



**WORK-HOME INTERACTION AND WELLBEING IN THE
SOUTH AFRICAN POLICE SERVICE**

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This PhD is dedicated to my grandparents, Koos and Rina Bester. Your love for God and your family has always inspired and encouraged me. I'm your biggest fan!

For we are his workmanship, created in Christ Jesus unto good works, which God hath before ordained that we should walk in them.

- Ephesians 2:10 (KJV) -

REMARKS

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 PU for CHE to use APA style in all scientific documents as from January 1999.
- The thesis is submitted in the form of three research articles.

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TABLE OF CONTENTS

	Page
List of Figures	vii
List of Tables	viii
Summary	x
Opsomming	xii
CHAPTER 1: INTRODUCTION	
1.1 Problem statement	14
1.2 Research objectives	22
1.2.1 General objective	23
1.2.2 Specific objective	23
1.3 Research method	24
1.3.1 Literature review	24
1.3.2 Research design	24
1.3.3 Participants and procedure	24
1.3.4 Measuring battery	25
1.3.5 Translation of measuring battery	27
1.3.6 Statistical analysis	27
1.4 Overview of chapters	29
1.5 Chapter summary	29
CHAPTER 2: RESEARCH ARTICLE 1	36
CHAPTER 3: RESEARCH ARTICLE 2	69
CHAPTER 4: RESEARCH ARTICLE 3	105

TABLE OF CONTENTS (continued)

	Page
CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS	138
5.1 Conclusions	138
5.2 Limitations of this research	142
5.3 Recommendations	144
5.3.1 Recommendations for the organisation	144
5.3.2 Recommendations for future research	145
References	148

LIST OF FIGURES

Figure	Description	Page
Chapter 1		
Figure 1	A structural model of job characteristics, work-home interference and well-being	21
Research Article 3		
Figure 1	Theoretical model	114
Figure 2	Standardised maximum likelihood (ML) estimates for the structural model of WHI	126

LIST OF TABLES

Table	Description	Page
Research Article 1		
Table 1	Background Information of the Participants	47
Table 2	Goodness-of-fit Statistics for the Comparison of Models	50
Table 3	Testing for Invariant Factorial Structures of the SWING	53
Table 4	Descriptive Statistics, Cronbach's Coefficient Alpha and Correlations of the SWING	54
Table 5	MANOVAS – Differences in Work-Home Interaction Levels of Demographic Groups	56
Table 6	ANOVA – Differences in Work-Home Interaction Levels Based on Language	56
Table 7	ANOVA – Differences in Work-Home Interaction Levels Based on Gender	57
Table 8	ANOVA – Differences in Work-Home Interaction Levels Based on Marital Status	57
Table 9	ANOVA – Differences in Work-Home Interaction Levels Based on Parental Status	58
Table 10	ANOVA – Differences in Work-Home Interaction Levels Based on Education	58
Research Article 2		
Table 1	Background information of the participants	81
Table 2	Goodness-of-fit Statistics for the Comparison of the MBI Models	85
Table 3	Testing for Equivalent Factorial Structures of the Adapted MBI	86
Table 4	Factor Loadings, Communalities (h^2), Percentage Variance and Covariance for the UWES Items	89

LIST OF TABLES (CONTINUED)

Table 5	Descriptive Statistics, Alpha Coefficients and Correlations of the adapted MBI and UWES	90
Table 6	Goodness-of-fit Statistics for the Comparison of Models	91
Table 7	MANOVAS – Differences in Wellness Levels of Demographic Groups	92
Table 8	ANOVA – Differences in Wellness Based on Language	93
Table 9	ANOVA – Differences in Wellness Based on Education	94

Research Article 3

Table 1	Background information of the participants	116
Table 2	Descriptive Statistics, Alpha Coefficients and Correlations between Job Characteristics, Work-Home Interference, Burnout and Engagement	123
Table 3	Goodness-of-fit Statistics for the Comparison of Models	125

SUMMARY

Topic: Work-Home interaction and well-being in the South African Police Service

Key terms: Work-home interaction, burnout, engagement, job characteristics, translation, construct validity, construct equivalence, reliability, structural model, police service

There is an apