluated during the post-hoc analysis process. This process proceeded until an acceptable revised model was found that was comparable with previous related studies.

Hypothesised one-factor model

A one-factor model was tested using all 22 items. Statistics of the fit between the theoretical model and the empirical data are given in Table 2.

Table 2

Goodness-of-Fit Statistics for the 22- item Hypothesised One-factor MBI-HSS Model

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	824,01	4,36	0,63	0,55	0,59	0,61	0,65	0,13

In Table 2 the fit statistics of a one-factor model are presented. The obtained χ^2 value of 824,01 ($df = 189$; $p = 0,00$) is extremely high and indicative of a poor overall fit to a theoretical one-factor model for the MBI-HSS. Due to the poor fit statistics obtained, this model was not explored any further.

Hypothesised three-factor model

The full three-factor model as described in the literature consisting of all 22 items was tested. Statistics of the fit between the theoretical model and the empirical data are given in Table 3.

Table 3

Goodness-of-Fit Statistics for the 22- item Hypothesised Three-factor Model (Model 1)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	532,16	2,58	0,79	0,74	0,74	0,80	0,82	0,09

In Table 3, the obtained χ^2 value of 532,16 ($df = 206$; $p = 0,00$) is indicative of a poor overall fit to the theoretical three-factor model of the MBI-HSS. The discrepancy divided by the degrees of freedom ($\chi^2/df = 2,58$) is higher than 2, which is indicative of a relatively poor fit. The standardised RMR value which is also greater than 0,05 is also indicative of a poor fit. The goodness-of-fit indices also support this finding by not reaching the recommended critical values. Values lower than 0,90 for the NFI, TLI and CFI were found. The RMSEA value is also higher than the recommended value of 0,08. In order to obtain a better fit between the theoretical three-factor model with the population data, modification of the model is needed. Inspection of the standardised residual covariance matrix led to the identification of item 12 for possible misspecification as a result of some of its standardised residuals being larger than 2,58. Standardised residuals are analogous to z scores and make for easy interpretation, because numerically they represent the number of standard deviations

the observed residuals are from the zero residuals that would exist in a perfect model fit with the data (Byrne, 2001). Values > 2,58 are considered to be large. These values are typically obtained by dividing the residuals of fit with their asymptotical standard errors in large samples (Jöreskog & Sörbom, 1988). Further investigation of the modification indices was done to determine possible misspecification of factor-loadings in the theoretical model. Based on the regression weights, considerable cross-factor loadings were detected within the theoretical model for item 12 (item 12 should load on Personal Accomplishment but loaded on Emotional Exhaustion instead).

Post-hoc analyses

The rejection of the postulated theoretical model in the former section initiated, by implication, a model development process, in other words an exploratory factor analysis process through which the constructs of burnout are studied specifically in the hospital pharmacist population. Given the high cross-loading levels of item 12, it was decided to re-specify the model by deleting this variable. When two items similar in content are highly correlated, it is preferable to delete one of these items rather than to correlate the error terms (Anderson & Gerbing, 1988; Byrne, 1991). Subsequent analysis therefore includes only 21 items, labelled Model 2. Fit statistics for Model 2 are presented in Table 4.

Table 4

Goodness-of-Fit Statistics for Model 2 (for 21 items – item 12 excluded)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	439,39	2,36	0,81	0,76	0,77	0,83	0,85	0,09

The various fit statistics in Table 4 indicate a marginal improvement from the first model fit (Table 3) with the empirical data. In Table 4, the obtained χ^2 value of 439,39 ($df = 186$; $p = 0,00$) is still indicative of a poor overall fit to the theoretical three-factor model of the MBI-HSS. The discrepancy divided by the degrees of freedom ($\chi^2/df = 2,36$) is still higher than 2, which is indicative of a relatively poor fit. The standardised RMR value, which is also greater than 0,05, is indicative of a poor fit. Evaluation of the standardised residual co-variances table revealed that item 16 accounts for considerable misfit in the model. Further inspection of the modification indices confirmed considerable cross-loadings of item 16 in the model.

In the third model of the MBI-HSS only 20 items of the original 22 were retained. The results of the analysis of fit with the empirical data are given in Table 5.

Table 5

Goodness-of-Fit Statistics for Model 3 (20 items – items 12 & 16 excluded)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	351,99	2,11	0,84	0,80	0,80	0,87	0,88	0,08

The fit statistics in Table 5 show a better overall fit with the re-specified theoretical Model 3. In the discussions regarding factorial validity, Byrne (2001) also found that items 12 and 16 led to misfit of the MBI-model applied to a sample of teachers. The χ^2 value of 351,99 ($df = 167$; $p = 0,00$) is much lower than that of Model 1 and Model 2. The difference between Model 1 ($\Delta\chi^2_{(206)} = 532,16$) and Model 3 ($\Delta\chi^2_{(167)} = 351,99$) is ($\Delta\chi^2_{(39)} = 180,17$), which is substantial. A difference of $\Delta\chi^2_{(19)} = 87,4$ was found between Model 2 and Model 3, which is significant. Item 6 was also identified as an item that may lead to model misfit and was excluded in the subsequent analysis.

Table 6

Goodness-of-Fit Statistics for Model 4 (19 items – items 6, 12 & 16 excluded)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	280,28	1,88	0,86	0,82	0,83	0,90	0,91	0,07

The various fit statistics in Table 6 indicate quite an improvement from the previous model fits with the empirical data. In Table 6, the obtained χ^2 value of 280,28 ($df = 149$; $p = 0,00$), which is a vast improvement on the previous values obtained and is indicative of a better fit to the theoretical three-factor model of the MBI-HSS. The discrepancy divided by the degrees of freedom ($\chi^2/df = 1,88$) is below 2, which implies that the model fit is acceptable. The standardised RMR is still greater than 0,05, but this is a significant improvement from model 1 (RMR = 0,11). The GFI value is still less than 0,90, but much closer than any of the other three models - the model fit is thus improving. The other fit indices also confirm the fit of the model.

Inspection of the modification indices indicated high levels of co-variance between error 13 and error 10, both loading on depersonalisation and not between two different factors, and therefore these items were allowed to correlate. Although the values associated with the modification indices in this sample are not large in comparison with other related studies (Byrne, 1993, 2001; Leiter & Durup, 1994; Schaufeli & Van Dierendonck, 1993) they do represent significant misspecifications in the model which could be alleviated by allowing these constrained error co-variances to correlate within their postulated dimensions in the model, ultimately resulting in a better fit to the data.

Table 7

Goodness-of-Fit Statistics for Model 5 (19 items – items 6, 12 & 16 excluded, errors 13 & 10 allowed to correlate)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	252,53	1,71	0,87	0,84	0,85	0,92	0,93	0,06

The fit statistics obtained for Model 5 indicate that by allowing the constrained error co-variances to correlate, an overall improvement in the fit of the empirical data to the theoretical model was ensured. In an attempt to further improve the model fit, inspection of the modification indices also indicated high levels of co-variance between error 15 and error 16. Subsequently these error terms were also allowed to correlate.

Table 8

Goodness-of-Fit Statistics for Model 6 – final model (19 items – items 6, 12 & 16 excluded, errors 13 & 10 allowed to correlate, errors 15 & 16 allowed to correlate)

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	239,44	1,63	0,88	0,85	0,86	0,93	0,94	0,06

The fit statistics obtained for Model 6 indicate that by allowing some additional constrained error co-variances to correlate ensured a slight overall improvement (Model 5 vs. Model 6) in the fit of the empirical data to the theoretical model. The obtained χ^2 value of 239,44 ($df = 147$; $p = 0,00$) is indicative of a good overall fit to the theoretical three-factor model of the MBI-HSS. The discrepancy divided by the degrees of freedom ($\chi^2/df = 1,63$) is less than 2,

which is indicative of a good fit. The standardised RMR represents the average value across all standardised residuals, and ranges from 0 to 1. In a good model fit this value will be small, 0,05 or less (Hu & Bentler, 1995). For Model 6 the standardised RMR value = 0,07, which is still greater than 0,05. Investigation of the TLI, CFI and RMSEA indicated acceptable fit of the model.

Because this model represented acceptable comparative evidence of fit between the empirical data and a theoretical model in line with the theoretical premises of the MBI-HSS, no further modification of the model was deemed necessary.

The descriptive statistics and alpha coefficients of the three factors of the MBI-HSS are given in Table 9.

Table 9

Descriptive Statistics and Alpha Coefficients of the MBI-HSS

Item	Mean	SD	Skewness	Kurtosis	α
Emotional Exhaustion (EE)	18,71	10,09	0,34	-0,73	0,91
Depersonalisation (DP)	8,66	6,58	0,75	-0,08	0,78
Personal Accomplishment (PA)	29,57	7,04	-0,51	-0,18	0,77

The information in Table 9 indicates that the three factors of the MBI-HSS are normally distributed. With regard to the internal consistency of the scales, Emotional Exhaustion, Depersonalisation and Personal Accomplishment seem to demonstrate acceptable alpha coefficients above the 0,70 guideline provided by Nunnally and Bernstein (1994).

In an analysis done by Rothmann (2005), data from various South African studies were compared on a 10-point scale with regard to levels of Exhaustion and Mental Distance (Depersonalisation) of 16 different occupation groups. The data obtained from this particular study was included in the pool of data of various occupational groups. Rothmann (2005) reported that hospital pharmacists experienced Exhaustion levels of 5,79, compared to 6,85 for emergency workers (highest level of all the occupations presented) and 4,02 of train drivers (lowest level of all occupations presented). Mental distance (Depersonalisation) levels of 6,03 were obtained, compared to 8,06 (highest) and 4,38 (lowest).

These results provide support for Hypothesis 1.

Next, multivariate analysis of variance (MANOVA) was used to analyse the differences between the burnout levels of different biographical groups, namely different positions held by pharmacists, different age and language groups, the number of years they have been involved in pharmacy, their level of education and gender differences. Another factor that has been measured includes medical conditions that might affect their quality of life (see Table 10). In MANOVA, several dependent variables (in this case Emotional Exhaustion, Depersonalisation and Personal Accomplishment) are considered together in the same analysis.

Table 10

MANOVA of the Burnout Levels of various Biographical Groups

Item	Wilks' Lambda Value	F	df	p	Partial Eta Squared (η^2)
Position	0,94	1,79	6,00	0,10	-
Age	0,88	1,85	12,00	0,04*	0,04
Years in pharmacy	0,87	2,02	12,00	0,02*	0,05
Level of education	0,99	0,88	3,00	0,45	-
Gender	0,97	1,98	3,00	0,12	-
Home language	0,90	3,28	6,00	0,004*	0,05
Medical condition	0,98	1,55	3,00	0,20	-

* $p \leq 0,05$

Table 10 shows that age had a significant effect on the combined dependent variable burnout ($F_{(12, 461)} = 1,85, p < 0,05$; Wilks' Lambda = 0,88; $\eta^2 = 0,04$). However, this effect was relatively small (only 4% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,01, showed that there were no significant differences between the levels of Emotional Exhaustion ($F_{(4, 181)} = 1,41, p = 0,23$) and Personal Accomplishment ($F_{(4, 181)} = 0,37, p = 0,84$) of various age groups. The groups differed in terms of the levels of Depersonalisation ($F_{(4, 181)} = 5,03, p < 0,01$) where age categories 20-24 ($F_{(4, 181)} = 4,90, p = 0,04$) and 25-29 ($F_{(4, 181)} = 5,60, p = 0,001$) differed

significantly from age category 40-49 (mean scores of 10,40, 11,10, and 5,50 respectively). It seems that older individuals experienced less depersonalisation.

The number of years in pharmacy had a significant effect on the combined dependent variable burnout ($F_{(12, 450)} = 2,02, p < 0,05$; Wilks' Lambda = 0,87; $\eta^2 = 0,05$). However, this effect was also relatively small (only 5% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,01, showed that there were no significant differences between the levels of Emotional Exhaustion ($F_{(4, 177)} = 1,16, p = 0,33$) and Personal Accomplishment ($F_{(4, 177)} = 1,29, p = 0,28$) of participants with various number of years in pharmacy practice. The groups differed in terms of the levels of Depersonalisation ($F_{(4, 177)} = 2,89, p = 0,02$) where those who have worked for 0-5 years in pharmacy practice differed significantly from those with 21-45 years experience (mean scores of 10,49 and 6,25 respectively). Individuals with less experiences seem to have higher levels of depersonalisation.

Home language had a significant effect on the combined dependent variable burnout ($F_{(6, 362)} = 3,28, p < 0,05$; Wilks' Lambda = 0,90; $\eta^2 = 0,05$). However, this effect was relatively small (only 5% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,05, showed that there were no significant differences between the levels of Emotional Exhaustion and Depersonalisation of various home language categories. The groups differed in terms of the levels of Personal Accomplishment ($F_{(2, 186)} = 9,19, p = 0,00$). Afrikaans-speaking individuals ($F_{(2, 186)} = 2,86, p = 0,02$) differed significantly from English-speaking individuals as well as other language groups ($F_{(2, 186)} = 6,60, p = 0,00$) in terms of levels of Personal Accomplishment. Afrikaans-speaking individuals had a mean level of Personal Accomplishment of 27,92 compared to 30,79 of English speaking and 34,53 of the other language groups. It can be concluded that Afrikaans-speaking individuals experience reduced levels of Personal Accomplishment.

These results obtained with the MANOVA of burnout indicated that certain biographical factors do influence the levels of burnout experienced by individual pharmacists in various hospital pharmacy settings.

DISCUSSION

The objectives of this study were to validate the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) for hospital pharmacists in South Africa and to investigate the differences between the burnout levels of biographical groups. The results confirmed the three-factor structure of the MBI-HSS, although some items were problematic. Furthermore, differences were found between the burnout levels of different biographical groups.

The psychometric validity of the MBI-HSS was tested. First the three-factor structure of the MBI-HSS was confirmed by means of a structured equation modelling analysis, which is consistent with literature findings across various samples, groups and countries (Enzmann et al., 1994; Leiter & Schaufeli, 1996; Schaufeli & Enzmann, 1998). Also, reliability analysis confirmed sufficient internal consistency of the subscales. The alpha coefficients of all three subscales of burnout were higher than 0,70, which demonstrates acceptable internal consistency of all three subscales as per the guideline provided by Nunnally and Bernstein (1994). The Cronbach alpha coefficient for Emotional Exhaustion was 0,91; for Depersonalisation it was 0,78 and for Personal Accomplishment it was 0,77. In the South African context, research evidence seems to confirm these findings. Basson and Rothmann (2002) found internal consistencies of 0,67 (Depersonalisation); 0,73 (Personal Accomplishment); and 0,89 for Emotional Exhaustion in a pharmacist sample.

The original 22-item MBI-HSS was tested by means of structured equation modelling (SEM), to assess the construct validity of the MBI-HSS for hospital pharmacists in South Africa. The 22-item model showed poor model fit to the data tested which led to an exploratory factor analysis approach in the post-hoc analysis of the data. Assessment of the results obtained, together with evaluation of the modification indexes (measure of factor cross-loadings and error co-variances), led to the deletion of item 6 (“working with people all day is really a strain for me”), item 12 (“I feel very energetic”) and item 16 (“Working with people directly puts too much stress on me”). Additionally errors 13 and 10, as well as errors 15 and 16 were allowed to correlate. The modifications resulted in a 19-item scale being fitted to the data. This is consistent with the study done by Byrne (1993) where the factor validity of the MBI was tested separately for elementary, intermediate and secondary teachers. From this study it was concluded that item 12 and item 16 might be inappropriate for use with teachers.

Furthermore, error terms within the subscales were allowed to correlate in order to improve model fit. The measurement error co-variances represent systematic, rather than random, measurement error in item responses, which may derive from characteristics unique to either the items or to the respondents (Aish & Joreskög, 1990). If these parameters were to reflect item characteristics, they may be representative of a small factor that has been neglected. Alternatively, if these were to represent respondent characteristics, they may be indicative of bias such as yea-nay-saying, social desirability, and the like. Correlated errors can also be triggered by a high degree of overlap in item content. Such errors happen when items, although phrased differently, basically ask the same question (Byrne, 2001).

In an analysis done by Rothmann (2005), data from various South African studies were compared on a 10-point scale with regard to levels of Exhaustion and Depersonalisation of 16 different occupation groups. The data obtained from this particular study was included in the pool of data of various occupational groups. The results showed that 35% of the hospital pharmacists showed high levels of emotional exhaustion, while 25% showed high levels of depersonalisation.

Rothmann (2005) reported that hospital pharmacists experienced Exhaustion levels of 5,79, compared to 6,85 for emergency workers (highest level of all the occupations presented) and 4,02 of train drivers (lowest level of all occupations presented). Hospital pharmacists also reported mental distance (Depersonalisation) levels of 6,03 compared to 8,06 (highest) and 4,38 (lowest). These findings all indicate that South African hospital pharmacists experience average levels of burnout compared to other occupational groups. This is nevertheless observed in a serious light especially if one takes into account the considerable increase in work load due to reduced number of pharmacists available to perform these duties. The decrease in the number of pharmacists can be ascribed to less individuals enrolling for the pharmacy courses in South Africa and an increasing number of individuals that are leaving South Africa to explore opportunities abroad. All of these negative factors are to a large extend aggravated by the current legislative disputes regarding the medicine pricing structures that may be applied in South Africa.

The results obtained with the MANOVA indicated that certain biographical factors had a significant influence on the combined dependent variable burnout. Various biographical factors such as age, years in pharmacy practice, and home language had significant effects on

burnout. It was noted that younger participants experienced higher levels of Depersonalisation than the older participants. Similar findings were observed for the years in pharmacy practice. Pharmacists that have been in practice only for a short period, have also experienced higher levels of depersonalisation compared to those individuals that have been in pharmacy practice for a longer period (those with an earlier date of registration). Previous studies also showed that burnout occurs more often among younger employees compared to those older than 30 years and that it is negatively related to work experience. Künzel and Schulte (1986) interpret the greater incidence of burnout in younger and less experienced employees in terms of reality shock, while Cherniss (1980) regards it as an indicator of an identity crisis due to unsuccessful occupational socialisation. Maslach, Jackson, and Leiter (1996) showed that burnout symptoms decline as employees grow older or gain more work experience. Alternatively, a selection effect is also possible, in other words, burned-out pharmacists have left the organisation.

Significant differences were also observed with regard to different language groups; Afrikaans-speaking individuals experienced significantly reduced levels of personal accomplishment compared to that of English-speaking individuals or other language groups. This could possibly be due to the current transformation processes in the work place due to the new equity guidelines and requirements that need to be adhered to by all employers. Many of your Afrikaans speaking individuals are white people that may currently experience much more barriers than before to make any progress in their work or to be promoted. Hard work and conscientiousness is not necessarily rewarded by a promotion as these positions are mainly reserved for employment equity candidates. Alternatively, this could also be due to a personality trait of Afrikaans speaking individuals. This is though difficult to determine if this was the case due to the relatively small sample size.

In summary, this study could provide a standard regarding burnout levels in hospital pharmacists of various hospital settings in South Africa. The three-factor model structure of the burnout construct is largely confirmed, as well as the internal consistency of the Emotional Exhaustion, Depersonalisation and Personal Accomplishment scales of the MBI-HSS. Following the results obtained in the study, it would be evident that the MBI-HSS could be regarded as an applicable instrument for the measurement of burnout in hospital pharmacists in South Africa.

With regard to limitations of the current study, two limitations can be highlighted. Firstly, the study's sole reliance on self-report measures. Schaufeli, Enzmann, and Girault (1993) reported that the exclusive use of self-report measures in validation studies increases the possibility that at least part of the shared variance between measures can be attributed to method variance. Self-report measures correlate much more highly with burnout than data based on records, observations, or assessments by others such as supervisors or co-workers (Schaufeli & Enzmann, 1998). Another limitation was the size of the sample as well as the sampling procedure in the present study, which has significant limitations in terms of the generalisation of the findings to the total study population. Future studies could benefit tremendously in terms of a stratified random-sample design that would ensure sufficient representation of the different levels in the total population of hospital pharmacists. The research design of future studies should focus on longitudinal designs where deductions could be made in terms of cause and effect.

RECOMMENDATIONS

The results obtained during this study indicated that South African hospital pharmacists experience average levels of Emotional Exhaustion and Depersonalisation, and high levels of Personal Accomplishment. As burnout has a negative impact on both the individual and the organisation, it is important to address workforce problems that impact on the well-being of the individuals and the organisational performance, for instance burnout, as soon as possible before it develops into insurmountable situations. With the increasing reduction in staff as well as an increase in the number of patients that need to obtain medication on a daily basis (population that increases as well as an increase in more complex disease profiles and age of patients, more HIV patients than previously), the pressure and stress experienced by South African hospital pharmacists are sure to increase in the near future. As this will lead to more dispensing errors as well as more pharmacists opting to leave the profession for an occupation less stressful or a career abroad, it is essential to address these issues as soon as possible.

The current work environment of pharmacists and the level of decision-making capabilities need to be addressed. Pharmacists need to be able to address and solve problems in their work environment by having the ability to effect required changes without having to request permission from seniors that do not have knowledge of all the operational hurdles that need

to be overcome. Sufficient and efficient supply of medication to the various hospital pharmacies will reduce stress levels caused by the inability to perform one's duties due to lack of highly needed resources (medicine) at the required time. The appointment of sufficient numbers of appropriately qualified support staff such as pharmacist's assistants that are motivated to perform at optimal levels, will alleviate the shortage of pharmacists to a certain extent. However, these assistants cannot replace qualified and competent pharmacists. Programmes must be launched to motivate more prospective students to choose pharmacy as a profession, as this shortage of qualified pharmacists may have a negative impact on the healthcare provision in the near future.

Emanated from the results obtained in this study, the use of the MBI-HSS is recommended to assess burnout in South African hospital pharmacists. It should be noted that items 6, 12 and 16 should be excluded from the original 22-item MBI-HSS questionnaire. In addition to confirmation of the 19-item model for South African hospital pharmacists and verifying the values obtained regarding the three dimensions of burnout, it is also important to determine norm levels for other occupations in South Africa. It is suggested that larger samples with better sampling methods be used to ensure that findings can be generalised to other similar groups.

Burnout research is mainly dominated by the MBI; more than 90% of all burnout studies use this instrument. Due to the MBI being the measuring instrument used predominantly to assess burnout, the concept of burnout is thus narrowed to the three dimensions included in the MBI, namely Emotional Exhaustion, Depersonalisation and reduced Personal Accomplishment. The advantage of this, however, is that findings from various studies can be compared easily. The flip side of this uniformity is the rather narrow focus, namely that burnout is the only aspect being measured by the MBI. This tautology gives rise to some concerns as the MBI has been developed inductively by factor-analysing a somewhat arbitrary set of items. The literature indicates that various definitions and theoretical approaches suggest that the concept of burnout is much broader and more extensive than the MBI assumes. A challenge that remains for future research is to develop an instrument to determine burnout that is based on a proper theoretical analysis. The working definition and integrative model as described by Schaufeli and Enzmann (1998) may be used as a starting point.

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CHAPTER 3: RESEARCH ARTICLE 2

WORK ENGAGEMENT OF HOSPITAL PHARMACISTS IN SOUTH AFRICA

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ABSTRACT

The objectives of this study were to validate the Utrecht Work Engagement Scale (UWES) for hospital pharmacists in South Africa, to assess their levels of engagement and to investigate differences between the levels of work engagement of biographical groups. A cross-sectional survey design was used with a convenience sample ($N = 187$) of hospital pharmacists in South Africa. The Utrecht Work Engagement Scale and a biographical questionnaire were administered. Exploratory factor analysis resulted in two factors, namely Vigour/Dedication and Absorption. These factors showed acceptable alpha coefficients. Compared to a South African norm, 38,5% and 48,9% of the hospital pharmacists showed low levels of vigour and dedication respectively. Position, home-language, and the educational level were related to work engagement of hospital pharmacists.

OPSOMMING

Die doelstellings van hierdie studie was om die Utrecht-werksbegeesteringskaal (UWES) vir hospitaalptekers in Suid-Afrika te valideer, hul vlakke van werksbegeestering te bepaal, en vas te stel of daar verskille tussen die werksbegeesteringsvlakke van verskillende biografiese groepe is. 'n Dwarssnee opname-ontwerp met 'n beskikbaarheidsteekproef ($N = 187$) van hospitaalptekers in Suid-Afrika is gebruik. Die Utrecht-werksbegeesteringskaal (UWES) asook 'n biografiese vraelys is afgeneem. Verkennende faktorontleding het 'n tweefaktormodel van werksbegeestering, bestaande uit Energie/Toewyding en Absorpsie tot gevolg gehad. Die alfakoëffisiënte van die faktore was aanvaarbaar. Vergeleke met 'n Suid-Afrikaanse norm het 38,5% en 48,9% van die hospitaalptekers lae vlakke van onderskeidelik energie en toewyding getoon. Posvlak, huistaal en opleidingsvlak het 'n verband met hospitaalptekers se werksbegeestering getoon.

Occupational Health Psychology has almost exclusively been concerned with ill-health and unwell-being. Almost 95% of all articles published to date in the *Journal of Occupational Health Psychology* deals with negative aspects of workers' health and well-being; in contrast, only about 5% of the articles deals with positive aspects such as job satisfaction and motivation (Diener, Suh, Lucas, & Smith, 1999). Nevertheless, it seems that times have changed and since the beginning of this century, more attention is paid to what has been coined *positive psychology*: the scientific study of human strength and optimal functioning (Luthans, 2002).

Recently, the field of psychology has been subjected to a transformation, in essence questioning many strongly held beliefs and premises at an individual, group and meta-theoretical level (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 Csikszentimihalyi (2000) call this the rising of "positive psychology", a move from a pre-occupation with the worst things in life towards building and investigating positive qualities. According to these authors, psychology is not just the study of pathology, weakness and damage, but also the study of strength and virtue.

Because of the emergence of positive (organisational) psychology, it is not surprising that positive aspects of health and well-being are increasingly popular in Occupational Health Psychology. One of these positive aspects is work engagement, which is considered to be the antipode of burnout. Burned-out workers feel exhausted and cynical, whereas engaged workers feels vigorous and enthusiastic about their work. The current positive psychology is empirical in nature, which implies the careful operationalisation of constructs, including work engagement (Schaufeli & Bakker, 2003).

Work engagement is the assumed opposite of burnout. In contrast to those who suffer from burnout, engaged employees have a sense of energetic and effective connection with their work activities and they see themselves as able to deal well with their job demands (Schaufeli & Bakker, 2003). Schabracq and Cooper (2000) debate that the way in which modern organisations manage their employees' health and well-being is a critical factor in their global competitiveness. Co-dependence is shown by the growing recognition that an organisation's financial health correlates with investments in employee well-being. It is thus important for

organisations to increase levels of engagement amongst employees. By building engagement, synergy is created between individual employees and the organisation in totality, thereby leading to optimal outcomes for both. For engaged employees such outcomes might include positive job-related attitudes and a strong identification with one's work, good mental health, good performance, increased self-motivation, and increased self-efficacy. Most of these individual outcomes are either directly or indirectly beneficial to the organisation as well (Schaufeli & Salanova, 2005).

Initially Maslach and Leiter (1997) stated that engagement and burnout constituted the opposite poles of a continuum of work related well-being, with burnout representing the negative pole and engagement the positive pole. Maslach and Leiter (1997) define burnout in terms of exhaustion, cynicism and reduced professional efficacy, therefore it follows that engagement is characterised by energy, involvement and efficacy. Per definition, these three aspects of engagement constitute the opposites of the three corresponding aspects of burnout. The opposite scoring pattern on the three aspects of burnout, as measured by the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996), therefore implies work engagement. This implies that low scores on the exhaustion and cynicism scales and a high score on the professional efficacy scale of the MBI are indicative of engagement.

At least two important negative consequences are encountered when burnout and engagement are assessed by the same questionnaire, namely it is not admissible to accept that both concepts are perfectly negatively correlated, that is, when an employee is not burned-out, it doesn't necessarily imply that he or she is engaged in his or her work. Or, when an employee is low on engagement, it does not mean that he or she is burned-out. Secondly, the relationship between the two constructs cannot be studied empirically when they are measured by the same questionnaire. For example, both concepts cannot be included simultaneously in one model in order to study their concurrent validity (Schaufeli & Bakker, 2003).

For these reasons, burnout and engagement are defined as two distinct concepts that should be assessed independently (Schaufeli & Bakker, 2001). This approach enables the assessment of the strength of the association between work engagement and burnout since different instruments assess the constructs independently (Schaufeli & Bakker, 2003).

The objectives of this study were to validate the Utrecht Work Engagement Scale (UWES) for hospital pharmacists in South Africa, to assess their levels of engagement and to investigate differences between the levels of work engagement of biographical groups.

Work engagement

Engagement is defined 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, González-Romá, & Bakker, 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 in 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).

Vigour and dedication are considered as direct opposites of exhaustion and cynicism respectively. The continuum that is formed by vigour and exhaustion has been labelled as energy or activation, whereas the continuum that is formed by dedication and cynicism has been labelled as identification (Schaufeli & Bakker, 2001). Work engagement is characterised by a high level of energy and strong identification with one's work, while burnout is characterised by a low level of energy combined with poor identification with one's work.

It is evident from the definition above that the direct opposite of the third aspect of burnout, namely professional inefficacy is not included in the engagement concept. The reasons for this are two-fold: there is accumulating empirical evidence that exhaustion and cynicism constitute the core of burnout, whereas a lack of professional efficacy seems to play a less important role (Maslach, Schaufeli, & Leiter, 2001; Shirom, 2002).

By means of personal interviews it was established that engagement is particularly characterised by being immersed and happily engrossed in one's work, which is referred to as *absorption*. Accordingly, absorption is a distinct aspect of work engagement that is not considered to be the opposite of professional efficacy. Based on the definition of work engagement, a self-report questionnaire named the Utrecht Work Engagement Scale (UWES) has been developed that contains the three constituting aspects of work engagement: vigour, dedication and absorption (Schaufeli & Bakker, 2003).

In a heterogeneous group of Dutch employees who scored high on the Utrecht Work Engagement Scale (UWES), structured qualitative interviews indicated that engaged employees are active agents, who take initiative at work and generate their own positive feedback (Schaufeli, Taris, Le Blanc, Peeters, Bakker, & De Jonge, 2001). The values of the employees also seem to match the organisational values and employees seem to be engaged in other activities outside their work.

Engagement, therefore, can 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. Although engagement cannot be effectively measured by the Maslach Burnout Inventory (MBI), its own survey named the Utrecht Work Engagement Scale (UWES) is perfectly suited (Schaufeli, Salanova, et al., 2002).

Validity studies that have been carried out with the UWES show that work engagement is indeed negatively associated with burnout, although the relationship between vigour and exhaustion and between dedication and cynicism is somewhat less strong than expected. Engagement can be discriminated from workaholism. Work addiction or workaholism is the irresistible inner drive to work very hard, in other words, workaholics work excessively and compulsively (Schaufeli, Taris, & Van Rhenen, in press). Engagement is not restricted to the individual, but it may spill over to others, thereby leading to what has been labelled as collective engagement (Schaufeli & Bakker, 2003).

The Utrecht Work Engagement Scale

It is important to use a valid and reliable instrument when work engagement is measured. Schaufeli, Salanova, et al. (2002) developed the Utrecht Work Engagement Scale (UWES)

and found acceptable reliability for it. Two recent studies using confirmatory factor analysis demonstrated the factor validity of the UWES (Schaufeli, Salanova, et al., 2002; Schaufeli, Martínez, Marques-Pinto, Salanova, & Bakker, 2002).

Since the development of the UWES, only a couple of studies could be found in the literature regarding work engagement (Schaufeli, Salanova, et al., 2002). Schaufeli and Bakker (2003) provide an overview on the psychometric quality of the UWES in various settings by using data from various databases. The first analysis was performed by using data from the Dutch database, this included both Dutch and Flemish studies and included data from 25 studies conducted amongst various professions. Unfortunately none was performed on pharmacists. Secondly the psychometric quality of the UWES was evaluated by using an international database that contained data from 9 different countries and 23 different studies. Once again, unfortunately, no studies were performed among pharmacists and only one study was from South Africa.

Schaufeli, Martinez, et al. (2002) conducted a confirmatory factor-analytical cross-national study amongst students from three different countries. Only two studies in this regard could be found in South Africa, namely the study by Storm and Rothmann (2003) in the South African Police Service, as well as the study by Naudé and Rothmann (2004) that was conducted among a group of emergency workers. As a result, information regarding the internal consistency, construct validity and comparability across cultural groups for the UWES is lacking, especially in the multicultural South African context.

In a study regarding career commitment done by Wolfgang and Ortmeier (1993), they state that several studies done have found that more than 70% of pharmacy students indicated that they would choose the same profession if they had to make a choice again. In contrast findings reveal that between 45 - 60% of pharmacists reported that they have doubts whether they would have pursued a career in pharmacy if they had to choose again. Over a long period of time this apparent lack of commitment to the profession has the potential to reduce the number of pharmacists in active practice. When employees perceive a lack of reciprocity in the social exchange relationship with the organisation (i.e. they feel that they invest more than what they receive in return), their level of commitment is reduced as a result (Farrel & Rusbult, 1981). If the demand for pharmacists keep on increasing as has been predicted by

Manasse (1988), ways must be found to preserve professional manpower by improving commitment to a career in pharmacy.

The UWES has not yet been standardised for hospital pharmacists in South Africa. This makes it difficult to assess the levels of engagement of hospital pharmacists and to compare the levels of engagement of various biographical groups, as well as to place research results in context. Therefore it is necessary to validate the UWES for hospital pharmacists in South Africa.

Various factors could possibly cause or even increase work engagement. Among these are job characteristics, including resources, motivators or energizers (such as social support from colleagues and supervisors), performance feedback, coaching, job autonomy, task variety and training facilities (Demerouti, Bakker, Janssen, & Schaufeli, 2001). Work engagement also seems to be positively related to self-efficacy, whereby it seems that self-efficacy may precede engagement as well as follow engagement (Schaufeli & Bakker, 2003).

Possible consequences of work engagement pertain to positive attitudes towards work and towards the organisation, such as job satisfaction, organisational commitment, and low turnover intention (Demerouti et al., 2001; Schaufeli & Bakker, 2004b; Schaufeli, Taris, et al., in press). Furthermore, it also pertains to positive organisational behaviour, for instance personal initiative and learning motivation (Sonnentag, 2003), extra-role behaviour and proactive behaviour (Schaufeli & Bakker, 2003). Engagement is also positively related to health and low levels of depression, distress and psychosomatic complaints. Engagement also seems to be positively related to job performance.

Schaufeli, Salanova, et al. (2002) reported acceptable reliability for the UWES. The UWES consists of 17 items that measure work engagement, namely six vigour items, five dedication items and six absorption items (Schaufeli, Salanova, et al., 2002). Subsequent studies uncovered two weak items, resulting in a 15-item version of the UWES being used in some studies (Demerouti et al., 2001).

Recent confirmatory factor-analytic studies confirmed the factorial validity of the UWES (Schaufeli, Martinez, et al., 2002; Schaufeli, Salanova, et al., 2002). The findings showed internal 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 obtained as follows: Vigour (six items), $\alpha = 0,68$ and $0,80$; Dedication (five items), $\alpha = 0,91$ for both samples; and Absorption (six items), $\alpha = 0,73$ and $0,75$. In the student sample, the value of the alpha coefficient could be improved by eliminating three items ($\alpha = 0,79$). The scales seem to be moderately to strongly related with the mean $r = 0,63$ in the sample of undergraduate students, and with the mean $r = 0,70$ in the sample of employees. Also, the fit of the hypothesised three-factor model with the data was found to be superior to the one-factor solution (Maslach et al., 2001; Schaufeli, Salanova, 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 17, 16 and 11. Internally consistent Cronbach's alpha ranged from $0,65$ to $0,79$ for Vigour (five items); $0,77$ to $0,85$ for Dedication (five items); and $0,65$ and $0,73$ for Absorption (four items).

Schaufeli and Bakker (2003) reviewed the psychometric qualities of the UWES in various settings. The first analysis was performed by using data from the Dutch database, this included both Dutch and Flemish studies and included data from 25 studies conducted amongst various professions. This analysis indicated internal consistencies (Cronbach's alpha) of the scales of the various versions of the UWES. For the UWES-9 the median alpha coefficient for Vigour was $0,84$, for Dedication $0,89$ and for Absorption $0,79$. For the longer versions of the UWES, namely the UWES-15, the median α values were $0,86$, $0,91$ and $0,81$ respectively, and for the UWES-17 they were $0,86$, $0,92$ and $0,80$ respectively. In this analysis engagement was investigated to determine whether it was a one-dimensional or a three-dimensional construct. According to results obtained, work engagement as assessed by the UWES may be considered a one-dimensional as well as a three-dimensional construct. The high correlations between the three dimensions and the high values for Cronbach's alpha for the total scale support a one-dimensional model, whereas the superior fit of the three-dimensional model support the existence of three subscales.

Secondly, the psychometric quality of the UWES was evaluated by using an international database that contained data from 9 different countries and 23 different studies. The reliability of the UWES, namely the internal consistency and the test-retest reliability (stability), were evaluated. Once again Cronbach's alpha was computed for the UWES-9, UWES-15 and UWES-17 and the median α values obtained for Vigour were 0,76, 0,80 and 0,82 respectively; for Dedication 0,87, 0,89 and 0,89; and for Absorption 0,79, 0,82 and 0,83. In this study it was concluded that all of the scales of the UWES were highly internally consistent and that adding an additional item hardly increased the scales' internal consistency. The stability of engagement over a one-year lag time is similar to that of burnout and does not differ much between the three dimensions. Once again they concluded that work engagement as assessed by the UWES might be considered a one-dimensional as well as a three-dimensional construct.

Confirmatory factor analysis showed that the hypothesised three-factor structure of the UWES is superior to the one-factor model and fits data from various samples from Spain, The Netherlands and Portugal well (Schaufeli, Salanova, et al., 2002; Schaufeli, Martinez, et al., 2002). Sonnentag (2003) did not find a clear three-factor structure by using exploratory factor analysis and decided to use the total-score on the UWES as a measure for work engagement. Albeit confirmatory factor analysis indicates that the UWES seems to have a three-dimensional structure, these three dimensions are closely related. Correlations between the three scales usually exceed 0,65 (Demerouti et al., 2001; Schaufeli, Martinez, et al., 2002; Schaufeli, Salanova, et al., 2002). The factor structure of the slightly adapted student version of the UWES is largely invariant across samples from Spain, The Netherlands and Portugal (Schaufeli, Salanova, et al., 2002). The loadings of maximum three items differed significantly between the samples of the three countries.

The values of Cronbach's alpha are higher or equal to the critical value of 0,70, which implies that the internal consistency of the three scales of the UWES is good. Values of Cronbach's alpha for the scales usually vary between 0,80 and 0,90 (Demerouti et al., 2001; Montgomery, Peeters, Schaufeli, & Den Ouden, 2003). Scores on the UWES are relatively stable across time. Schaufeli and Bakker (2003) reported that the two-year stability coefficients for Vigour, Dedication and Absorption were 0,30, 0,36 and 0,46 respectively.

In summary, psychometric test results confirm the factor validity of the UWES. The UWES consists of three scales that are highly correlated. This pattern of relationship is observed among samples from different countries, which confirms the cross-national validity of the three-factor solution. Engagement is thus a construct consisting of three closely related aspects that are measured by three internally consistent scales.

Regarding the study of the UWES in a South African context, a few studies could be found with reference to the internal consistency, factorial validity, structural equivalence and bias. In the study by Storm and Rothmann (2003), a re-specified one-factor model (after deleting items 3, 11, 15 and 16) fitted the data the best in their random, stratified sample of police members in South Africa. Although a re-specified three-factor model was also initially tested and satisfactory results were obtained, the fit with the data was superior for a one-factor model. Internal consistencies of the three subscales were confirmed at acceptable levels according to the guideline of $\alpha = 0,70$. Cronbach alphas were determined at 0,78 (Vigour), 0,89 (Dedication) and 0,78 (Absorption). No evidence of structural inequivalence or item bias was found for the UWES in this particular study. In the study by Naudé and Rothmann (2004) structural equation modelling confirmed a two-factor model of work engagement for emergency workers of Gauteng, consisting of Vigour/Dedication and Absorption. Vigour/Dedication had an acceptable alpha coefficient, while the alpha coefficient of Absorption was not acceptable. Cronbach alphas were determined at 0,83 (Vigour/Dedication) and 0,67 (Absorption).

Work engagement in different biographical groups

Work engagement correlates weakly and positive with age, which implies that older employees feel slightly more engaged than younger employees. Men obtained slightly higher scores on engagement than women, but these differences are very small and do not bear much significance (Schaufeli & Bakker, 2003, 2004a; Schaufeli, Bakker, & Salanova, in press). Regarding professional groups such as managers, executives, entrepreneurs and farmers, relatively high scores were obtained for engagement. Blue-collar workers, police officers and home-care staff, by contrast, scored relatively low (Schaufeli & Bakker, 2003, 2004a; Schaufeli, Bakker, et al., in press).

Work engagement is not only an individual phenomenon, but also occurs in groups. Employees in some teams or parts of the organisation are more engaged than those in other teams or parts. It seems that team members feel engaged because they converge emotionally with the engagement of others in their work team (Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003).

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

- H1: The Utrecht Work Engagement Scale (UWES) is a reliable and valid measuring instrument for measuring the work engagement construct for hospital pharmacists of various provinces in South Africa.
- H2: Biographical factors such as age, language, level of experience, level of education, gender, illness, average number of hours worked per week, and position influence the level of engagement experienced by individuals.

METHOD

Research design

A survey design was used to reach the research objectives. The specific design was the cross-sectional design, where a sample is drawn from a population at a particular point in time (Shaughnessy & Zechmeister, 1997)

Participants

The study population can be described as a convenient sample of hospital pharmacists employed by various private and public sector health facilities in the different provinces of South Africa. The entire population of approximately 2 000 hospital pharmacists nationally was targeted. A response rate of 21,6% was achieved, which can be ascribed to the nature of the job, e.g. call-outs, rotating working schedules and leave as well as difficulties in obtaining permission from the various institutions. Of these only 187 responses (19,3% of all the questionnaires distributed) could be utilised. Descriptive information of the sample is given in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Percentage
Language	Afrikaans	54,5
	English	34,8
	Other	11,7
Position	Pharmacy owner/partner and manager – Private hospital sector	1,6
	Pharmacy owner/partner but not manager	0,5
	Pharmacy manager but not owner/partner	16,2
	Pharmacy manager – Public sector	8,1
	Pharmacist	56,2
	Community service pharmacist	7,6
	Intern	7,0
	Other	2,7
Number of years in pharmacy	Average age of respondents	35,5
	Average number of years in pharmacy	12,4
	Average number of years in hospital pharmacy (Private sector)	5,1
	Average number of years in hospital pharmacy (Public sector)	4,5
	Average number of years in current position	3,9
Education	B. Pharm / Dip. Pharm	89,2
	Hons. Pharm	1,6
	M. Pharm	1,6
	M.Sc	1,6
	Other	5,9
Gender	Male	20,9
	Female	79,1
Marital status	Single	23,2
	Engaged	10,3
	Married	62,7
	Separated/Divorced/Widow/Widower	3,8

The sample consisted mainly of Afrikaans and English-speaking hospital pharmacists (54,5% and 34,8%). They were mostly married (62,7%), mainly female (79,1%) with a mean age of 35,5 years. The average number of years in pharmacy was 12,4 years and the majority of respondents held positions as normal pharmacists (56,2%).

Measuring battery

The Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al., 2002) was used in the present study.

The *Utrecht Work Engagement Scale (UWES)* (Schaufeli, Salanova, et al., 2002) was used to measure levels of engagement. Although engagement was initially viewed as the positive antithesis of burnout, it is operationalised in its own right. The concept work engagement includes three dimensions namely: Vigour (six items, e.g. "I am bursting with energy in my work"), Dedication (five items, e.g. "I find my work full of meaning and purpose") and Absorption (six items, e.g. "When I am working, I forget everything else around me"). The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The question whether engagement and burnout are endpoints of the same continuum, or whether they are two distinct but related concepts remains an empirical one. In terms of internal consistency, reliability coefficients for the three subscales have been determined between 0,68 and 0,91. Improvement of the alpha coefficients (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 carried out with the SPSS program (SPSS Inc., 2003). Means, standard deviations, skewness and kurtosis were determined to describe the data. The reliability and validity of the UWES were determined by means of Cronbach alpha coefficients. Exploratory factor analysis namely principle component analysis with an oblique rotation was carried out to determine the factor structure of the UWES for hospital pharmacists.

T-tests and analysis of variance were used to investigate the differences between various biographical groups. A cut-off point of 0,50 (medium effect) (Cohen, 1988) was set for the practical significance of differences between means.

RESULTS

Simple principal component analysis was used to determine the factor structure of the UWES for this study population. The eigenvalues and scree plot showed that two factors could be extracted. In Table 2 factor loadings and communalities are given.

Table 2

Factor Loadings and Communalities (h^2) for Principle Component Analysis and a Direct Oblimin Rotation on UWES Items

Item	Description	F ₁	F ₂	h^2
UWES1	I am bursting with energy in my work.	0,79	-0,08	0,55
UWES2	I find my work full of meaning and purpose.	0,90	-0,04	0,77
UWES3	Time flies when I'm working.	0,12	0,58	0,44
UWES4	I feel strong and vigorous in my job.	0,92	-0,05	0,79
UWES5	I am enthusiastic about my job.	0,86	0,06	0,80
UWES6	When I am working, I forget everything else around me.	-0,18	0,79	0,47
UWES7	My job inspires me.	0,80	0,09	0,74
UWES8	When I get up in the morning, I feel like going to work.	0,75	0,10	0,65
UWES9	I feel happy when I am engrossed in my work.	0,59	0,32	0,69
UWES10	I am proud of the work that I do.	0,50	0,37	0,62
UWES11	I am immersed in my work.	0,05	0,83	0,75
UWES12	In my job, I can continue working for very long periods at a time.	0,06	0,76	0,63
UWES13	To me, my work is challenging.	0,34	0,44	0,49
UWES14	I get carried away by my work.	0,20	0,69	0,68
UWES15	I am very resilient, mentally, in my job.	0,25	0,59	0,60

Inspection of Table 2 shows that two factors were extracted, accounting for 79% of the total variance in the data. In evaluation of the communality values (h^2), it is evident that most of these values are relatively high, which is indicative that the item describes the specific factor well. The higher the h^2 value is for a specific item, the better that item defines the specific factor. The percentage variances were 41,94 and 37,06 respectively for factors 1 and 2. The first factor seems to address Vigour and Dedication. Items included in this factor include strong, positive and vigorous feelings about one's job, the job provides meaning, it inspires, it makes one proud, happy and energetic. The second factor focuses on the Absorption in one's job.

The descriptive statistics and Cronbach alpha coefficients of the two factors of the UWES are presented in Table 3.

Table 3

Descriptive Statistics and Alpha Coefficients of the UWES

Item	Mean	SD	Skewness	Kurtosis	α
Vigour / Dedication	27,29	8,55	-0,39	-0,14	0,93
Absorption	20,44	5,60	-0,25	-0,48	0,82

The α values obtained for factors 1 and 2 were 0,93 and 0,82 respectively, which is an indication that no item weakens the α value significantly. Both these alpha coefficients obtained are above the 0,70 guideline provided by Nunnally and Bernstein (1994). The mean level of Vigour/Dedication (Job attitude) obtained for this group of hospital pharmacists is 27,29 and 20,44 for Absorption. Rothmann (2005) showed that the Absorption scale was problematic in South Africa. In order to ensure comparability with other occupations and organisations, it was decided to remove the Absorption scale from the analysis.

The obtained results indicate that the UWES is a valid and reliable instrument in measuring work engagement for South African Hospital Pharmacists.

In an analysis done by Rothmann (2005), data from various South African studies was compared on a 10-point scale with regard to levels of Vigour and Dedication of 16 different occupation groups. The data obtained from this particular study was included in the pool of data of various occupational groups. Compared to a South African norm (Rothmann, 2005), 38,5% and 48,9% of the hospital pharmacists showed low levels of Vigour and Dedication respectively. Rothmann (2005) reported that hospital pharmacists experienced Vigour levels of 4,82, compared to 7,48 for train drivers (highest level of Vigour of all the occupations presented) and 4,80 for staff members of a university of technology (lowest level of Vigour). Dedication levels of 4,30 were obtained, which is the lowest value of Dedication obtained of all 16 occupations compared. These low levels of engagement experienced by South African Hospital Pharmacists are indeed a concern. This particular group of pharmacists showed relatively high levels of burnout compared to the other occupations. These findings, together

with the very low values obtained for engagement, provide reason for concern as to the levels of work-related well-being of these individuals.

Next, one-way analysis of variance (ANOVA) and t-tests were used to analyse the influence of biographical differences on the levels of work engagement experienced. These factors included different positions held by pharmacists, different types of pharmacy settings, different age and language groups, the number of years they have been involved in pharmacy and the year of registration as a qualified pharmacist, marital status, average number of hours worked per week, average number of emergency pharmacy hours per week, number of hours overtime worked per week and number of call-outs. Another factor that has been evaluated is the presence or absence of medical conditions. In ANOVA, only one dependent variable is considered together with multiple independent variables in the same analysis.

Table 4

ANOVA of the Work Engagement Levels of Biographical Groups

Item	Type III sum of Squares	<i>F</i>	<i>df</i>	<i>P</i>	η^2
Position	874,16	6,31	2,00	0,00*	0,07
Type of pharmacy	6,42	0,04	2,00	0,96	-
Age	336,42	1,18	4,00	0,32	-
Years in pharmacy	32,42	0,11	4,00	0,98	-
Years registered as a pharmacist	416,84	1,41	4,00	0,23	-
Marital status	131,96	0,60	3,00	0,62	-
Home language	800,80	5,81	2,00	0,00*	0,06
Working hours per week	125,01	0,85	2,00	0,43	-
Overtime worked per week	11,53	0,08	2,00	0,92	-
Callouts per week	197,69	1,41	2,00	0,25	-

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

Table 4 shows that the position held by pharmacists had a significant effect on their levels of work engagement (Vigour/Dedication) ($F_{(2)} = 6,31, p < 0,01; \eta^2 = 0,07$). However, this effect was moderate (7% of the variance explained). Analysis of each individual dependent variable showed that there was a statistically significant difference between the levels of work

engagement of pharmacists in Group 1 (pharmacists that are either the owner / manager / partner) and those in Group 2 (ordinary pharmacists). The mean scores for work engagement for the two groups were 30,45 and 25,49 respectively.

The home language of pharmacists also had a statistically significant effect on their work engagement (Vigour/Dedication) ($F_{(2)} = 5,81, p < 0,01; \eta^2 = 0,06$). This effect was moderate (6% of the variance explained). The results showed that there was a statistically significant difference between the levels of work engagement of Afrikaans-speaking pharmacists and those who speak other languages. Afrikaans-speaking pharmacists scored significantly lower on work engagement than those who speak other languages (mean scores of 26,45 and 33,47 respectively).

Next, t-tests were used to analyse the differences between the work engagement levels of different biographical groups regarding the level of education (pharmacists with only a B.Pharm degree or a Dip. Pharm Diploma versus pharmacists with a post-graduate qualification), gender, number of emergency hours worked as well as the presence of a medical condition or no medical condition (see Table 5). The significance of the differences between the different biographical groups of pharmacists is reported in Table 5.

Table 5

T-test of the Work Engagement Levels of Biographical Groups

Item	Mean	SD	Mean	SD	t	p	d
	B.Pharm / Dip. Pharm (n = 166)		Post-graduate qualification (n = 9)				
Vigour / Dedication	27,49	8,62	20,22	7,03	2,98	0,02*	0,84++
	Male (n = 38)		Female (n = 144)				
Vigour / Dedication	29,63	9,79	26,87	8,06	1,60	0,12	-
	Emergency hours per week (0-5) (n = 139)		Emergency hours per week (6-123) (n = 20)				
Vigour / Dedication	27,33	8,33	28,75	8,48	-0,70	0,49	-
	Medical condition (n = 14)		No medical condition (n = 172)				
Vigour / Dedication	30,14	5,29	27,15	8,69	1,92	0,07	-

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

++ Practically significant: $d > 0,80$

Table 5 shows that a statically significant difference exists between the levels of work engagement of hospital pharmacists with different qualifications. This difference was also practically significant (large effect). No other differences were statistically significant.

These findings provide partial support for the second hypothesis, as only three of the tested biographical factors affected the level of work engagement statistically significantly.

DISCUSSION

The psychometric properties of the UWES were investigated in this study, specifically for hospital pharmacists in both private and public health facilities of South Africa. The objectives were to determine the factor structure as well as the construct validity and reliability of the UWES for hospital pharmacists in South Africa, to assess their levels of engagement and to investigate differences between the levels of work engagement of biographical groups.

The construct validity of the UWES was investigated by means of exploratory factor analysis using principal component analysis with a direct oblimin rotation. Not one of the postulated factor structures as reported in the literature, namely the one-factor and the three-factor structure of the UWES, could be confirmed for this study population. A two-factor model of work engagement, consisting of Vigour/Dedication and Absorption, was found in this study.

The sample size could be an attributing factor to the results obtained. Had the sample size been larger, the UWES three-factor structure could possibly have been confirmed. The alpha coefficients of both subscales of engagement were higher than 0,70, which demonstrates acceptable internal consistency of both subscales as per the guideline provided by Nunnally and Bernstein (1994). The Cronbach alpha for Vigour/Dedication was 0,93, and for Absorption 0,82.

In an analysis done by Rothmann (2005), data from various South African studies was compared on a ten-point scale with regard to levels of Vigour and Dedication of 16 different occupation groups. The data obtained from this particular study was included in the pool of data of various occupational groups. Compared to a South African norm, 38,5% and 48,9% of the hospital pharmacists showed low levels of Vigour and Dedication respectively. Rothmann

(2005) reported that hospital pharmacists experienced Vigour levels of 4,82, compared to 7,48 for train drivers (highest level of Vigour of all the occupations presented) and 4,80 for staff members of a university of technology (lowest level of Vigour). Dedication levels of 4,30 were obtained, which is the lowest value of Dedication obtained of all the 16 occupations compared. The low levels of work engagement experienced by South African hospital pharmacists are especially problematic if it is interpreted together with the burnout results obtained. This particular group of pharmacists showed relatively high levels of burnout compared to the other occupations. These findings, together with the very low values obtained for engagement, provide reason for concern as to the levels of work-related well-being of these individuals.

From a management perspective, the relatively large number of pharmacists who scored low on Vigour and Dedication is regarded as a major concern. Low levels of work engagement have been associated with a lack of job resources and low organisational commitment (Jackson, 2004). It is possible that pharmacists lack the resources to perform their duties and to advance in their careers, which will affect their levels of work engagement and possibly also their commitment towards their organisations. The pharmacy profession was recently confronted with new legislation which placed members under tremendous pressure. These factors not only affect pharmacists' levels of work engagement, they also result in pharmacists leaving the country for better opportunities abroad.

By means of ANOVA and t-tests it was determined that the position held by hospital pharmacists, their home language and their level of qualification had an effect on the level of engagement experienced. Hospital pharmacists in managerial/ownership/partnership positions experienced higher levels of engagement than did ordinary practising hospital pharmacists. Furthermore, pharmacists with a post-graduate qualification experienced lower levels of work engagement than those with the entry level qualification. This finding could possibly be explained by pharmacists that have a post-graduate qualification have higher expectations of their day-to-day job, but due to the current lack of promotion possibilities, a higher qualification does not imply by default a more senior position. This lack of challenges in the positions held by these higher qualified individuals could lead to lack of interest and reduced engagement. Also, Afrikaans-speaking pharmacists experienced lower levels of work engagement than pharmacists speaking other languages. This could possibly be due to the current transformation processes in the work place due to the new equity guidelines and

requirements that need to be adhered to by all employers. Many of your Afrikaans speaking individuals are white people that may currently experience much more barriers than before to make any progress in their work or to be promoted. Hard work and conscientiousness is not necessarily rewarded by a promotion as these positions are mainly reserved for employment equity candidates. Alternatively, this could also be due to a personality trait of Afrikaans speaking individuals. This is though difficult to determine if this was the case due to the relatively small sample size.

The literature reveals that professional groups such as managers, executives, entrepreneurs and farmers scored relatively high on engagement, compared to a relatively low score of blue-collar workers, police officers and home-care staff (Schaufeli & Salanova, 2005). This difference could be explained by the higher level of freedom certain employees have to make their own decisions. It could also explain why manager/owner/partner pharmacists experience higher levels of engagement than ordinary pharmacists.

With regard to limitations of the current study, two limitations can be highlighted. The first limitation refers to the study's sole reliance 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. Another limitation is the size of the sample and the sampling method. Future studies could benefit by utilising a randomly, stratified sample with the proportionate inclusion of all language or race groups in the sample. It should be noted that obtaining permission to perform such studies, especially in state hospital facilities in South Africa, is a difficult process and care should be taken beforehand to comply with the application requirements in the various provinces. A third limitation is the response rate of respondents in the present study, which could be increased by reducing the length of the total questionnaire.

RECOMMENDATIONS

It is evident that several research issues seem to flow from this study and that these issues require attention to improve both our understanding of work engagement and the usefulness of this concept. Additional construct validity research is required to establish factorial validity of the UWES in more detail. The factor analysis done indicated that both the one-

factor and the three-factor models as postulated in the literature could not be confirmed by this study population. Exploratory factor analysis indicated a two-factor model for the UWES. This could most probably be attributed to the interpretation and understanding of the various questions in the UWES questionnaire. The possibility of translating the UWES to other South African languages should be considered, as well as changing certain questions to clarify the meaning or intent of the particular question in a South African environment/context.

It is suggested that future research on the UWES be extended to include pharmacists in general; both retail and hospital pharmacists should be evaluated in retail and hospital facilities situated in all the provinces of South Africa. It would be interesting to verify the current findings of a two-factor model for the UWES for hospital pharmacists. Individual items of the UWES need to be evaluated carefully when used in South African samples. Samples of various occupational groups can be compared whereupon problem items can be identified. In summary, a model re-specification with certain problematic items excluded, could be required.

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CHAPTER 4: RESEARCH ARTICLE 3

OCCUPATIONAL STRESS OF HOSPITAL PHARMACISTS IN VARIOUS SOUTH AFRICAN HOSPITALS

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ABSTRACT

The objectives of this study were to investigate the construct validity and reliability of the Pharmacist Stress Inventory (PSI) and to identify occupational stressors for hospital pharmacists in South Africa. Additionally the influence of biographical factors was evaluated. A cross-sectional survey design with a convenience sample ($N = 187$) of hospital pharmacists was used. The PSI was developed as a measuring instrument and administered together with a biographical questionnaire. Three internally consistent factors, namely Job Demands, Pharmacy-specific Stressors and Lack of Resources were extracted. The level of severity of the various stressors was calculated and it seems that unavailability of medicine is the stressor that has the highest level of severity. Other stressors that have high severity ratings include: frequent interruptions, co-workers not bringing their part, high levels of workload and insufficient salaries. The type of pharmacy influenced the levels of stress experienced.

OPSOMMING

Die doelstellings van hierdie studie was om die konstrugeldigheid en betroubaarheid van die Aptekerstresvraelys (ASV) te bepaal en beroepstressore vir hospitaalaptekers te identifiseer. Verder is die invloed van biografiese faktore ondersoek. 'n Dwarsnee opname-ontwerp is gebruik. Die studiepopulasie is met behulp van 'n beskikbaarheidssteekproef ($N = 187$) van hospitaalaptekers verkry. Die ASV is as 'n meetinstrument vir die studie ontwikkel en saam met 'n biografiese vraelys afgeneem. Drie interne konsekwente faktore, naamlik Werkseise, Apteekspesifieke Stressore en Tekort aan Hulpbronne is aangetoon. Die ernstigheidsgraad van die verskillende stressore is ook bereken en dit blyk dat die onbeskikbaarheid van medikasie die stressor met die hoogste ernstigheidsgraad is. Ander stressore wat 'n hoë graad van ernstigheid het sluit in: gereëelde onderbrekings, medewerkers wat nie hulle kant bring nie, hoë werkslading en onvoldoende salarisse. Die tipe apteek het die vlakke van stress wat ervaar word, beïnvloed.

Most job stress researchers are of the opinion that unfavourable job conditions can affect employee health and well-being (Cooper & Cartwright, 1994). In order to understand job stress, it is important to review the various concepts that are involved in the stress process. A *job stressor* is a condition or situation at work that requires an adaptive response on the part of an employee (Jex & Beehr, 1991). Being reprimanded at work, having too little available time for job outputs, or having the fear of being fired at work are all examples of job stressors. A *job strain* is a possible aversive reaction by an employee to a stressor.

Comparisons of selected major causes of death within the health professions have revealed that pharmacists have substantially higher standard mortality rates from suicide, cirrhosis, all cancers, cerebrovascular disease and ischaemic heart disease than other professions (Willet & Cooper, 1996). Willett and Cooper (1996) attempted to identify the extent and aetiology of stress in community pharmacy and the effect thereof on job satisfaction and general well-being of pharmacists. Compared to other workers, pharmacists under study experienced high levels of stress at work, especially from factors intrinsic to their jobs and their management role, including work overload, autonomy and variety of tasks as well as inability to delegate, a perceived lack of influence and role ambiguity. They reported significantly higher scores on "relationships with other people" than all the other groups, except health authority workers. Furthermore, pharmacists also reported significantly more distress from "career and achievement" worries than either general practitioners or managers. Pressure regarding the home/work interface was also higher than for the managers or Occupational Stress Indicator (OSI) norms. Factor analysis of pharmacy-specific stressors revealed four major causes of stress, namely the daily demands of the job and dealing with patients, the professional role, counter prescribing and time pressure.

Stress seems to become a growing concern with relation to job turnover in pharmacy (Mott, 2000). More pharmacists seem to quit the profession due to increasing levels of stress experienced. Hospital pharmacists in South Africa, especially in the public sector, are confronted with various situational difficulties. Pharmaceutical services are hampered by a shortage of pharmacy personnel (Conry, Gray, & Summers, 1999; Pretorius, 2001). Furthermore, the work conditions of hospital pharmacists in the public sector are a major concern and have resulted in pharmacists being charged by the Disciplinary Committee of the South African Pharmacy Council with dispensing errors (Beukes, 2002). The Disciplinary Committee expressed their concern regarding the workload of pharmacists in the public sector

and stated that it is twice the acceptable norm (Beukes, 2002). In contrast, pharmacists in the private hospital sector seem to be better off in terms of conditions and staff proficiency (Conry et al., 1999). These discrepancies between the public sector and private sector pose a great concern to authorities taking into consideration that the public sector serves 80% of the population (Conry et al., 1999).

Consequently, the study of stressors relating specifically to hospital pharmacists seems imperative from a research point of view. Not only is it important to establish reliable and valid methods of measurement with regard to perceived stress, it is also important to consider certain biographical factors that may have an influence on the levels of stress experienced.

In a job turnover study that covered the period from 1983 until 1997, the following results were obtained: A total of 541 pharmacists responded and information was provided on a total of 1 697 jobs with starting dates from 1931 to 1997. Pharmacist job turnover was fairly steady across the period 1983 – 1987, averaging 11% annually. The average median tenure of pharmacists who left jobs was 32 months. The percentage of pharmacists leaving jobs and ranking stress as the reason for leaving increased, while the percentage of leavers who ranked salary as the reason, decreased (Mott, 2000). There were no differences in turnover rates across practice settings. A larger percentage of pharmacists leaving jobs in large chain and institutional settings ranked stress as a reason for leaving than pharmacists leaving small chain or independent pharmacies. A larger percentage leaving small chain and independent pharmacies ranked salary as a reason than pharmacists in the other two settings.

Knowledge of pharmacist job turnover, including the prevalence, the type of employees leaving, as well as how turnover occurs is important, as the supply of pharmacists is limited and the cost related to job turnover is high. Organisations lose the efficiency of the person leaving and incur costs related to hiring temporary staff as well as recruiting and training new staff (Cavanaugh, 1989). The remaining staff also has to work harder to cover for the person leaving. The cost of replacing an employee has been estimated to be up to four times the employee's annual salary (Fitz-enz, 1997). Costs associated with pharmacy staff turnover are most likely significant in this time period of reduced reimbursement of pharmaceuticals. High turnover costs may also lead to the closure of pharmacies, which in turn will reduce the access of patients to good pharmaceutical care and services (Mott, 2000). Turnover rates alone provide an understanding of how often the event of leaving occurs, but does not

provide a reason why the leaving occurs. Researchers have found that female pharmacists have less commitment to hiring organisations, experience more job stress, and have stronger intentions to leave their jobs than male pharmacists (McHugh, 1999). Researchers have found differences in salary levels, job stress, levels of organisational commitment, job satisfaction, and job withdrawal intentions amongst pharmacists practicing in different settings (Mott, 2000). The results of the study done by Mott (2000) revealed that in each period relocation was ranked the most important reason for leaving on average, while the desire for a change was ranked fourth. There was a significant change in the percentage of pharmacists leaving pharmacy jobs who ranked salary as one of the top five reasons for leaving (from 255 between 1983 and 1987, to 155 between 1993 and 1997). Also, the percentage of respondents leaving a pharmacy job and ranking stress as one of the top five reasons increased significantly (from 17% between 1983 and 1987, to 28% between 1993 and 1997).

In another study concerning career commitment Wolfgang and Ortmeier (1993) stated that although little is known about the link between stress and career commitment in the profession of pharmacy, there is evidence that such a relationship may exist, as occupational stress has been identified as a contributing factor to chain pharmacists' decisions to quit the job. It has also been found that age is inversely related to both reported levels of stress and intention to change jobs. This implies that young pharmacists may become disillusioned upon entering practice, making them particularly susceptible to the negative consequences of occupational stress.

English (2001) reported that the profession of pharmacy is realising an acute pharmacist shortage that is expected to continue for a period of at least five to ten years. This is not very promising to a workforce responsible for handling both the increased demand for prescription medication and the need for more clinical pharmacy services to help patients and assist professionals to manage them. Community pharmacists are working longer hours, experiencing job stress, and finding their patient counselling time diminished as a consequence of the shortage.

In a study done by Mott, Doucette, Gaither, Pedersen, and Schommer (2004), they concluded that those interested in the quality of work life of pharmacists need to develop and implement realistic methods to decrease the role stress that pharmacists continue to face. Unless role stress of pharmacists is lessened, the profession may be endangering not only the physical

and mental health of its current and future practitioners, but possibly compromising patient safety as well.

Pharmacists are experiencing an increased demand for their services due to the general increase in the age of the population and the subsequent increased use of prescription medication. Linked to the increased demand for pharmacist services are reports that the number of pharmacists in the United States has not kept pace with increased demand (Health Resources and Services Administration, 2000). The imbalance between supply and demand has most probably affected the amount and type of work pharmacists perform in their work settings, likely increasing the amount of stress and strain current pharmacy practitioners are experiencing. The interaction between work environments and the amount and type of work pharmacists perform can influence pharmacists' attitudes towards their work (Mott et al., 2004).

Consequently, the study of stressors specifically related to the hospital pharmacist environment seems imperative from a research point of view. 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) pointed to important considerations with regard to 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.

The objectives of this study were to investigate the construct validity and reliability of an occupational stress measure and to identify job stressors for hospital pharmacist in South Africa. In addition, the influence of biographical factors on the level of stress experienced needs to be determined.

Occupational stress

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 recognises 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 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.

According to Dewe, Cox, and Ferguson (1993), stress is not a factor that resides in either the individual or the environment; rather it is viewed as a dynamic cognitive state where the individual interaction with the environment can be described as an ongoing transaction. In this transaction, individuals make appraisals of their encounters with their environments and attempt to cope with the issues arising from this interaction.

The majority of stress literature is very clear about the negative impact of occupational stress. These effects include impaired performance or reduced productivity, declining levels of customer service, health problems, absenteeism, turnover, industrial accidents, substance abuse and purposefully destructive behaviours (e.g. spreading of rumours and theft) (Cooper & Payne, 1988; Karasek & Theorell, 1990; Levi, 1981; Matteson & Ivancevich, 1982; Perrewé, 1991; Quick, Quick, Nelson, & Hurrell, 1997; Wright & Smye, 1996).

Attitudes towards work include aspects such as role conflict, role ambiguity, role overload, work-home conflict, job stress, and job satisfaction. Mott et al. (2004, p. 1) defined job stress “as the non-specific negative response of the body to demands in the work place. Role overload is the conflict between time and organisational demands concerning the quantity of work to be done. Role ambiguity describes the extent to which an individual is unclear about the expectations of others as well as the degree of uncertainty about one’s performance. Role conflict is the simultaneous occurrence of two or more sets of pressures to such an extent that compliance with the one would make compliance with the other more difficult. Work-home conflict is described as conflict in which the role pressures from work and family are mutually incompatible. Job satisfaction is seen as the match between expectations and the perceived reality for the job as a whole”.

Research done as early as 1965 regarding role conflict in pharmacists found that pharmacists perceived their ideal role to be one of a professional, but many felt pressured to fulfil a business role (Knapp, Knapp, & Evanson, 1965). Studies done during the 1970s and 1980s evaluated pharmacists’ job satisfaction and role stress and found that job satisfaction varied from low to high and the majority of pharmacists experienced role stress. Studies conducted during the 1990s found moderate levels of job satisfaction and job stress, increased role overload, and low levels of role conflict, role ambiguity and work-home conflict (Mott et al., 2004). Role conflict has been seen to differ by practice and demographic characteristics. Younger pharmacists with less pharmacy experience, pharmacists in chain and hospital pharmacies, as well as those with more than one child have been found to experience greater role conflict, job stress, role ambiguity, and work-home conflict (Mott et al., 2004).

Mott et al. (2004) evaluated job stress by means of six items adapted from the *Health Professions Stress Inventory (HPSI)*. They found that role overload and job stress results obtained were high, with more than 68% of respondents scoring higher than the midpoint of the scale for each of these constructs. The six job stressors were measured across various practice settings and job stressors were found to cause stress in all practice settings. However, a higher percentage of pharmacists practising in other practice settings reported not experiencing three of the six stressors (being interrupted by phone calls, doing excessive paperwork, not practicing pharmacy the way I want). Inadequate staffing was highly stressful for a majority of respondents in chain and hospital settings. More than 555 of pharmacists in all settings, except independent and other, indicated that “not being able to practice pharmacy

the way I want” to be stressful (somewhat stressful and highly stressful). At least 60% of pharmacists in hospital settings reported to experience “job policies enforced inconsistently” to be stressful (somewhat stressful to highly stressful).

The number of years of experience was significantly associated with each work attitude measure. The measure obtained for men and women differed significantly as well as for whites and nonwhites. Men had higher scores on role conflict and role ambiguity and lower values on job satisfaction than women, and whites experienced lower levels of job stress than nonwhites. In terms of family variables, a pharmacist having a child 17 years of age or older experienced lower job stress, lower work-home conflict, and lower role conflict. Married pharmacists reported higher job satisfaction relative to those who were not married. The levels of role ambiguity, role conflict, and job stress were significantly higher in chain, mass merchandiser, and hospital settings relative to independent pharmacies (Mott et al., 2004). Mott et al. (2004) concluded that 70% of pharmacists are experiencing high levels of role overload and job stress and called for realistic methods to be developed and instituted to decrease the role stress that pharmacists continue to face.

In another study done by Wolfgang, Perri, and Wolfgang (1988) among hospital pharmacists and nurses, the respondents had to indicate how often they found 39 different situations to be stressful. Of the potentially highest score of 120, overall mean scores were significantly higher for nurses (63) than for pharmacists (57). Statistical analysis indicated that the sample size was adequate and the HPSI was valid and reliable. Both pharmacists and nurses found situations that dealt with interruptions, poor opportunities for advancement, inadequate staffing levels, excessive workload and inadequate pay to be most stressful. Pharmacists regarded not feeling challenged as a significantly more stressful situation than did nurses. Career satisfaction was significantly related to job stress for both pharmacists and nurses; 45% of the pharmacists and 37% of the nurses said they would not choose the same profession again, and those with the highest scores on the stress scale were least likely to choose the same profession again. Moderate levels of job-related stress were reported for both these nurses and pharmacists. Pharmacists’ perceptions of job-related stress highlight the problems and opportunities facing hospital pharmacy managers. Stress stemming from inadequate staffing and too heavy workload may be difficult to alleviate, especially in a time when there seems to be a shortage of pharmacists. There are however several ways in which managers can attempt to reduce the stress experienced by pharmacists, including taking into

consideration that professionals place considerable emphasis on learning, they prefer challenging work, desire a sense of accomplishment and demonstrate responsibility for how their work is done.

Hospital pharmacists appear to have been encouraged to expand their professional activities while being prohibited from doing so in actual practice. It has been argued that pharmacists lack the degree of control over their profession and their activities that other professionals have. This lack of control may be a source of considerable anxiety and frustration for pharmacists. An indirect indicator of the discontent among pharmacists, which is particularly alarming, is the unusually high rate of suicides. Suicide rates are reported to be 3,5 times higher among pharmacists than among other professionals and white-collar workers. Also, mortality from other sources is higher among pharmacists than among other occupations (Johnson, Hammel & Heinen, 1977).

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. Accordingly, 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 classification of stressors in terms of their intensity and frequency is the distinction between acute and chronic stressors. Whereas an acute stressor is derived from a rather sudden event with relative short duration during which an almost immediate psychological reaction is evoked, chronic stressors are experienced less frequently and intensely in the sense that they don't require large amounts of physical and psychological adaptation (Farmer, 1990; Newton, 1989).

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

H1: The Pharmacist Stress Inventory (PSI) is a reliable and valid measuring instrument of occupational stress of hospital pharmacists in South Africa.

H2: Occupational stress is related to age, language, level of experience, level of qualification, gender, illness, average number of hours worked per week, level of satisfaction and position held.

METHOD

Research design

A cross-sectional survey design was used to gather the information required to achieve the research objectives. 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. This design is also suitable for the development and validation of questionnaires (Shaughnessy & Zechmeister, 1997).

Participants

The study population can be described as a convenience sample of hospital pharmacists employed by various private and public sector health facilities in the different provinces of South Africa (Public Health facilities in: North West, KwaZulu-Natal and Free State provinces as well as private hospital facilities on a national basis). The entire population of approximately 2 000 hospital pharmacists nationally was targeted. A response rate of 21,6% was achieved, which can be ascribed to the nature of the job, e.g. call-outs, rotating working schedules and leave as well as difficulties in obtaining permission from the various State facilities. Of these only 187 responses (19,3% of all the questionnaires distributed) could be utilised. Descriptive information of the sample is given in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Percentage
Language	Afrikaans	54,5
	English	34,8
	Other	11,7
Position	Pharmacy owner/partner and manager – private hospital sector (PHS)	1,6
	Pharmacy owner/partner but not manager (PHS)	0,5
	Pharmacy manager but not owner/partner (PHS)	16,2
	Pharmacy manager – public sector	8,1
	Pharmacist	56,2
	Community service pharmacist	7,6
	Intern	7,0
	Other	2,7
Number of years in pharmacy	Average age of respondents	35,5
	Average number of years in pharmacy	12,4
	Average number of years in hospital pharmacy (private sector)	5,1
	Average number of years in hospital pharmacy (public sector)	4,5
	Average number of years in current position	3,9
Province	Eastern Cape	1,1
	Free State	14,1
	Gauteng	21,7
	KwaZulu-Natal	18,5
	Limpopo	2,7
	Mpumalanga	2,2
	Northern Cape	2,2
	North West	19,0
Western Cape	18,5	
Education	B. Pharm / Dip. Pharm	89,2
	Hons. Pharm	1,6
	M. Pharm	1,6
	M.Sc	1,6
	MBA	0
	PhD	0
	Other	5,9
Gender	Male	20,9
	Female	79,1
Marital status	Single	23,2
	Engaged	10,3
	Married	62,7
	Separated/Divorce/Widower/Widow	3,8

The sample consisted mainly of Afrikaans and English-speaking hospital pharmacists (54,5% and 34,8%). They were mostly married (62,7%), mainly female (79,1%) with a mean age of 35,5 years. The average number of years in pharmacy was 12,4 years and the majority of respondents held positions as ordinary pharmacists (56,2%).

Measuring battery

The *Pharmacist Stress Inventory (PSI)* consists of 106 items and was developed for the purposes of this study. The questionnaire is based on the Health Professions Stress Inventory (HPSI), but items specifically pertaining to the day-to-day work environment of hospital pharmacists working in both private and public health facilities were included in the questionnaire in order to increase the applicability of the questions to the work experience of South African hospital pharmacists. In line with the recommendations of Dewe (1989) and Spielberger and Vagg (1999) both the severity and frequency of stressors were addressed in the scale construction. Firstly, participants rated each of the 53 statements in terms of perceived intensity of the particular stressor on a nine-point scale, ranging from 1 (*low*) to 9 (*high*). In the second part of the questionnaire, participants were asked to respond in terms of perceived frequency in experiencing these stressors over a period of the past six months on a 10-point scale, ranging from 0 (*no days*) to 9 (*more than 9 days*). In each instance, the respondents were given the option to indicate whether a given stressor is relevant in terms of their experience or not.

A biographical questionnaire was also developed. Participants were given the option of providing their names and contact details in the case of requiring feedback. Other information gathered included position, area, education, gender, marital status and language.

Statistical analysis

The statistical analysis was carried out with the SPSS-program (SPSS Inc., 2003). Principal component analysis with a direct oblimin rotation was carried out. Prior to principal factor extraction, principal component extraction was done to determine the number of factors, the presence of outliers and the factorability of the correlation matrices.

Descriptive statistics (means, standard deviations, skewness and kurtosis) were computed to describe the data. Cronbach alpha coefficients were used to assess the internal consistency of the scales of the measuring instrument (Clark & Watson, 1995). Cronbach's alpha coefficient contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale.

RESULTS

The results of the factor analysis of the Pharmacist Stress Inventory (PSI) are provided in Table 2. Variable-factor loadings, communalities and percentage variance and covariance are given. The variables are ordered and grouped according to loading size to facilitate interpretation. Labels for each factor are suggested in a footnote.

Table 2

Factor Loadings, Communalities (h^2), Percentage Variance and Covariance for Principal Factor Extraction and Direct Oblimin Rotation on PSI Items

Item	Description	F ₁	F ₂	F ₃	h ²
26	Meeting deadlines	0,82	0,03	-0,09	0,71
11	Assignment of increased responsibility	0,81	-0,04	-0,09	0,73
16	Making critical on-the-spot decisions	0,72	-0,05	0,05	0,70
25	Excessive paperwork e.g. administrative duties	0,65	0,05	-0,03	0,70
7	Dealing with crisis situations	0,65	-0,01	0,13	0,71
32	Dealing with other health care professionals e.g. doctors	0,60	0,10	0,16	0,74
9	Performing tasks not in job description	0,57	-0,15	0,06	0,68
39	Continuous Professional Development activities including record-keeping	0,57	0,26	-0,15	0,59
31	Dealing with difficult customers / patients	0,56	0,09	0,26	0,78
4	Assignment of new or unfamiliar duties	0,56	0,04	0,08	0,73
27	Insufficient personal time (e.g. coffee breaks, lunch)	0,56	-0,15	0,18	0,68
28	Covering work for another employee	0,53	-0,05	0,11	0,78
2	Working overtime and emergency hours	0,48	0,07	-0,01	0,73
38	Stock control in the pharmacy	0,46	0,17	0,23	0,69
33	Ensuring the financial outcomes of the pharmacy	0,45	0,38	-0,06	0,65
24	Frequent changes from boring to demanding activities	0,43	-0,04	0,27	0,70
48	Excessive involvement in committee meetings (e.g. P&T, infection control, etc.), making too much demands on pharmacist's time	0,43	0,18	0,06	0,72
44	Irrational demands and expectations of clients / patients	0,42	0,13	0,30	0,68
37	Slow payment from debtors including medical aids	-0,16	0,86	0,03	0,82
36	Paying creditors and settling of pharmacy's accounts	-0,00	0,84	-0,07	0,75
40	Reconciling medical aid claims	-0,05	0,81	0,01	0,81
35	Competition from other pharmaceutical service providers you perceive as a possible danger to your business	0,05	0,77	-0,01	0,74
43	Cash-up and banking	-0,06	0,71	0,15	0,69
52	Biohazard risk posed by administering of substances such as cytostatics and radiopharmaceuticals	-0,06	0,59	0,06	0,73
41	Negotiations with reps	0,30	0,50	-0,15	0,69
34	Leaving the business in the hands of others (e.g. locums or employees) when sick or on leave	0,22	0,47	0,03	0,71
53	Risk in taking responsibility for the aseptic preparation and admixing of products for patients e.g. in Neonatal ICU	0,02	0,43	0,07	0,67
42	The management of staff	0,23	0,42	0,14	0,69
51	Encountering labour relations and IR issues with staff	0,178	0,40	0,24	0,69
29	Poorly motivated co-workers	-0,14	0,01	0,74	0,73
6	Inadequate support by supervisor / tutor / manager / head office	0,02	-0,04	0,70	0,71
21	Poor or inadequate supervision / management	-0,02	0,06	0,68	0,64
18	Lack of participation in policy-making decisions	-0,08	-0,04	0,68	0,74
14	Experiencing negative attitudes towards the organisation / pharmacy	0,06	0,09	0,65	0,62
30	Conflicts with other departments / divisions in the pharmacy	-0,01	0,16	0,63	0,73
10	Inadequate or poor quality equipment	0,02	-0,04	0,61	0,68

22	Noisy work area	-0,02	0,21	0,57	0,68
13	Difficulty getting along with supervisor / manager / tutor	-0,05	0,09	0,55	0,70
5	Fellow workers not doing their job	0,15	-0,08	0,54	0,68
47	Uncooperative attitudes of other health professionals e.g. nursing staff	0,16	0,06	0,54	0,73
19	Inadequate salary	0,13	-0,11	0,52	0,64
15	Insufficient personnel to handle workload	0,29	-0,16	0,52	0,66
17	Personal insult from customer / consumer / patient	0,20	-0,01	0,51	0,64
12	Periods of inactivity	-0,22	0,28	0,46	0,67
45	Unavailability of medicine stock from suppliers (e.g. depot)	0,30	-0,05	0,45	0,65
23	Frequent interruptions	0,32	-0,04	0,44	0,75
8	Lack of recognition for good work	0,23	-0,02	0,42	0,76
20	Competition for advancement	0,22	0,18	0,40	0,71

Factor labels: F₁ Job Demands, F₂ Pharmacy-specific stressors, F₃ Lack of resources

Inspection of Table 2 shows that three factors were extracted, accounting for 40,43% of the total variance in the data.

From the evaluation of the communality values (h^2), it is evident that most of these values are of moderate level, which indicates that the items do not all describe the factors very clearly. The higher the h^2 value for a specific item, the better that item defines the specific factor. Items 1 (Assignment of disagreeable duties) and 3 (Lack of opportunity for advancement) were excluded from the final factor allocation. These two items did not fit one of the three factors well.

The first factor seems to address the *Job Demands* of pharmacists. Items included in this factor are meeting of deadlines, assignment of increasing responsibility, making critical on-the-spot decisions, and so forth as listed above. The second factor focuses on *Pharmacy-specific Stressors*. This factor includes the slow payment from debtors including medical aids, payment of creditors, cash-up and banking procedure and many more pharmacy-specific issues. The third factor focuses on *Lack of Resources*. This factor includes poorly motivated co-workers, inadequate support by supervisors and co-workers, fellow workers not doing their jobs and many other similar factors as listed above.

In their study conducted in the South African Police Service, Pienaar and Rothmann (in press) also reported the extraction of three factors, namely Job Demands, Lack of Resources and Inherent Police Stressors.

In the next step, descriptive statistics for the intensity, frequency and severity of the PSI are given in Table 3. Severity is expressed as the product of intensity and frequency of stressors.

Table 3

Intensity, Frequency and Severity of Stressors for Pharmacists

Item	Description	Intensity	Frequency	Severity
Factor 1				
26	Meeting deadlines	5,29	4,84	25,60
11	Assignment of increased responsibility	5,26	4,98	26,19
16	Making critical on-the-spot decisions	5,48	5,05	27,67
25	Excessive paperwork e.g. administrative duties	5,57	5,38	29,97
7	Dealing with crisis situations	6,06	4,21	25,51
32	Dealing with other health care professionals e.g. doctors	5,27	6,75	35,57
9	Performing tasks not in job description	4,75	3,39	16,10
39	Continuous Professional Development activities including record-keeping	4,43	3,40	15,06
31	Dealing with difficult customers / patients	5,90	4,98	29,38
4	Assignment of new or unfamiliar duties	4,97	4,34	21,57
27	Insufficient personal time (e.g. coffee breaks, lunch)	4,89	4,63	22,64
28	Covering work for another employee	5,60	5,27	29,51
2	Working overtime and emergency hours	5,22	7,00	36,54
38	Stock control in the pharmacy	5,60	6,29	35,22
33	Ensuring the financial outcomes of the pharmacy	5,05	3,87	19,54
24	Frequent changes from boring to demanding activities	4,56	4,61	21,02
48	Excessive involvement in committee meetings (e.g. P&T, infection control, etc.), making too much demands on pharmacist's time	5,04	3,54	17,84
44	Irrational demands and expectations of clients / patients	5,79	4,58	26,52
Factor 2				
37	Slow payment from debtors including medical aids	2,56	0,90	2,30
36	Paying creditors and settling of pharmacy's accounts	2,26	0,85	1,92
40	Reconciling medical aid claims	2,34	0,97	2,27
35	Competition from other pharmaceutical service providers you perceive as a possible danger to your business	3,00	1,00	3,00
43	Cash-up and banking	2,10	1,41	2,96
52	Biohazard risk posed by administering of substances such as cytostatics and radiopharmaceuticals	2,93	1,18	3,46
41	Negotiations with reps	2,91	3,72	10,83
34	Leaving the business in the hands of others (e.g. locums or employees) when sick or on leave	4,61	2,45	11,29
53	Risk in taking responsibility for the aseptic preparation and admixing of products for patients e.g. in Neonatal ICU	2,97	1,36	4,04
42	The management of staff	4,28	4,26	18,23
51	Encountering labour relations and IR issues with staff	4,51	1,97	8,88
Factor 3				
29	Poorly motivated co-workers	6,12	5,27	32,25
6	Inadequate support by supervisor / tutor / manager / head office	6,45	5,36	34,57
21	Poor or inadequate supervision / management	5,52	2,93	16,17
18	Lack of participation in policy-making decisions	5,34	2,87	15,33

Table 3

Intensity, Frequency and Severity of Stressors for Pharmacists

14	Experiencing negative attitudes towards the organisation / pharmacy	5,58	4,24	23,66
30	Conflicts with other departments / divisions in the pharmacy	5,70	3,82	21,77
10	Inadequate or poor quality equipment	6,16	3,61	22,23
22	Noisy work area	4,91	3,29	16,15
13	Difficulty getting along with supervisor / manager / tutor	5,21	1,84	9,59
5	Fellow workers not doing their job	7,05	5,71	40,25
47	Uncooperative attitudes of other health professionals e.g. nursing staff	6,35	5,32	33,78
19	Inadequate salary	6,95	5,61	38,99
15	Insufficient personnel to handle workload	6,75	5,72	38,61
17	Personal insult from customer / consumer / patient	6,05	2,60	15,73
12	Periods of inactivity	4,14	1,47	6,09
45	Unavailability of medicine stock from suppliers (e.g. depot)	6,57	6,73	44,22
23	Frequent interruptions	6,28	6,95	43,65
8	Lack of recognition for good work	6,08	4,75	28,88
20	Competition for advancement	4,96	1,86	9,23

According to Table 3, stressors experienced by hospital pharmacists in terms of highest severity are related to the unavailability of medicines from suppliers (depots), frequent interruptions, fellow workers not doing their job, inadequate salary and insufficient staff to handle the workload.

In terms of the intensity of stressors experienced by hospital pharmacists, the following items proved to be very stressful: fellow workers not doing their job, inadequate salary, insufficient personnel to handle the workload, unavailability of medicine stock from suppliers, inadequate support by supervisor, uncooperative attitudes of other health care professionals and inadequate or poor quality equipment.

In terms of the regular experience of stressors, the following stressors proved to be experienced very regularly: working overtime and emergency hours, frequent interruptions, dealing with other health care professionals, unavailability of medicine stock from suppliers, and stock control in the pharmacy.

The descriptive statistics and alpha coefficients for the extracted factors of the PSI are reported in Table 4.

Table 4

Descriptive Statistics and Alpha Coefficients of the PSI

Item	Mean	SD	Skewness	Kurtosis	α
Job demands (F1)	94,73	25,08	-0,72	0,70	0,91
Pharmacy-specific stressors (F2)	34,12	19,39	0,34	-0,65	0,87
Lack of resources (F3)	112,17	24,79	-1,08	1,75	0,91

Table 4 shows that two of the three extracted factors of the PSI are normally distributed in the sample, the third factor namely lack of resources shows a marginal degree of skewness which could be due to the fact that the majority of respondents experience a lack of resources. Also, alpha coefficients for the three factors compare well with the guideline of 0,70, demonstrating that a large proportion of the variance is explained by the factors (internal consistency of the scales) (Nunnally & Bernstein, 1994). These results provide support for Hypothesis 1 in terms of internal consistency of the newly developed PSI for the hospital pharmacists in South Africa.

Next, multivariate analysis of variance (MANOVA) was used to analyse the differences between the levels of stress of different biographical groups, namely different positions held by pharmacists, different types of pharmacy settings, different age and language groups, the number of years they have been involved in pharmacy and the year of registration as a qualified pharmacist, their level of education, gender differences, marital status, average number of hours worked per week, average number of emergency pharmacy hours per week, hours overtime worked per week and number of call-outs. Other factors that have been evaluated include their level of performance in their current job, their level of satisfaction as a pharmacist as well as any medical conditions that might affect their quality of life (see Table 5). In MANOVA, several dependent variables (in this case Job Demands, Pharmacy-specific Stressors and Lack of Resources) are considered together in the same analysis.

Table 5

MANOVA of the Occupational Stress Levels of Biographical Groups

Item	Wilks' Lambda	F	Df	p	η^2
Position	0,98	0,65	6,00	0,69	-
Type of pharmacy	0,83	5,07	6,00	0,00*	0,09
Age	0,91	1,33	12,00	0,20	-
Years in pharmacy	0,91	1,37	12,00	0,18	-
Years registered as a pharmacist	0,93	1,08	12,00	0,37	-
Level of education	0,99	0,41	3,00	0,74	-
Gender	0,96	2,30	3,00	0,08	-
Marital status	0,95	1,00	9,00	0,44	-
Home language	0,94	1,82	6,00	0,10	-
Working hours per week	0,96	1,21	6,00	0,30	-
Emergency hours worked per week	0,99	0,35	3,00	0,79	-
Overtime worked per week	0,95	1,36	6,00	0,23	-
Callouts per week	0,99	0,29	6,00	0,94	-
Level of performance	0,91	1,45	12,00	0,14	-
Job satisfaction	0,93	1,11	12,00	0,35	-
Medical condition	0,96	2,51	3,00	0,06	-

* $p < 0,05$

Table 5 shows that the type of pharmacy had a significant effect on the combined dependent variable stress ($F_{(6, 308)} = 5,07, p < 0,05$; Wilks' Lambda = 0,83; $\eta^2 = 0,09$). However, this effect was moderate (only 9% of the variance explained). Analysis of each individual dependent variable, using a Bonferroni adjusted alpha level of 0,05, showed that there were no significant differences between the levels of Job Demands and Lack of Resources of various types of pharmacies. A statistically significant difference ($F_{(2, 159)} = 8,88, p = 0,00$) was found between corporate hospital pharmacists in a private hospital (mean = 39.0) and hospital pharmacists in the public sector (mean = 26,05) in terms of Pharmacy-specific stressors.

These findings provide partial support for the second hypothesis as only one of the tested biographical factors affected the level of stress statistically significantly. The findings in the literature could not be verified by the MANOVA results of this study.

DISCUSSION

The aim of this study was to develop and validate the PSI for the hospital pharmacists in various provinces of South Africa. A three-factor solution (consisting of Job Demands, Pharmacy-specific Stressors and Lack of Resources) describing the perceived strain of hospital pharmacists, fitted the data the best. Satisfactory internal consistency and unidimensionality were obtained for the PSI, pointing to the usefulness of the instrument developed for the present study.

With regards to the effect of various biographical factors on the level of stress experienced by different individuals, it was found that only the type of pharmacy had a statistically significant effect on the level of stress experienced. All the other biographical factors tested did not indicate a significant effect on the level of stress experienced. This finding indicated that pharmacists working in private hospital pharmacies that are part of a corporate pharmacy group, experienced higher levels of Pharmacy-specific Stressors than hospital pharmacists working in the public sector.

Contrary to our findings, Mott et al. (2004) reported that years of experience were significantly associated with each work attitude measured. The measure obtained for men and women differed significantly, as well as for whites and nonwhites. Men had higher scores on role conflict and role ambiguity and lower values on job satisfaction than women, and whites experienced lower levels of job stress than nonwhites. In terms of family variables, a pharmacist having a child 17 years of age or older experienced lower job stress, lower work-home conflict, and lower role conflict. Married pharmacists reported higher job satisfaction relative to those who were not married. The level of role ambiguity, role conflict, and job stress was significantly higher in chain, mass merchandiser, and hospital settings relative to independent pharmacies. Mott et al. (2004) concluded that 70% of pharmacists are experiencing high levels of role overload and job stress and called for realistic methods to be developed and instituted to decrease the role stress that pharmacists continue to face.

In the present study, the stressors with highest severity are related to the unavailability of medicines from suppliers (depots), frequent interruptions, fellow workers not doing their job, inadequate salary and insufficient staff to handle the workload. In terms of the intensity of stressors experienced by hospital pharmacists, the following items proved to be very stressful: fellow workers not doing their job, inadequate salary, insufficient personnel to handle the workload, unavailability of medicine stock from suppliers, inadequate support by supervisor, uncooperative attitudes of other health care professionals, and inadequate or poor quality equipment. In terms of the regular experience of stressors, the following stressors proved to be experienced very regularly: working overtime and emergency hours, frequent interruptions, dealing with other health care professionals, unavailability of medicine stock from suppliers, and stock control in the pharmacy.

Wolfgang, Perri, and Wolfgang (1988) conducted a study among hospital pharmacists and nurses in which they had to indicate how often they found 39 different situations to be stressful. Both pharmacists and nurses found situations that dealt with interruptions, poor opportunities for advancement, inadequate staffing levels, excessive workload and inadequate pay to be most stressful. Pharmacists viewed not feeling challenged as a significantly more stressful situation than did nurses. Career satisfaction was significantly related to job stress for both pharmacists and nurses; 45% of the pharmacists and 37% of the nurses said they would not choose the same profession again, and those with the highest scores on the stress scale were least likely to choose the same profession again. Moderate levels of job-related stress were reported for both these hospital nurses and pharmacists. Pharmacists' perceptions of job-related stress highlight the problems and opportunities facing hospital pharmacy managers. Stress stemming from inadequate staffing and too heavy workload may be difficult to alleviate, especially in a time when there seems to be a shortage of pharmacists. There are however several ways in which managers can attempt to reduce the stress experienced by pharmacists, including taking into consideration that professionals place considerable emphasis on learning, they prefer challenging work, desire a sense of accomplishment and demonstrate responsibility for how their work is done.

RECOMMENDATIONS

It is imperative that the levels of stress currently experienced by South African hospital pharmacists need to be identified and addressed in order to reduce the stress experienced and improve the quality of work-life for these individuals. This is especially important if one takes into consideration the reduction in the number of new students enrolling for pharmacy courses and the large number of qualified pharmacists writing international exams in an attempt to improve their current work situations (less stress, more money, better resources e.g. increased availability of medicines etc.)

Compared to other occupational groups in South Africa (Rothmann, 2005), it is evident that South African hospital pharmacists experience high levels of stress compared to other occupations with regard to working overtime, colleagues not doing their work, crisis situations, insufficient staff, making critical decisions, inadequate salaries, frequent interruptions and excessive paperwork. If the physical and psychological stressors are allowed to continue unchanged, it may have negative consequences for the organisation in terms of elevated occurrence of burnout, absenteeism, employee turnover and even reduced service levels and work output.

It is recommended that subsequent studies be undertaken incorporating bigger sample sizes and a better national distribution of both private and public health facilities. This is necessary to be able to generalise the findings to all South African hospital pharmacists and to ensure that the main stressors in this profession are identified accurately.

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CHAPTER 5: RESEARCH ARTICLE 4

OCCUPATIONAL STRESS, COPING, BURNOUT AND ENGAGEMENT OF SOUTH AFRICAN HOSPITAL PHARMACISTS

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ABSTRACT

The objectives of this study were to investigate whether job stress and coping strategies could predict the work-related well-being (burnout and work engagement) of hospital pharmacists in South Africa. A cross-sectional survey design with a convenience sample ($N = 187$) of hospital pharmacists was used. The Maslach Burnout Inventory – Human Services Survey (MBI-HSS), Utrecht Work Engagement Scale (UWES), Pharmacist Stress Inventory and the COPE questionnaire were administered. The results showed that job stress (due to Job Demands and a Lack of Job Resources), as well as three coping strategies (Approach coping, Avoidance coping and Turning to religion) predicted burnout and work engagement of South African hospital pharmacists.

OPSOMMING

Die doelstellings van hierdie studie was om te bepaal of werkstressore en copingstrategieë werksverwante welstand (uitbranding en werksbegeestering) van hospitaalptekers in Suid-Afrika kan voorspel. 'n Dwarssnee opname-ontwerp is gebruik. Die studiepopulasie is met behulp van 'n beskikbaarheidsteekproef ($N = 187$) van hospitaalptekers verkry. Die Maslach Uitbrandingsvraelys – Menslike Dienste Opname (MBI-HSS), die Utrecht Werksbegeesteringsvraelys (UWES), die Aptekerstresvraelys (ASV) asook die COPE vraelys is afgeneem. Die resultate het getoon dat werkstres (as gevolg van Werkseise en 'n Gebrek aan Hulpbronne), asook drie copingstrategieë (Aktiewe coping, Vermydning coping asook Steun op geloof) uitbranding en werksbegeestering van Suid-Afrikaanse hospitaalptekers voorspel het.

The environment in which employees currently function demands more of them than did any previous period. Employees in pharmacy companies have to cope with the demands that arise from fulfilling various roles, as well as with increased pressures such as managed health care and primary health care. Tracking and addressing their effectiveness in coping with new demands and stimulating their growth in areas that could possibly impact on the standard of pharmacy services are therefore of great importance (Gupchup, Singhal, Dole, & Lively, 1998). One area that should be researched in this regard is burnout (Maslach & Jackson, 1986).

Two trends, however, recently emerged in burnout research and both of them boil down to a broadening of the traditional concept and scope (Maslach, Schaufeli, & Leiter, 2001). First, the concept of burnout that was initially closely linked to the human services such as health care, education and social work where people do “people” work of some kind, has been expanded to include all other professions and occupational groups. Second, burnout research seems to shift towards its opposite, namely *work engagement*. Researchers recently extended their interest to include the positive pole of employees’ well-being, instead of looking exclusively at the negative pole. Seen from this perspective, burnout is rephrased as an erosion of engagement with the job (Schaufeli, Salanova, González-Romá, & Bakker, 2002). This development indicates an emerging trend towards a “positive psychology” that focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000).

English (2001) reported that the profession of pharmacy is realising an acute pharmacist shortage that is expected to continue for a period of at least five to ten years. This is not very promising to a workforce responsible for handling both the increased demand for prescription medication and the need for more clinical pharmacy services to help patients and assist professionals to manage them. Community pharmacists are working longer hours, experiencing increasing job stress and finding their patient counselling time diminished as a result of the shortage.

In a study done by Mott, Doucette, Gaither, Pedersen, and Schommer (2004, p.326), they concluded that: “those interested in the quality of work life of pharmacists need to develop and implement realistic methods to decrease the role stress that pharmacists continue to face. Unless role stress of pharmacists is lessened, the profession may be endangering not only the

physical and mental health of its current and future practitioners, but possibly compromising patient safety as well.” Occupational stress might lead to burnout, which could result in staff turnover (Cavanaugh, 1989).

Pharmacists are experiencing an increased demand for their services due to the general increase in the age of the population and the subsequent increased use of prescription medication. Linked to the increased demand for pharmacist services are reports that the number of pharmacists in the United States has not kept pace with increased demand (Health Resources and Services Administration, 2000). This same trend is happening in South Africa, especially due to many pharmacists leaving the country to pursue a career as a pharmacist abroad. The imbalance between supply and demand has most probably affected the amount and type of work pharmacists perform in their work settings, likely increasing the amount of stress and strain current pharmacy practitioners are experiencing. The interaction between work environments and the amount and type of work pharmacists perform can influence pharmacists’ attitudes towards their work (Mott et al., 2004).

In a press release by Reuters on <http://www.pharmacychoice.com> (Tuesday, July 3, 2005) it was stated that due to the rapid growth in the use of prescription drugs, it may soon be necessary for the United States to open its doors to pharmacists from abroad. Obtaining working visas for pharmacists from countries such as South Africa and India would help the drug retailers to fill thousands of vacancies. The shortage of pharmacists have now surpassed 7000, which is almost 7% of the 106,000 pharmacists employed at United States drug stores and the effects of the staffing shortage are being felt.

Clare Bellingham reported (Bellingham, 2001) that Britain is facing one of its biggest ever recruitment crises. The lack of newly qualified pharmacists has left employers looking for other sources of pharmacists to fill the gap. One of the answers has been to look abroad. A national shortage of pharmacists has left every area of the profession struggling to fill vacancies. The recruitment problem has been recognised within the hospital sector for some time with vacancy levels averaging 16% across London and as high as 50% in some hospitals. Many community pharmacies are finding vacancies harder to fill, and the availability of locum pharmacists are almost non-existent. One solution is to recruit pharmacists into Britain from abroad. It is stated that the majority of pharmacists that have

been recruited from abroad have come from South Africa, Zimbabwe, Spain, Australia and New Zealand.

Matowe, Duwiejua, and Norris (2004) reported that the emigration of health care professionals, including pharmacists, from developing to developed countries appears to be on the increase. The emigration of doctors and nurses from poor countries leaves easily noticeable gaps in health systems. The loss of pharmacists could be equally detrimental. Health systems in developing countries are characterised by heavy reliance on charging users at the point of access, with less use of prepayment systems (such as tax or insurance funding). User fees constitute a significant barrier to access to medical services in developing countries. This, coupled with inadequate numbers of medical personnel, makes pharmacy more attractive because pharmacy consultations are free. Therefore, any emigration of pharmacists from poor to rich countries greatly hinders access to essential medicines in developing countries.

The shortage of pharmacists at points of drug usage deprives the population of vital expertise in the management of drug-related problems in both the community and hospital setting. In the community, pharmacists serve as gatekeepers by managing simple diseases and referring clients to doctors or hospitals. Whenever there are inadequate numbers of pharmacists in the community, clients are under-served by either over-worked pharmacists, or by less qualified pharmacy assistants. Patients with chronic diseases, e.g. hypertension or diabetes, who would have otherwise benefited from the seamless care provided by community pharmacists, are deprived of this and have to make costly visits to hospitals staffed by over-stretched nurses and doctors. The brain drain also compromises pharmacists' key role in the development and implementation of national medicine policies. In 2001 alone, 600 pharmacists registered in South Africa emigrated to take up employment elsewhere. Between 1990 and 2003 New Zealand registered 99 pharmacists trained in South Africa (Matowe, Duwiejua, & Norris, 2004).

Rothmann, Rothmann, Van Rensburg, and Malan (2000) regard burnout as one of the key factors that contribute to impairment of pharmacists. This is especially important since pharmacists work in an environment where drugs are available and impairment may affect their judgement during day-to-day practice – therefore those who are inclined to burnout should be identified. More specifically, hospital pharmacists in South Africa, especially in the

public sector, are confronted with various situational difficulties. Pharmaceutical services, particularly in the public sector, are hampered by a shortage of pharmacy personnel (Conry, Gray, & Summers, 1999; Pretorius, 2001). The work conditions of hospital pharmacists in the public sector are a major concern and have resulted in pharmacists being charged by the Disciplinary Committee of the South African Pharmacy Council with dispensing errors (Beukes, 2002). The Disciplinary Committee expressed their concern regarding the workload of pharmacists in the public sector and stated that it is twice the acceptable norm (Beukes, 2002). In contrast, pharmacists in the private hospital sector seem to be better off in terms of conditions and staff proficiency (Conry et al., 1999). These discrepancies between the public sector and private sector pose a great concern to authorities taking into consideration that the public sector serves 80% of the population (Conry et al., 1999). Therefore, research regarding the burnout and engagement of hospital pharmacists in public and private hospitals is relevant.

The objectives of this study were to investigate whether job stress and coping strategies could predict work-related well-being (burnout and work engagement) of hospital pharmacists.

Burnout

Schaufeli and Enzmann (1998, p. 36) define 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 has been recognised as a serious threat, particularly for employees who work with people (Van Dierendonck, Schaufeli, & Buunk, 1993). It is the end result of consistent unmoderated or unsuccessful attempts at mediating stressors in the environment on the part of the individual (Levert, Lucas, & Ortlepp, 2000).

Stress should not be confused with burnout. According to Schaufeli and Enzmann (1998), burnout can be considered as a particular kind of prolonged job stress. An individual experiences occupational stress when the demands of the workplace exceed his or her adaptive responses. Burnout is a particular, multidimensional, chronic stress reaction 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.

Burnout is in general viewed as a syndrome consisting of three dimensions, namely emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Jackson, 1986). Research over the past two decades has shown that burnout is not only related to negative outcomes for the individual, including depression, a sense of failure, fatigue, and loss of motivation; it is also related to negative outcomes for the organisation, including absenteeism, turnover rates and lowered productivity. According to Levert et al. (2000), burned-out workers show a lack of commitment and are less capable of providing adequate services, especially along dimensions of decision-making and initiating involvement with clients (Fryer, Poland, Bross, & Krugman, 1988; Maslach, 1982). Burned-out workers are also too depleted to give of themselves in a creative, co-operative fashion (Sammut, 1997).

Barnett, Hopkins, and Jackson (1986) and Gupchup et al. (1998) found in their research that pharmacists experience moderate levels of burnout. Daily demands of the job and dealing with patients, the professional role, counter prescribing and time pressures may contribute to emotional exhaustion and depersonalisation (Willett & Cooper, 1996). A recent study on burnout of a small sample of pharmacists using the Maslach Burnout Inventory (MBI) indicated that respondents experience low to moderate levels of burnout on emotional exhaustion and depersonalisation, and a relatively high level of personal accomplishment (Malan, Rothmann, & Rothmann, 2002).

Rothmann and Malan (in press a) confirmed a three-factor model of burnout, consisting of Emotional Exhaustion, Depersonalisation and Personal Accomplishment by means of structural equation modelling. With regard to the internal consistency of the scales, Emotional Exhaustion ($\alpha = 0,91$), Depersonalisation ($\alpha = 0,78$) and Personal Accomplishment ($\alpha = 0,77$) seem to demonstrate acceptable alpha coefficients above the 0,70 guideline provided by Nunnally and Bernstein (1994). The results showed that 35% of the hospital pharmacists showed high levels of emotional exhaustion, while 25% showed high levels of depersonalisation.

A study by Rothmann and Malan (in press a) revealed that biographical factors had a significant influence on the combined dependent variable burnout. Various biographical factors such as age, years in pharmacy practice, and home language did have significant

effects on burnout. It was noted that younger participants experienced higher levels of Depersonalisation than older participants. Similar findings were observed for the years in pharmacy practice. Pharmacists that have been in practice only for a short period have also experienced higher levels of depersonalisation compared to those individuals that have been in pharmacy practice for a longer period (those with an earlier date of registration). Previous studies also showed that burnout occurs more often among younger employees compared to those older than 30 to 40 years, and that it is negatively related to work experience. Künzel and Schulte (1986) interpret the greater incidence of burnout in younger and less experienced employees in terms of reality shock, while Cherniss (1980) regards it as an indicator of an identity crisis due to unsuccessful occupational socialisation. Maslach, Jackson, and Leiter (1996) showed that burnout symptoms decrease as people grow older or gain work experience. Alternatively, a selection effect is also possible, in other words, burned-out pharmacists have left the organisation.

Researchers elsewhere in the world have found that the possible causes of burnout can be classified into organisational, biographical and personality factors. Organisational factors that contribute to burnout are work overload (Landsbergis, 1988), poor collegial support (Golembiewski & Munzenrider, 1988), role conflict and role ambiguity (Miller, Ellis, Zook, & Lyles, 1990), and lack of feedback (participation in decision-making and autonomy). These factors represent “demands” on employees (also referred to as job stressors) which are included in most models of burnout (Schaufeli & Enzmann, 1998). Burnout was found to be related to job stressors, including low levels of perceived control (Shirom, 1989), work overload (Bacharach, Bamberger, & Conley, 1991), poor collegial support (Golembiewski & Munzenrider, 1988), role conflict and role ambiguity (Miller et al., 1990) as well as a lack of feedback.

Occupational stress

Willett and Cooper (1996) attempted to identify the extent and aetiology of stress in community pharmacy and the effect it was having on general well-being of pharmacists. Compared to other workers, pharmacists in this study experienced high levels of stress at work, especially from factors intrinsic to their jobs and their management role which included work overload, autonomy and having to perform a variety of tasks as well as inability to delegate, a perceived lack of influence and role ambiguity. They also reported significantly

higher scores on “relationships with other people” than all the other groups, except health authority workers. Furthermore, pharmacists also reported significantly more distress from “career and achievement” worries than either general practitioners or managers. Pressure regarding the home/work interface was also higher than for the managers or Occupational Stress Indicator (OSI) norms. Factor analysis of pharmacy-specific stressors revealed four major causes of stress, namely the daily demands of the job and dealing with patients, the professional role, counter prescribing and time pressure.

Mott et al. (2004) evaluated job stress by means of six items adapted from the *Health Professions Stress Inventory (HPSI)*. They found that role overload and job stress results obtained were high, with more than 68% of respondents scoring higher than the midpoint of the scale for each of these constructs. The six job stressors were measured across various practice settings and although the job stressors caused stress in all practice settings, a higher percentage of pharmacists practising in other practice settings reported not experiencing three of the six stressors (being interrupted by phone calls, doing excessive paperwork, not practicing pharmacy the way I want). Inadequate staffing was highly stressful for a majority of respondents in chain and hospital settings. More than 555 of pharmacists in all settings, except independent and other, indicated that “not being able to practice pharmacy the way I want” to be stressful (somewhat stressful and highly stressful). At least 60% of pharmacists in hospital settings reported to experience “job policies enforced inconsistently” to be stressful (somewhat stressful to highly stressful).

Coping

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”. Kleinke (1991, p. 3) defines coping as “the efforts we make to manage situations we have appraised as potentially harmful or stressful”. Coping refers to perceptual, cognitive or behavioural responses that are used to manage, avoid or control situations that could be regarded as difficult (Lazarus & Folkman, 1984; Moos, 1994; Zeidner & Endler, 1996). Callan (1993) defines non-coping as failed efforts to cope, accompanied by various physical and psycho-social disturbances, which in

turn result in higher stress. Carver, Scheier, and Weintraub (1989) state that non-coping results in higher levels of depression and anxiety.

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 does it impede the attainment of professional goals, but it also depletes coping resources.

Amirkhan (1994), Callan (1993), and Lazarus and Folkman (1984) distinguish between problem-focused and emotion-focused coping. Problem-focused coping is directed at eliminating an unpleasant experience or reducing the effects thereof. Emotion-focused coping, on the other hand, is directed at reducing the effects of stressful feelings caused by an unpleasant experience through relaxation, the use of alcohol and drugs, social activities and/or defence mechanisms.

Carver et al. (1989) distinguish between five variations of **problem-focused** coping, namely: active coping (taking active steps to remove stressors or to reduce their effects); planning (thinking about various strategies which could be used to solve a problem); suppressing competing activities (moving other projects temporarily to the background); restraint coping (waiting for the right opportunity to solve a problem rather than acting impulsively) and seeking social support for instrumental reasons (looking for advice, support or information).

Furthermore, Carver et al. (1989) distinguish between the following five variations of **emotion-focused** coping: seeking social support for emotional reasons (reaching out to others for moral support, sympathy and understanding); positive reinterpretation (managing stress emotions rather than the stressors by reinterpretation); denial (experiencing stressors as unreal); acceptance (accepting stressors as a reality) and turning to religion (focusing on religion to facilitate emotional support, positive reinterpretation as well as active coping).

Carver et al. (1989) also identify the following coping strategies that are used less frequently: focus on and venting of emotions (focusing on a stressful situation and expressing feelings about it); behavioural disengagement (ignoring and avoiding stressors and becoming more

helpless and powerless); mental disengagement (excessive sleeping or daydreaming to escape from stressors) and alcohol-drug disengagement (using alcohol or drugs to manage stress).

In the literature high levels of burnout are associated with ineffective (Rowe, 1997) or withdrawal coping strategies, while low levels of burnout are linked to constructive coping strategies (Maslach & Jackson, 1982). Rowe (1997) also demonstrated the importance of teaching individuals with limited coping skills to alter the way in which they address problems. Alsoofi, Al-Heeti, and Alwashli (2000) found a significant correlation between ways of coping and burnout.

Individuals who are burned-out cope with stressful events in a rather passive, defensive way, whereas individuals who use confronting coping strategies experience less burnout (Schaufeli & Enzmann, 1998). Both confronting and avoiding coping share about 5-10% of the variance of emotional exhaustion and depersonalisation. With respect to personal accomplishment, confronting coping explains 15% of variance, whereas the relationship with avoiding coping is weaker. The use of a problem-focused strategy may trigger feelings of personal accomplishment, which could explain the relationship between confronting coping and personal accomplishment (Lee & Ashfort, 1996).

Basson and Rothmann (2002) studied a sample of pharmacists and found that mental disengagement was positively related to emotional exhaustion and depersonalisation, while positive reinterpretation and restrained coping were positively related to personal accomplishment. The coping strategies mostly used by this group of pharmacists were planning, active coping, positive reinterpretation and turning to religion. They scored the lowest on alcohol-drug disengagement, denial and behavioural disengagement.

Work engagement

Maslach and Leiter (1997) state that *engagement* is characterised by energy, involvement and efficacy, which are considered the direct opposites of the three burnout dimensions, namely exhaustion, cynicism and lack of professional efficacy – the three dimensions of burnout according to the MBI-GS (*Maslach Burnout Inventory – General Survey*). Employees who are engaged in their jobs have a sense of energetic and effective connection with their job activities and regard themselves as able to deal totally with their job demands. According to

Maslach and Leiter (1997), engagement is indicated by the opposite pattern of scores on the three MBI dimensions. According to these authors, low scores on exhaustion and cynicism and high scores on efficacy are indicative of engagement. By using the MBI to measure the level of engagement, an empirical study of the relationship between burnout and engagement is impossible since both these concepts are considered to be opposite poles of a continuum that is covered by one single instrument.

Schaufeli et al. (2002, p. 74) describe burnout and engagement as opposite concepts that should be measured independently with different instruments. They define *engagement* as “a positive, fulfilling, work-related state of mind that is characterised by *vigour*, *dedication* and *absorption*”. Engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular job, event, individual or behaviour. Vigour refers to high levels of energy and mental resilience while working as well as a willingness to exert effort and persistence even through difficult situations. Dedication is described as a sense of significance, enthusiasm, inspiration, pride and challenge. Absorption refers to a tendency to be fully concentrated and deeply engrossed in work, whereby time passes quickly and one has difficulty in detaching oneself from work. Absorption includes focused attention, clear minds, mind and body unison, effortless concentration, complete control, loss of self-consciousness, distortion of time, and intrinsic enjoyment (Csikszentmihalyi, 1990). Schaufeli et al. (2002) developed the Utrecht Work Engagement Scale (UWES) and found acceptable reliability and validity for the scale in a study conducted in Spain.

The above-mentioned discussion shows that hospital pharmacists’ adaptation at work could be studied in a positive way by focusing on the concept of engagement. In a study conducted by Rothmann and Malan (in press b) among hospital pharmacists in South Africa, exploratory factor analysis resulted in two factors for the UWES, namely Vigour/Dedication and Absorption. These factors showed acceptable alpha coefficients of 0,93 and 0,82 respectively. Compared to a South African norm, 38,5% and 48,9% of the hospital pharmacists showed low levels of vigour and dedication respectively. Position, home-language as well as level of qualification were related to work engagement of hospital pharmacists.

No information is available regarding the relationships between job stressors and coping that might be related to engagement of hospital pharmacists. Accordingly, no studies including these factors in a causal model of engagement of hospital pharmacists were found in the

literature. Therefore, the final research problem is that there is a lack of a causal model of engagement of hospital pharmacists in South Africa. Storm and Rothmann (2005) found a significant relationship between burnout, engagement and job-related stress among police officers. Their results showed that age, gender, and race explained a small percentage of the variance in exhaustion, cynicism and vigour/dedication. Stress as a result of job demands and a lack of resources predicted exhaustion and cynicism. Emotional stability and conscientiousness inversely predicted exhaustion and cynicism, while emotional stability, conscientiousness and extraversion predicted vigour and dedication. Stress as a result of job demands predicted only a small percentage of the variance in vigour and dedication.

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

- H1: Job stress leads to emotional exhaustion, depersonalisation and low personal accomplishment of hospital pharmacists.
- H2: Approach coping strategies lead to less emotional exhaustion and depersonalisation and more personal accomplishment and work engagement of hospital pharmacists.

METHOD

Research design

A cross-sectional survey design was used to gather the information required to achieve the research objectives. According to Burns and Grove (1993), cross-sectional designs are appropriate when 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. This design is also suitable for the development and validation of questionnaires (Shaughnessy & Zechmeister, 1997).

Participants

The study population can be described as a convenience sample of hospital pharmacists employed by various private and public sector health facilities in the different provinces of South Africa (Public Health facilities in North West, KwaZulu-Natal and Free State provinces as well as private hospital facilities on a national basis). The total population of

approximately 2000 hospital pharmacists nationally was targeted. A response rate of 21,6% was achieved, which can be ascribed to the nature of the job, e.g. call-outs, rotating working schedules and leave as well as difficulties in obtaining permission from the various State facilities. Of these only 187 responses (19,3% of the total number of questionnaires distributed) could be utilised. Descriptive information of the sample is given in Table 1.

Table 1

Characteristics of the Participants

Item	Category	Percentage
Language	Afrikaans	54,5
	English	34,8
	Other	11,7
Position	Pharmacy owner/partner and manager – private hospital sector (PHS)	1,6
	Pharmacy owner/partner but not manager (PHS)	0,5
	Pharmacy manager but not owner/partner (PHS)	16,2
	Pharmacy manager – public sector	8,1
	Pharmacist	56,2
	Community service pharmacist	7,6
	Intern	7,0
	Other	2,7
Number of years in pharmacy	Average age of respondents	35,5
	Average number of years in pharmacy	12,4
	Average number of years in hospital pharmacy (private sector)	5,1
	Average number of years in hospital pharmacy (public sector)	4,5
	Average number of years in current position	3,9
Province	Eastern Cape	1,1
	Free State	14,1
	Gauteng	21,7
	KwaZulu-Natal	18,5
	Limpopo	2,7
	Mpumalanga	2,2
	Northern Cape	2,2
	North West	19,0
	Western Cape	18,5
Education	B. Pharm / Dip. Pharm	89,2
	Hons. Pharm	1,6
	M. Pharm	1,6
	M.Sc	1,6
	Other	5,9
Gender	Male	20,9
	Female	79,1
Marital status	Single	23,2
	Engaged	10,3
	Married	62,7
	Separated/Divorced/Widow/Widower	3,8

The sample consisted mainly of Afrikaans and English-speaking hospital pharmacists (54,5% and 34,8% respectively). They were mostly married (62,7%), mainly female (79,1%) with a mean age of 35,5 years. The average number of years in pharmacy was 12,4 years and the majority of respondents held positions as ordinary pharmacists (56,2%).

Measuring battery

The *Maslach Burnout Inventory – Human Services Survey* (MBI-HSS) (Maslach & Jackson, 1986; Maslach, Jackson, & Leiter, 1996) 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, which is 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"). Internal consistencies of the MBI-HSS scales are satisfactory with α -values ranging from 0,70 to 0,90 (Maslach et al., 1996). Rothmann and Malan (in press a) confirmed a three-factor model of burnout, consisting of Emotional Exhaustion, Depersonalisation and Personal Accomplishment by means of structural equation modelling. With regard to the internal consistency of the scales, Emotional Exhaustion ($\alpha = 0,91$), Depersonalisation ($\alpha = 0,78$) and Personal Accomplishment ($\alpha = 0,77$) seem to demonstrate acceptable alpha coefficients. Regarding test-retest reliability, the MBI-scores seem to be rather stable over time. Test-retest coefficients of the MBI-HSS range from 0,60 to 0,82 across short periods of up to one month and only drop slightly when longer periods of up to one year are considered ($0,57 < r < 0,60$) (Maslach et al., 1996). The factor validity of the MBI has been confirmed by a number of recent studies utilising advanced statistical techniques: confirmatory factor analysis using linear structural equation modelling (Gold, Bachelor, & Michael, 1989).

The *Utrecht Work Engagement Scale (UWES)* (Schaufeli et al., 2002) was used to measure levels of engagement. Although engagement was initially viewed as the positive antithesis of burnout, it is operationalised in its own right. The concept work engagement includes three dimensions, namely: Vigour (six items, e.g. "I am bursting with energy in my work"), Dedication (five items, e.g. "I find my work full of meaning and purpose") and Absorption

(six items, e.g. “When I am working, I forget everything else around me”). The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). The question whether engagement and burnout are endpoints of the same continuum, or whether they are two distinct but related concepts remains an empirical one. 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). In a study conducted by Rothmann and Malan (in press b) among hospital pharmacists in South Africa, exploratory factor analysis resulted in two factors for the UWES, namely Vigour/Dedication and Absorption. These factors showed acceptable alpha coefficients of 0,93 and 0,82 respectively.

The *Pharmacist Stress Inventory (PSI)* was used to measure job stress. The *Pharmacist Stress Inventory (PSI)* consists of 106 items and was developed for the purpose of determining the levels and intensity of job stress experienced by hospital pharmacists (Rothmann & Malan, in press c). In line with the recommendations of Dewe (1989) and Spielberger and Vagg (1999), both the severity and frequency of stressors were addressed in the scale construction. Firstly, participants rated each of the 53 statements in terms of perceived intensity of the particular stressor on a nine-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 six months on a 10-point scale ranging from 0 (*no days*) to 9 (*more than 9 days*). In each instance, the respondents were given the option to indicate whether a given stressor is relevant in terms of their experience or not. Exploratory factor analysis extracted three internally consistent factors, namely Job Demands, Pharmacy-specific Stressors and Lack of Resources. Two of the three extracted factors of the PSI were normally distributed in the sample, the third factor namely lack of resources shows a marginal degree of skewness which could be due to the fact that the majority of respondents experience a lack of resources. Also, alpha coefficients for the three factors compare well with the guideline of 0,70, demonstrating that a large proportion of the variance is explained by the factors (internal consistency of the scales) (Nunnally & Bernstein, 1994). The alpha coefficients were 0,91, 0,87 and 0,91 respectively.

The *COPE Questionnaire (COPE)* (Carver et al., 1989) was used to measure coping strategies utilised by participants. The COPE is a multidimensional 53-item coping

questionnaire that indicates the different ways people cope in different circumstances (Carver et al., 1989). It measures 13 different coping strategies. Five subscales measure different aspects of problem-focused coping, namely Active Coping, Planning, Suppressing of Competing Activities, Restraint Coping, and Seeking Social Support for Instrumental Reasons. Five subscales measure aspects of emotionally-focused coping, namely Seeking Social Support for emotional reasons, Positive Reinterpretation and Growth, Acceptance, Denial, and Turning to Religion. Four subscales measure coping responses that are used less often: Focus on and Venting of Emotions, Behavioural Disengagement, Mental Disengagement and Alcohol-Drug Disengagement (Carver et al., 1989). Carver et al. (1989) reported Cronbach alpha coefficients varying from 0,45 to 0,92. All the subscales showed sufficient levels of reliability except for Mental Disengagement (MD), which measured lower than 0,60. Test-retest reliability varied from 0,46 to 0,86 and from 0,42 tot 0,89 (applied after two weeks).

In this study principle component analysis with direct oblimin rotation showed four factors that were labelled: Approach Coping, Seeking Social Support, Avoidance Coping and Turning to Religion.

The factor labelled "Approach Coping" included the following items: "I concentrate on my efforts on doing something about it" (loading = 0,72), "I try to come up with a strategy about what to do" (0,70), "I learn something from the experience" (0, 69), "I think hard a bout what steps to take" (0,64), "I try hard to prevent the other things from interfering with my efforts at dealing with this" (0, 62), "I look for something good in what is happening" (0,62), "I make a plan of action" (0, 62), "I make sure not to make matters worse by acting too soon" (0,58), "I accept the reality of the fact that it happened" (0,58), "I do what has to be done, one step at a time" (0,55), "I try to see it in a different light, to make it seem more positive" (0,53), "I think about how I might best handle the problem" (0,50), "I keep myself from getting distracted by other thoughts or activities" (0,47), "I take direct action to get around the problem" (0,47), "I restrain myself from doing anything too quickly" (0,47), "I accept that this has happened and that it can't be changed" (0,39), "I take additional action to try to get rid of the problem" (0,38), "I try to grow as a person as a result of the experience" (0, 37) and "I force myself to wait for the right time to do something" (0,32).

The factor labelled “Seeking Social Support” included the following items: “I discuss my feelings with someone” (0,80), “I try to get emotional support from friends or relatives” (0,72), “I talk to someone about how I feel” (0,71), “I get sympathy and understanding from someone” (0,66), “I let my feelings out” (0,63), “I get upset and let my emotions out” (0,59), “I talk to someone to find out more about the situation” (0,58), “I try to get advice from someone about what to do” (0,57), “I talk to someone who could do something concrete about the problem” (0,56), “I feel a lot of emotional distress and find myself experiencing those feelings a lot” (0,50) and “I ask people who have had similar experiences what they did” (0,43).

The factor labelled “Avoidance Coping” included the following items: “I just give up trying to reach my goal” (0,64), “I act as though it hasn’t even happened” (0, 58), “I pretend that it hasn’t really happened” (0,56), “I refuse to believe it has happened” (0,52), “I give up the attempt to get what I want” (0,51), “I reduce the amount of effort I’m putting into solving the problem” (0,51), “I get upset, and am really aware of it” (0,49), “I say to myself: This isn’t real” (0,42), “I daydream about things other than this” (0,41), “I focus on dealing with the problem, and if necessary let other things slide a little” (0,39), “I drink alcohol, in order to think about it less” (0,38), “I go to movies or watch TV, or think about it” (0,37), “I turn to work or other substitute activities to take my mind of things” (0,37) and “I take medication, in order to think about it less” (0,32).

The fourth factor labelled “Turning to Religion” included the following items: “I seek God’s help” (0,89), “I try to find my comfort in my religion” (0,87), “I pray more than usual” (0,82) and “I put my trust in God” (0,82).

Statistical analysis

The statistical analysis was carried out with the help of the SAS program (SAS Institute, 1996) as well as the SPSS-program (SPSS Inc., 2003). Cronbach’s alpha coefficients, and confirmatory factor analysis as well as exploratory analysis were used to assess the reliability, validity and factor structure of the measuring instruments (Clark & Watson, 1995). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to analyse the data. Since a non-probability sample was used in this research, effect sizes (rather than inferential statistics) were used to decide on the 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) was set for the practical significance of correlation coefficients.

Multiple regression analyses were conducted to determine the percentage of the variance in the dependent variables (burnout and engagement) that is predicted by the independent variables (stress and coping). The effect size (which indicates practical significance) in the case of multiple regression is given by the following formula (Steyn, 1999):

$$f^2 = R^2 / (1 - R^2)$$

A cut-off point of 0,10 (medium effect) (Steyn, 1999) was set for the practical significance of f^2 .

RESULTS

Descriptive statistics

The descriptive statistics and alpha coefficients for the various scales are reported in Table 2.

Table 2

Descriptive Statistics and Alpha Coefficients of the MBI, UWES, PSI and COPE

Item	Mean	SD	Skewness	Kurtosis	α
Emotional Exhaustion	18,71	10,09	0,34	-0,73	0,91
Depersonalisation	8,66	6,58	0,75	-0,08	0,78
Personal Accomplishment	29,57	7,04	-0,51	-0,18	0,77
Vigour/Dedication	27,30	8,55	-0,39	-0,14	0,93
Absorption	20,44	5,60	-0,25	-0,48	0,82
Job Demands	94,73	25,08	-0,72	0,70	0,91
Pharmacy-specific Stressors	34,12	19,39	0,34	-0,65	0,87
Lack of resources	112,17	24,79	-1,08	1,75	0,91
Approach Coping	58,27	7,94	-0,67	2,02	0,87
Seeking Social Support	29,88	6,44	-0,17	-0,02	0,86
Avoidance Coping	24,25	4,86	0,47	0,29	0,73
Turning to Religion	12,82	3,47	-1,03	0,16	0,91

Table 2 shows that the scores on the different scales are generally normally distributed in the sample. “Lack of Resources” and “Turning to Religion” shows some skewness and kurtosis, which could be due to a large number of participants in the sample that supported these factors. Also, alpha coefficients for all the scales compare well with the guideline of 0,70, demonstrating that a large proportion of the variance is explained by the factors (internal consistency of the scales) (Nunnally & Bernstein, 1994). These results indicate that the internal consistency of the various questionnaires developed and used during the study are acceptable.

Correlations

The product-moment correlations coefficients between the MBI-HSS, UWES, PSI and COPE are reported in Table 3.

Table 3

Product-Moment Correlation Coefficients between the MBI, UWES, PSI and COPE

Item	1	2	3	4	5	6	7	8	9	10	11
1. Emotional Exhaustion	-	-	-	-	-	-	-	-	-	-	-
2. Depersonalisation	0,59 ⁺⁺⁺	-	-	-	-	-	-	-	-	-	-
3. Personal Accomplishment	-0,16 [*]	-0,28 [*]	-	-	-	-	-	-	-	-	-
4. Vigour/Dedication	-0,49 ⁺⁺	-0,38 ⁺⁺	0,48 ⁺⁺	-	-	-	-	-	-	-	-
5. Absorption	-0,17 [*]	-0,17 [*]	0,33 ⁺⁺	0,71 ⁺⁺⁺	-	-	-	-	-	-	-
6. Job Demands	0,45 ⁺⁺	0,29 [*]	-0,17 [*]	-0,27 [*]	-0,07	-	-	-	-	-	-
7. Pharmacy-specific Stressors	0,11	0,17 [*]	-0,05	-0,10	-0,07	0,43 ⁺⁺	-	-	-	-	-
8. Lack of Resources	0,39 ⁺⁺	0,32 ⁺⁺	-0,09	-0,20 [*]	-0,06	0,65 ⁺⁺⁺	0,42 ⁺⁺	-	-	-	-
9. Approach Coping	-0,23 [*]	-0,27 [*]	0,34 ⁺⁺	0,37 ⁺⁺	0,31 ⁺⁺	-0,26 [*]	-0,13	-0,17 [*]	-	-	-
10. Seeking Social Support	0,02	0,00	0,05	0,03	-0,03	0,03	-0,07	0,02	0,30 ⁺⁺	-	-
11. Avoidance Coping	0,22 [*]	0,12	-0,18 [*]	-0,21 [*]	-0,13	0,19 [*]	-0,04	0,11	-0,00	0,15 [*]	-
12. Turning to Religion	-0,09	-0,02	0,06	0,03	0,03	0,12	0,07	0,05	0,23 [*]	0,30 ⁺⁺	0,09

* Correlation is statistically significant at the 0,05 level

+ Correlation is practically significant $r > 0,30$ (medium effect)

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

As can be seen in Table 3, Emotional Exhaustion correlates positively statistically significantly at a 95% level of confidence, and practically significantly with a large effect with Depersonalisation. Both Emotional Exhaustion and Depersonalisation correlate negatively statistically significantly with Personal Accomplishment ($p < 0,05$).

Emotional Exhaustion (negative), Depersonalisation (negative) as well as Personal Accomplishment (positive) indicate a statistically significant correlation with Vigour/Dedication as well as a practically significant correlation of a medium effect. Emotional Exhaustion (negative), Depersonalisation (negative), Personal Accomplishment (positive) and Vigour/Dedication (positive) correlate statistically significantly with Absorption. Personal Accomplishment indicates a practically significant correlation of medium effect with Absorption, while Vigour/Dedication shows a practically significant correlation of large effect with Absorption.

Emotional Exhaustion (positive), Depersonalisation (positive), Personal Accomplishment (negative) and Vigour/Dedication (negative) correlate statistically significantly with Job Demands. Emotional Exhaustion correlates practically significantly (medium effect) with Job Demands. Depersonalisation and Job Demands correlate statistically significantly with Pharmacy-specific Stressors. Job Demands also correlates practically significant with a medium effect with Pharmacy-specific Stressors. Emotional Exhaustion (positive), Depersonalisation (positive), Vigour/Dedication (negative), Job Demands (positive) and Pharmacy-specific Stressors (positive) show statistically significant correlations with Lack of Resources. Emotional Exhaustion, Depersonalisation and Pharmacy-specific Stressors also correlate practically significantly (medium effect) with Lack of Resources whereas Job Demands shows practically significant correlation of large effect.

Emotional Exhaustion (negative), Depersonalisation (negative), Personal Accomplishment (positive), Vigour/Dedication (positive), Absorption (positive), Job demands (negative) and Lack of Resources (negative) all correlate statistically significantly with Approach coping. Personal Accomplishment, Vigour/Dedication as well as Absorption all showed practically significant correlation of medium effect with Approach coping. Approach Coping (positive) showed a statistically significant and practically significant (medium effect) correlation with Seeking Social Support. Emotional Exhaustion (positive), Personal Accomplishment (negative), Vigour/Dedication (negative), Job Demands (positive) and Seeking Social Support (positive) show correlations of statistical significance with Avoidance Coping. Approach Coping (positive) and Seeking Social Support (positive) correlate statistically significantly with Turning to Religion, while Seeking Social support also correlates practically significantly (medium effect) with Turning to Religion.

The above findings imply that a positive correlation exists between Emotional Exhaustion, Depersonalisation, Job Demands, Pharmacy-specific Stressors and Lack of Resources. Furthermore, Personal Accomplishment, Vigour/Dedication and Absorption correlate negatively with all of the above listed items.

Multiple regression analyses

Next, a series of multiple regression analyses were carried out. The results of a multiple regression analysis with occupational stress (as measured by the PSI) and coping strategies (as measured with the COPE questionnaire) as independent variables, and Emotional Exhaustion (as measured by the MBI-HSS) as dependent variable are reported in Table 4.

Table 4

Multiple Regression Analysis with Emotional Exhaustion as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
1	(Constant)	-2,53	3,13		-0,81	0,42	18,41*	0,48	0,23	0,23*
	Job Demands	0,15	0,04	0,37	4,25	0,00*				
	Pharmacy-specific stressors	-0,07	0,04	-0,13	-1,82	0,07				
	Lack of resources	0,08	0,04	0,21	2,40	0,02*				
2	(Constant)	3,40	6,86		0,50	0,62	9,88***	0,53	0,28	0,05*
	Job Demands	0,13	0,04	0,33	3,61	0,00*				
	Pharmacy-specific stressors	-0,05	0,04	-0,11	-1,43	0,15				
	Lack of resources	0,08	0,04	0,20	2,31	0,02*				
	Approach Coping	-0,15	0,09	-0,11	-1,61	0,11				
	Seeking Social Support	0,09	0,11	0,06	0,80	0,43				
	Avoidance Coping	0,27	0,14	0,13	2,00	0,05*				
	Turning to Religion	-0,39	0,20	-0,13	-1,95	0,05*				

* $p < 0,05$ – Statistically significant

++ $f^2 > 0,35$ – Practically significant (large effect)

Table 4 shows that 23% of the variance in Emotional Exhaustion (as measured by the MBI-HSS) is predicted by occupational stress (as measured by the PSI). This result was statistically significant ($F = 18,41$, $p < 0,01$). Furthermore, when coping strategies (as measured by the COPE) were entered into the regression analyses, a statistically significant increase in the R^2 (5%) resulted. Therefore, 28% of the variance in Emotional Exhaustion is predicted by occupational stress and coping strategies, which is practically significant (large effect). The results showed that the regression coefficients of the following independent variables were statistically significant ($p < 0,01$): Job Demands (high), Lack of Resources (high), Avoidance Coping (high), and Turning to Religion (low). Job Demands, however, showed the highest standardised regression coefficient. Therefore, high Job Demands, Lack of Resources, applying Avoidance Coping strategies, and the lack of Turning to Religion do have a significant effect on the development of Emotional Exhaustion in hospital pharmacists.

The results of a multiple regression analysis with occupational stress (as measured by the PSI) and coping strategies (as measured with the COPE questionnaire) as independent variables and Depersonalisation (as measured by the MBI-HSS) as dependent variable are reported in Table 5.

Table 5
Multiple Regression Analysis with Depersonalisation as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
1	(Constant)	-1,67	2,19		-0,76	0,45	7,94*	0,34	0,12	0,12*
	Job Demands	0,04	0,03	0,13	1,42	0,16				
	Pharmacy-specific stressors	0,01	0,03	0,02	0,20	0,84				
	Lack of resources	0,06	0,03	0,23	2,47	0,02*				
2	(Constant)	7,33	4,81		1,53	0,13	5,15**	0,41	0,17	0,05*
	Job Demands	0,01	0,03	0,05	0,52	0,60				
	Pharmacy-specific stressors	0,01	0,03	0,03	0,38	0,70				
	Lack of resources	0,06	0,02	0,23	2,50	0,01*				
	Approach Coping	-0,19	0,06	-0,23	-3,07	0,00*				
	Seeking Social Support	0,06	0,08	0,06	0,78	0,43				
	Avoidance Coping	0,11	0,10	0,08	1,15	0,25				
Turning to Religion	-0,02	0,14	-0,01	-0,14	0,89					

* $p < 0,05$

+ $f^2 > 0,10$ – Practically significant (medium effect)

Table 5 shows that 12% of the variance in Depersonalisation (as measured by the MBI-HSS) is predicted by occupational stress (as measured by the PSI). This result was statistically significant ($F = 7,94$, $p < 0,01$). Furthermore, when coping strategies (as measured by the COPE) were entered into the regression analyses, a statistically significant increase in the R^2 (5%) resulted. Therefore, 17% of the variance in Depersonalisation is predicted by occupational stress and coping strategies, which is practically significant (medium effect). The results showed that the regression coefficients of the following independent variables were statistically significant ($p < 0,01$): Lack of Resources (high), Approach Coping (low). The standardised regression coefficients of these two variables were in the same range. This implies that the Lack of Resources as well as the lack of an Approach Coping strategy (active

coping strategy) will increase the development of Depersonalisation in South African hospital pharmacists.

The results of a multiple regression analysis with occupational stress (as measured by the PSI) and coping strategies (as measured with the COPE questionnaire) as independent variables and Personal Accomplishment (as measured by the MBI-HSS) as dependent variable are reported in Table 6.

Table 6

Multiple Regression Analysis with Personal Accomplishment as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>P</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
1	(Constant)	33,60	2,45		13,71	0,00	1,97	0,18	0,03	0,03
	Job Demands	-0,06	0,03	-0,21	-2,12	0,04				
	Pharmacy-specific stressors	0,01	0,03	0,03	0,32	0,75				
	Lack of resources	0,01	0,03	0,04	0,38	0,71				
2	(Constant)	19,36	5,19		3,73	0,00	4,60**	0,39	0,15	0,12*
	Job Demands	-0,02	0,03	-0,08	-0,83	0,41				
	Pharmacy-specific stressors	0,00	0,03	0,01	0,06	0,95				
	Lack of resources	0,01	0,03	0,04	0,41	0,68				
	Approach Coping	0,30	0,07	0,34	4,37	0,00*				
	Seeking Social Support	-0,03	0,08	-0,03	-0,34	0,73				
	Avoidance Coping	-0,23	0,10	-0,16	-2,23	0,03*				
Turning to Religion	0,02	0,15	0,01	0,12	0,91					

* $p < 0,05$

+ $f^2 > 0,10$ – Practically significant (medium effect)

Table 6 shows that occupational stress did not contribute statistically significantly to the prediction of Personal Accomplishment (as measured by the MBI-HSS). However, when coping strategies (as measured by the COPE) were entered into the regression analyses, a statistically significant increase in the R^2 (15%) resulted. This result is practically significant (medium effect). The regression coefficients of the following independent variables were statistically significant ($p < 0,05$): Approach Coping (high), Avoidance Coping (low). The standardised regression coefficient of Approach Coping was moderate, while the coefficient

of Avoidance Coping was lower. The above finding indicates that stress, or the lack thereof, does not imply that higher levels of Personal Accomplishment are experienced. There is a correlation between increased levels of Personal Accomplishment and the application of an Approach (active) Coping strategy and the non-application of an Avoidance Coping strategy.

The above findings provide partial support for the first hypothesis. Job stress does lead to Emotional Exhaustion and Depersonalisation, but no statistically or practically significant correlation could be found between Job Stress and low Personal Accomplishment.

The second hypothesis is also only partially supported by the above findings in that the lack of Approach Coping did lead to increased levels of Depersonalisation, whereas the application of an Approach Coping strategy led to increased levels of Personal Accomplishment. There was however no statistical correlation between increased levels of Emotional Exhaustion and the lack of an Approach Coping strategy.

The results of a multiple regression analysis with occupational stress (as measured by the PSI) and coping strategies (as measured with the COPE questionnaire) as independent variables and Vigour/Dedication (as measured by the UWES) as dependent variable are reported in Table 7.

Table 7

Multiple Regression Analysis with Vigour/Dedication as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
1	(Constant)	36,84	2,91		12,65	0,00	4,87*	0,27	0,07	0,07*
	Job Demands	-0,09	0,03	-0,25	-2,60	0,01*				
	Pharmacy-specific stressors	0,01	0,04	0,03	0,37	0,71				
	Lack of resources	-0,02	0,03	-0,05	-0,53	0,60				
2	(Constant)	19,93	6,11		3,26	0,00	6,58**	0,45	0,21	0,13*
	Job Demands	-0,04	0,03	-0,11	-1,17	0,24				
	Pharmacy-specific stressors	0,00	0,03	0,01	0,08	0,94				
	Lack of resources	-0,02	0,03	-0,05	-0,56	0,58				
	Approach Coping	0,38	0,08	0,35	4,75	0,00*				
	Seeking Social Support	-0,06	0,10	-0,05	-0,61	0,54				
	Avoidance Coping	-0,30	0,12	-0,17	-2,46	0,02*				
	Turning to Religion	-0,03	0,18	-0,01	-0,14	0,89				

* $p < 0,05$ + $f^2 > 0,10$ – Practically significant (medium effect)

Table 7 shows that occupational stress contributed statistically significantly to the prediction of Vigour/Dedication (as measured by the UWES). However, the effect size was small. When coping strategies (as measured by the COPE) were entered into the regression analyses, a statistically significant increase in the R^2 (13%) resulted. This result is practically significant (medium effect). The regression coefficients of the following independent variables were statistically significant ($p < 0,05$): Approach Coping (high), Avoidance Coping (low). The standardised regression coefficient of Approach Coping was moderate, while the coefficient of Avoidance Coping was lower. These findings indicate that the application of an Approach Coping strategy as well as the non-utilisation of an Avoidance Coping strategy leads to increased levels of Vigour/Dedication.

The results of a multiple regression analysis with occupational stress (as measured by the PSI) and coping strategies (as measured with the COPE questionnaire) as independent variables and Absorption (as measured by the UWES) as dependent variable are reported in Table 8.

Table 8

Multiple Regression Analysis with Absorption as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	Beta						
1	(Constant)	22,13	1,98		11,21	0,00	0,40*	0,08	0,01	0,01
	Job Demands	-0,01	0,02	-0,04	-0,38	0,70				
	Pharmacy-specific stressors	-0,01	0,02	-0,04	-0,51	0,61				
	Lack of resources	-0,00	0,02	-0,02	-0,19	0,85				
2	(Constant)	11,53	4,17		2,76	0,01	3,98*	0,37	0,12	0,13*
	Job Demands	0,02	0,02	0,10	1,01	0,31				
	Pharmacy-specific stressors	-0,02	0,02	-0,07	-0,85	0,40				
	Lack of resources	-0,00	0,02	-0,02	-0,18	0,86				
	Approach Coping	0,26	0,06	0,37	4,74	0,00*				
	Seeking Social Support	-0,11	0,07	-0,12	-1,58	0,12				
	Avoidance Coping	-0,16	0,08	-0,14	-1,86	0,06				
	Turning to Religion	-0,03	0,12	-0,02	-0,21	0,84				

* $p < 0,05$ + $f^2 > 0,10$ – Practically significant (medium effect)

Table 8 shows that occupational stress did not contribute statistically significantly to the prediction of Absorption (as measured by the UWES). When coping strategies (as measured by the COPE) were entered into the regression analyses, a statistically significant increase in the R^2 (12%) resulted. This result is practically significant (medium effect). The regression coefficient of Approach Coping was statistically significant ($p < 0,05$). The above finding implies that stress did not predict the levels of Absorption experienced, but that the application of an Approach Coping strategy did predict the level of Absorption experienced.

The results of Table 7 and Table 8 support the second hypothesis, postulating that an Approach Coping strategy lead to higher levels of work engagement for hospital pharmacists.

DISCUSSION

The objectives of this study were to investigate whether job stress and coping strategies could predict work-related well-being (burnout and work engagement) of hospital pharmacists in South Africa. The results showed that job stress (as a result of job demands and a lack of job resources), as well as three coping strategies (approach coping, avoidance coping and turning to religion) contributed to various aspects of the work-related well-being of South African hospital pharmacists. Emotional exhaustion was best predicted by stress because of job demands and a lack of resources, as well as the application of an avoidance coping strategy and not turning to religion. Depersonalisation was predicted by stress because of a lack of resources as well as weak approach coping strategies. Personal accomplishment was only predicted by strong Approach Coping strategies as well as the non-utilisation of avoidance coping strategies. Vigour/Dedication was predicted by low job demands, strong approach coping strategies and reduced avoidance coping strategies. Absorption was only predicted by one coping strategy, namely approach coping.

Regarding the negative aspects of work-related well-being, the multiple regression analysis showed that job stress (as a result of job demand and a lack of resources) indeed contributes strongly to burnout (explaining 23% and 12% of the variance in emotional exhaustion and depersonalisation respectively). This finding confirms the result of previous studies (e.g. Rothmann, Steyn, & Mostert, 2005).

South African hospital pharmacists experience high levels of stress due to their work environment. Pharmacists are unable to perform their expected duties due to a series of factors, namely a lack of the availability of medication, staff members not pulling their weight, insufficient personnel to handle the workload, inadequate support of supervisors, uncooperative attitudes of other health care professionals, inadequate salaries, and inadequate or poor quality equipment. Inexperienced pharmacists, especially younger pharmacists performing their Community Service year are in many instances expected to perform the duties and responsibilities of qualified and registered pharmacists. Since they are still lacking the necessary experience, this also contributes to higher stress levels and possible dispensing errors that may occur. This lack of experience, together with the increasing struggle to source sufficient numbers of qualified pharmacists to handle the workload in hospital pharmacies, will lead to increased levels of stress in the long term. Every year many qualified pharmacists

are leaving South Africa to work abroad due to the unacceptable work conditions and poor salary remuneration for pharmacists in South Africa.

The results showed that the utilisation of an avoidance coping strategy together with an attitude of not turning to religion explained 5% of the variance in emotional exhaustion. The non-utilisation of an approach coping strategy explained 5% of the variance of depersonalisation, while 15% of the variance of personal accomplishment was explained by the application of an approach coping strategy and the non-utilisation of an avoidance coping strategy.

These results confirm findings of Mills and Huebner (1998), Schaufeli and Enzmann (1998), and Zellars, Perrewe, and Hochwarter (2000).

Regarding the positive aspects of work-related well-being, the results showed that low stress as a result of job demands predicted 7% of the variance in work engagement, while stress as a result of a lack of job resources did not contribute to work engagement. However, an approach coping strategy and the reduced use of an avoidance coping strategy predicted 14% of the variance in work engagement. Storm and Rothmann (2005) found a significant relationship between burnout, engagement and job-related stress among police officers. Their results showed that age, gender, and race explained a small percentage of the variance in exhaustion, cynicism and vigour/dedication. Stress as a result of job demands and a lack of resources predicted exhaustion and cynicism. Emotional stability and conscientiousness inversely predicted exhaustion and cynicism, while emotional stability, conscientiousness and extraversion predicted vigour and dedication. Stress as a result of job demands predicted only a small percentage of the variance in vigour and dedication.

With regard to the limitations of the present study, two aspects can be highlighted. Firstly, due to the fact that the study design was a cross-sectional survey design, it was difficult to prove causal relationships. The use of other designs such as longitudinal designs can assist in establishing causality. A second limitation of this study was that the total study relied merely on self-reporting. This could lead to method variance or disturbance (Schaufeli, Enzmann, & Girault, 1993).

RECOMMENDATIONS

In general, research is needed regarding causes, effects and underlying processes of burnout and work engagement for all occupational groups in South Africa. It is important to determine whether psychological strengths and work engagement (employee well-being) contribute to the reduction in sick leave and an increase in productivity, job satisfaction and quality of goods and services. The traditional focus of burnout research on self-reports and experienced work characteristics have to be extended to include a view on (i) those objective aspects of the work situation that can be altered by management (e.g. workload, performance feedback, job control), and (ii) outcomes that have direct or indirect economical impacts (e.g. sick leave, efficiency, performance, customer satisfaction). Burnout as a psychological phenomenon will be taken seriously by the management of organisations only to the extent to which it definitely contributes to poor business performance. Organisations will be inclined to invest in preventive, organisational anti-burnout programmes once they believe positive results can be obtained in terms of lower illness and turnover rates, and increased performance.

Furthermore, it is important to determine which factors, for instance personality traits, play a significant role in predicting expected levels of burnout and engagement. All of these independent variables need to be incorporated into a single model that could be used to accurately predict the possible development of burnout and/or increased levels of engagement for various occupational setting. This may be used in selection criteria for critical positions in various organisations, thereby ensuring that the most suited candidates can be appointed to certain critical positions. This model could also assist companies in finding ways to improve the coping capabilities of their employees and determining which particular stressors are more likely to lead to burnout in various occupations. This is especially important in a time when many highly qualified/skilled staff is lost to the South African work environment due to employees' inability to keep on adapting to very unfavourable working conditions.

Although it remains important to assist individuals whose psychological well-being is affected by their work, an organisational rather than an individual approach is more likely to be effective, as most stressors were found to arise from conflict at an organisational level. More specifically, given the accumulating evidence of job demands (overload) and its negative impact on hospital pharmacists, hospital management in both the public and private

sectors should intervene to increase the levels of work-wellness of South African hospital pharmacists. Given the results of the present study, it is evident that occupational stressors (Job Demands, Lack of Resources and Pharmacy-specific Stressors) play a major role in the development of burnout (especially increased levels of Emotional Exhaustion and Depersonalisation) among South African hospital pharmacists. It is thus imperative that organisations need to address these stressors that are in the main responsible for the unfavourable work environment and that lead to the development of burnout among hospital pharmacists. By decreasing these stressors that are both highly stressful and that occur frequently, the possibility exists to decrease the levels of emotional exhaustion and depersonalisation experienced by hospital pharmacists. Furthermore, it is important to focus on and enhance the coping capabilities of the hospital pharmacists. Due to the fact that stressful job demands play a central role in burnout, it is necessary to implement preventive organisationally-based strategies to address high job demands.

Secondary-level interventions can be implemented to prevent employees who are already showing signs of stress from getting ill and to increase their coping capacity. Typical examples of this strategy would include equipping hospital pharmacists with skills such as cognitive restructuring, time management, conflict resolution techniques and coping strategies to enhance their human strengths. Furthermore, tertiary level stress management interventions are concerned with the rehabilitation of individuals who suffered ill-health or reduced well-being as a result of strain in the workplace.

Longitudinal research regarding work-wellness of hospital pharmacists in South Africa is clearly warranted.

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CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

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

6.1 CONCLUSIONS

The first objective of this study was to determine the construct validity and internal consistency of the MBI-HSS for South African hospital pharmacists in both Private and Public Health facilities. The original 22-item MBI-HSS was tested by means of structural equation modelling (SEM) in order to assess the construct validity of the MBI-HSS for hospital pharmacists in South Africa. The 22-item model showed poor model fit to the data tested, which led to an exploratory factor analysis approach in the post-hoc analysis of the data. Analysis of the results obtained, together with evaluation of the modification indexes (measure of factor cross-loadings and error co-variances), led to the deletion of items 6 (“working with people all day is really a strain for me”), 12 (“I feel very energetic”) and 16 (“Working with people directly puts too much stress on me”). Additionally, errors 13 and 10, as well as errors 15 and 16 were allowed to correlate.

The modifications resulted in a 19-item scale being fitted to the data. This is consistent with the study done by Byrne (1993) where the factor validity of the MBI was tested separately for elementary, intermediate and secondary teachers. From this study it was concluded that items 12 and item 16 might be inappropriate for use with teachers. Omission of item 12 is also consistent with other reports in the literature (Byrne, 1993; Leiter & Durup, 1994; Schaufeli & Van Dierendonck, 1993).

Furthermore, error terms within the subscales were allowed to correlate in order to improve model fit. The measurement error co-variances represent systematic, rather than random, measurement error in item responses, which may derive from characteristics unique to either the items or to the respondents (Aish & Joreskog, 1990). If these parameters were to reflect

item characteristics, they may be representative of a small factor that has been neglected. Alternatively, if these were to represent respondent characteristics, they may be indicative of bias such as yea-nay-saying, social desirability, and the like. Correlated errors can also be triggered by a high degree of overlap in item content. Such superfluity happens when an item, although phrased differently, basically asks the same question (Byrne, 2001).

Also, reliability analysis confirmed sufficient internal consistency of the subscales. The alpha coefficients of all three subscales of burnout were higher than 0,70, which demonstrates acceptable internal consistency of all three subscales as per the guideline provided by Nunnally and Bernstein (1994). The Cronbach alpha for Emotional Exhaustion was 0,91, for Depersonalisation 0,78 and for Personal Accomplishment 0,77. In the South African context, research evidence seems to confirm these findings. Basson and Rothmann (2002) found internal consistencies of 0,67 (Depersonalisation), 0,73 (Personal Accomplishment) and 0,89 for Emotional Exhaustion in a sample of pharmacists.

Based on the results obtained in the study, it would be evident that the MBI-HSS could be regarded as an applicable instrument for the measurement of burnout in hospital pharmacists in South Africa.

The second objective was to determine whether biographical factors influenced the level of burnout experienced by individuals. The results obtained with MANOVA indicated that certain biographical factors such as age, years in pharmacy practice and home language did have significant effects on the combined dependent variable, burnout. It was noted that younger participants experienced higher levels of Depersonalisation than those in the older age category. Similar findings were observed for the years in pharmacy practice. Pharmacists that have been in practice only for a short period, have also experienced higher levels of depersonalisation compared to those individuals that have been in pharmacy practice for a longer period of years (those with an earlier date of registration).

Previous studies also showed that burnout occurs more often among younger employees compared to those older than 30 or 40 years, and that it is negatively related to work experience. Künzel and Schulte (1986) interpret the greater incidence of burnout in younger and less experienced employees in terms of reality shock, while Cherniss (1980) regards it as an indicator of an identity crisis due to unsuccessful occupational socialisation. Maslach,

Jackson, and Leiter (1996) showed that burnout symptoms decline as people grow older or gain more work experience. Alternatively, a selection effect is also possible, in other words, burned-out pharmacists have left the organisation.

Significant differences were also observed with regard to different language groups; Afrikaans-speaking individuals experienced significantly reduced levels of personal accomplishment compared to that of English-speaking individuals or other language groups. This could possibly be due to the current transformation processes in the work place due to the new equity guidelines and requirements that need to be adhered to by all employers. Many of your Afrikaans speaking individuals are white people that may currently experience much more barriers than before to make any progress in their work or to be promoted. Hard work and conscientiousness is not necessarily rewarded by a promotion as these positions are mainly reserved for employment equity candidates. Alternatively, this could also be due to a personality trait of Afrikaans speaking individuals. This is though difficult to determine if this was the case due to the relatively small sample size.

The third objective of this study was to determine the construct validity and internal consistency of the UWES for South African hospital pharmacists in both Private and Public Health facilities. The construct validity of the UWES was investigated by means of principal component analysis with a direct oblimin rotation. Not one of the postulated factor structures as reported in the literature, namely the one-factor and the three-factor structure of the UWES, could be confirmed for this study population. A two-factor model of work engagement, consisting of Vigour/Dedication and Absorption was found in this study.

The sample size could be an attributing factor to the results obtained. Had the sample size been larger, the UWES three-factor structure could possibly have been confirmed. The alpha coefficients of both subscales of engagement were higher than 0,70, which demonstrates acceptable internal consistency of both subscales as per the guideline provided by Nunnally and Bernstein (1994). The Cronbach alpha for Vigour/Dedication was 0,93, and for Absorption 0,82.

The fourth objective was to determine whether biographical factors influenced the level of engagement experienced by individuals. By means of ANOVA and t-tests it was determined that the position held by hospital pharmacists, as well as their home language and their

educational level had an effect on the level of engagement experienced. Hospital pharmacists in managerial/ownership/partnership positions experienced higher levels of engagement than did ordinary practising hospital pharmacists. Furthermore, pharmacists with a postgraduate qualification experienced lower levels of work engagement than those with an entry level qualification. Also, Afrikaans-speaking pharmacists experienced lower levels of work engagement than pharmacists of other language groups.

The literature reveals that professional groups such as managers, executives, entrepreneurs and farmers scored relatively high on engagement, compared to a relatively low score of blue-collar workers, police officers and home-care staff (Schaufeli & Salanova, 2005). This difference could be explained by the higher level of freedom certain employees have to make their own decisions. It could also explain why manager/owner/partner pharmacists experience higher levels of engagement than ordinary pharmacists.

The fifth objective of this study was to develop a reliable and valid measuring instrument for the measurement of occupational stress for pharmacists. The Pharmacist Stress Inventory (PSI) was developed for purposes of this study and consists of 106 items which give an indication of both the severity and frequency of a particular stressor. A three-factor solution, (consisting of Job Demands, Pharmacy-specific Stressors and Lack of Resources) describing the perceived strain of hospital pharmacists, fitted the data the best. Satisfactory internal consistency was obtained for the PSI, pointing to the usefulness of the instrument that was developed for the current research. Also, alpha coefficients for the three factors compare well with the guideline of 0,70, demonstrating that a large proportion of the variance is explained by the factors (internal consistency of the scales) (Nunnally & Bernstein, 1994). The alpha values obtained were 0,91, 0,87 and 0,91 respectively.

The sixth objective of this study was to determine whether biographical factors influenced the level of occupational stress experienced by hospital pharmacists. By means of MANOVA it was determined that only the type of pharmacy had a statistically significant effect on the level of stress experienced by pharmacists. All the other biographical factors measured did not indicate a significant effect on the level of stress experienced. The finding indicated that pharmacists working in private hospital pharmacies that are part of a corporate pharmacy group experienced higher levels of pharmacy-specific stressors than hospital pharmacists working in the public sector.

Contrary to the findings of the present study, Mott, Doucette, Gaither, Pedersen, and Schommer, (2004) reported that years of experience were significantly associated with each work attitude measured. The measure obtained for men and women differed significantly, as well as for whites and nonwhites. Men had higher scores on role conflict and role ambiguity and lower values on job satisfaction than women, and whites experienced lower levels of job stress than nonwhites. In terms of family variables, a pharmacist having a child of 17 years of age or older experienced lower job stress, lower work-home conflict, and lower role conflict. Married pharmacists reported higher levels of job satisfaction relative to their single counterparts. The levels of role ambiguity, role conflict and job stress were significantly higher in chain, mass merchandiser, and hospital settings relative to independent pharmacies. Mott et al. (2004) concluded that 70% of pharmacists are experiencing high levels of role overload and job stress and called for realistic methods to be developed and instituted to decrease the role stress that pharmacists continue to face.

In the present study, the stressors with the highest severity are related to the unavailability of medicines from suppliers (depots), frequent interruptions, fellow workers not pulling their weight, inadequate salary and insufficient staff to handle the workload. In terms of the intensity of stressors experienced by hospital pharmacists, the following items proved to be very stressful: fellow workers pulling their weight, inadequate salary, insufficient personnel to handle the workload, unavailability of medicine stock from suppliers, inadequate support by supervisor, uncooperative attitudes of other health care professionals, and inadequate or poor quality equipment. In terms of the regular experience of stressors, the following stressors proved to be experienced regularly: working overtime and emergency hours, frequent interruptions, dealing with other health care professionals, unavailability of medicine stock from suppliers, and stock control in the pharmacy.

Wolfgang, Perri, and Wolfgang (1988) conducted a study among hospital pharmacists and nurses in which they had to indicate how often they found 39 situations to be stressful. Both pharmacists and nurses found situations that dealt with interruptions, poor opportunities for advancement, inadequate staffing levels, excessive workload and inadequate pay to be most stressful. Pharmacists viewed not feeling challenged as a significantly more stressful situation than did nurses. Career satisfaction was significantly related to job stress for both pharmacists and nurses; 45% of the pharmacists and 37% of the nurses said they would not choose the same profession again, and those with the highest scores on the stress scale were least likely

to choose the same profession again. Moderate levels of job-related stress were reported for both the nurses and pharmacists in this study. Pharmacists' perceptions of job-related stress highlight the problems and opportunities facing hospital pharmacy managers. Stress stemming from inadequate staffing and too heavy workload may be difficult to alleviate, especially in a time when there seems to be a shortage of pharmacists. There are however several areas in which managers can attempt to reduce the stress experienced by pharmacists, for instance taking into consideration that professionals place considerable emphasis on learning, they prefer challenging work, desire a sense of accomplishment and seek responsibility for how their work is done.

The seventh research objective was to determine the construct validity and internal consistency of the COPE questionnaire for South African Hospital Pharmacists. Principle component analysis with direct oblimin rotation showed four internally consistent factors that were labelled as follows: Approach Coping ($\alpha = 0,87$), Seeking Social Support ($\alpha = 0,86$), Avoidance Coping ($\alpha = 0,73$) and Turning to Religion ($\alpha = 0,91$).

The eighth objective of this study was to investigate whether job stress and coping strategies could predict work-related well-being (burnout and work engagement) of hospital pharmacists in South Africa. The results showed that job stress (as a result of job demands and a lack of job resources), as well as three coping strategies (approach coping, avoidance coping and turning to religion) contributed to various aspects of the work-related well-being of South African hospital pharmacists. Emotional exhaustion was best predicted by stress as a result of job demands and a lack of resources, as well as the applying of an avoidance coping strategy and not turning to religion. Depersonalisation was predicted by stress as a result of a lack of resources, as well as weak approach coping strategies. Personal accomplishment was only predicted by strong approach coping strategies, as well as the non-utilisation of avoidance coping strategies. Vigour/Dedication was predicted by low job demands, strong approach coping strategies and reduced avoidance coping strategies. Absorption was only predicted by one coping strategy, namely approach coping.

Regarding the negative aspects of work-related well-being, the multiple regression analysis showed that job stress (as a result of job demands and a lack of resources) indeed contributes strongly to burnout (23% and 12% of the variance in emotional exhaustion and

depersonalisation respectively explained). This finding confirms the result of previous studies (e.g. Rothmann, Steyn, & Mostert, 2005).

South African hospital pharmacists experience high levels of stress due to their work environment. Pharmacists that are unable to perform their expected duties due to lack of the availability of medication, colleagues not pulling their weight, insufficient personnel to handle the workload, inadequate support of supervisors, uncooperative attitudes of other health care professionals, inadequate salaries as well as inadequate or poor quality equipment. Inexperienced pharmacists, especially the younger pharmacists performing their Community Service year, are in many instances expected to perform the duties and responsibilities of qualified and registered pharmacists. Since they are still lacking the necessary experience, this also contributes to higher stress levels and possible dispensing errors that may occur. This lack of experience, together with the increasing struggle to source sufficient numbers of qualified pharmacists to handle the workload in hospital pharmacies, will lead to increased levels of stress in the long term. Every year, many qualified pharmacists are leaving South Africa to work abroad due to the unacceptable work conditions and poor salary remuneration for pharmacists in South Africa.

The results showed that the utilisation of an avoidance coping strategy, together with an attitude of not turning to religion explained 5% of the variance in emotional exhaustion. The non-utilisation of an approach coping strategy explained 5% of the variance of depersonalisation, while 15% of the variance of personal accomplishment was explained by the application of an approach coping strategy and the non-utilisation of an avoidance coping strategy.

These results confirm findings of Mills and Huebner (1998), Schaufeli and Enzmann (1998), and Zellars, Perrewe, and Hochwarter (2000).

With regard to the positive aspects of work-related well-being, the results showed that low stress as a result of job demands predicted 7% of the variance in work engagement, while stress as a result of a lack of job resources did not contribute to work engagement. However, an approach coping strategy and the reduced use of an avoidance coping strategy predicted 14% of the variance in work engagement.

6.2 LIMITATIONS OF THIS RESEARCH

With regard to the limitations of the present study, three limitations can be highlighted. Firstly, due to the fact that the study design was a cross-sectional survey design, it was difficult to prove causal relationships. The use of other designs such as longitudinal designs can assist in establishing causality. As a result, despite the use of advanced statistical techniques, such as structural equation modelling, no causal inferences could be made with regard to the relationships between the constructs used in the present study. At best, these relationships could only be analysed and described, not established. Therefore, the establishment of relationships serves only to establish certain patterns consistent with previous theoretical research regarding the chronological relationships of the different variables under study. Strictly speaking, the reference to causal relationships, as suggested in the present study, would be incorrect. It is therefore possible that the independent variables in the present study could be classified as symptoms of burnout and work engagement, rather than their antecedents. However, longitudinal research seems to point to the fact that certain job characteristics such as job demands seem to demonstrate mainly a causal relationship in health outcomes with the associated outcomes appearing only after the appraisal process of the situation (Schaufeli & Buunk, 2002).

Consequently, future longitudinal and quasi-experimental designs are required - not only to validate hypothesised causal relationships between antecedents and possible consequences of constructs such as burnout and engagement, but also to expand our knowledge in terms of the inclusion of other variables in the study of human well-being. However, a cross-sectional design is the most appropriate design for the validation of the MBI and the UWES.

The second limitation was the sole reliance on self-report measures. Problems with this aspect are often associated with so-called "method variance" where the shared variance between measures could at least partly be attributed to the use of self-report measures (Schaufeli, Enzmann, & Girault, 1993). However, a review of self-report measures regarding perceptions and affective reactions to jobs and work environments revealed little evidence of common method variance (Spector, 1987). Similarly, other researchers have demonstrated that even if interactions between the constructs are found, it poses no real threat to the findings obtained (Dollard & Winefield, 1998; Wall, Jackson, Mullarkey, & Parker, 1996). Another dimension to this argument is the relatively small array of alternative methods

available for the use of self-report measures. Research should however aim to develop more objective means of measuring job characteristics, environmental aspects and the perceptions with regard to these aspects. In this regard, Dolan (1995) proposes that a multivariate approach be taken in the study of burnout and engagement by including numerous associated variables inherent to the job, the environment and the individual (e.g. individual traits).

A third limitation of the present study was the sample size. Only 21,6% of the surveyed hospital pharmacists responded. This might have significant limitations in terms of the generalisation of the findings to the total study population. Future studies could benefit in terms of a stratified random-sample design, which would ensure sufficient representation of the different groups of the total population.

6.3 RECOMMENDATIONS

Next, recommendations for the organisation as well as suggestions for future research are made.

6.3.1 Recommendations for the organisation

The success of any intervention or individual, managerial or organisational practice aimed at dealing with burnout and its associated consequences depends on the extent to which the burnout phenomenon is quite clearly and accurately comprehended. Not only should awareness be stimulated at all levels in the organisation with regard to the causes and symptoms of burnout; skill levels should also be expanded to enable both management and employees to identify emotional exhaustion, depersonalisation and personal accomplishment before the effects of serious burnout take their toll. This becomes especially relevant in the light of the fact that burnout is contagious; it can be spread by those higher up in the organisational hierarchy to those in subordinate positions.

Given the pervasive nature of burnout, hospital pharmacy services should design and implement planned interventions to combat the prevalence of burnout. According to Lee and Ashforth (1993), interventions should be designed for the long term in order to deal with the root cause rather than just the symptoms of burnout.

Research is essential to determine the influence of interventions on occupational stress, burnout and engagement in a South African context. Three levels of intervention strategies should be considered (Kompier & Cooper, 1999), which will be discussed next.

Primary level interventions. Primary level interventions entail the modification or elimination of stressors inherent in the workplace in order to change the environment to better fit the individual. The effectiveness and potential cost benefit of primary level interventions have yet to be established (Kompier & Cooper, 1999). A few studies that were conducted indicated significant improvements in employee satisfaction and motivation levels, whereas productivity outputs improved minimally. Organisational development interventions in general as well as interventions aimed at influencing culture and values should be implemented to contribute to a healthier workplace. In addition, psycho-educational programmes should be developed and presented to reduce burnout and to enhance work engagement.

Due to the fact that job demands play an integral role in the process that might lead to burnout and health problems, the reduction of these demands seems necessary. Many preventative organisational-based strategies are in place to address high job demands, including job redesign, flexible working hours and goal setting. Increasing job resources (such as participative management, increasing social support and team building) would eventually lead to more engagement with the job, but its immediate effect on burnout is small. Thus, from a preventative point of view, the reduction of job demands is to be preferred to increasing job resources.

Secondary level interventions. 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 devastating effects of stress and to manage stress more effectively. Stress-management programmes that implement a cognitive-behavioural approach are effective in reducing stress reactions, including burnout (Schaufeli & Enzmann, 1998). As with other forms of training, the effectiveness and potential cost benefits of secondary level interventions have not been evaluated thoroughly enough. Based on self-report measures, stress management activities would seem to have a modest effect in temporarily reducing experienced stress (Kompier & Cooper, 1999). Viewed in isolation, these beneficial effects seem to reduce over time and it would appear that success varies

according to the form of such activities and individual receptiveness to the techniques used. Organisation-based programmes should support such individual-based programmes in order to be effective in the long term (Schaufeli & Bakker, 2002).

Tertiary level interventions. Tertiary level interventions are focused on individuals, but their role is recuperative rather than preventative. Kompier and Cooper (1999) state that there are well-documented evidence to suggest that counselling is effective in improving the psychological well-being of employees and that it had considerable cost benefits in terms of reduced absence due to illness.

Four dimensions of company results should be considered when evaluating the effectiveness of work wellness interventions. These include financial benefits, time and personnel resources, customer satisfaction and health and safety (Kompier & Cooper, 1999).

The effects of individual and organisational interventions need to be researched. Appropriate designs and acceptable sample sizes should be used when conducting research. Practical significance of findings must be computed in addition to statistical significance (Jacobson, Roberts, Berns, & McGlinchey, 1999).

Although an increasing number of wellness programmes are developed and presented in organisations, there is no matching increase in the overall effectiveness of these actions. In general, the first step in succeeding with the enhancement of work wellness is to create and stimulate awareness at all levels of the organisation regarding the image of the work wellness phenomenon as portrayed by employees of this specific institution. Of importance will be the definition of wellness, its effects and implications, the causes and symptoms of ill-health, as well as the processes and procedures for enhancing employee wellness. Unconditional buy-in from both management and employees is of the utmost importance in order to make such a programme and planned interventions viable and not only a window-dressing exercise. Skills should be expanded to enable both management and employees to identify wellness and ill-health, and to take proactive action not only to prevent undue harm to both the employee and the organisation, but also to promote work wellness in general.

Another aspect regarding interventions seems to be the utilisation of coping strategies. Many successful programmes have integrated the assessment and development of coping strategies

used in their programmes. Coping strategies assessment could be integrated into the personnel selection procedures. Furthermore, a stress intervention programme, inclusive of the development of individual coping strategies conducive to hospital pharmacists' well-being, is recommended.

6.3.2 Recommendations for future research

There are still many unanswered questions regarding burnout and work engagement in South African organisations. Small and non-representative samples, a lack of relevant statistical analyses and exclusive reliance on cross-sectional survey designs are some of the shortcomings in South African studies. The factorial validity of all measuring instruments of burnout and work engagement as well as factorial invariance thereof for different language and occupational groups in South Africa should be researched (Byrne, 1991).

Research is required regarding the causes, effects and underlying processes of burnout and work engagement for all occupational groups in South Africa.

It is important to determine benchmark levels of burnout and engagement for various occupational groups, as well as a general benchmark that will assist with easy interpretation of obtained burnout and engagement levels. Currently it is difficult to determine whether obtained values are acceptable, or whether it is above accepted norm values. By developing a database across various occupations with sufficient datasets, it might be possible to develop South African norms for obtained burnout and engagement levels. This is quite important as the total work environment in South Africa is different to that of Europe and America.

Research design selection has a significant effect on the robustness of findings and it is recommended that large, stratified random samples should be considered as far as possible, facilitating the use of advanced statistical methods such as exploratory factor analyses with target rotations (equivalence), analysis of variance to detect bias, confirmatory factor analysis and structural equation modelling.

Further, it is essential to determine a causal model that could be used to predict the development of burnout and well as to provide an indication as to the expected levels of work

engagement that would be applicable to different types of occupational settings. In other words, a general model is needed that could be used across various occupations to accurately predict what the expected levels of burnout and engagement will be. This model should be simple, yet accurate, as to ensure easy use by organisations. This model will have to include both individual as well as organisational variables and characteristics that play a role in the development of burnout and influence the levels of engagement. Easy interpretation of the results will be a requirement to ensure that the correct interventions could be implemented to promote long-term benefits with regard to reduced levels of burnout and increased levels of engagement. These results need to be continuously evaluated over time to ensure that interventions will ensure long-term benefits to both employees and the organisation as a whole.

Until recently little research has been conducted regarding the positive qualities of human behaviours in the work context, while much attention has been paid to unhealthy and dysfunctional aspects. The past few years have seen a shift of emphasis towards a focus on the strengths of human beings in the work context. Therefore, well-being should not be regarded as the mere absence of illness or dysfunctional behaviour. Research should be conducted on the aspects fundamental to psychological strengths that could in turn create tendencies favourable to work engagement, or contrary to those that produce burnout. Measuring instruments of psychological strengths on cognitive, affective and behavioural levels should be developed and validated.

In studying work engagement, it is important to focus on using positively phrased rather than negatively phrased items to measure job resources. In addition, research is required to determine whether psychological strengths and work engagement contribute to a reduction in sick leave and an increase in productivity, job satisfaction and quality of goods and services (Rothmann, 2003).

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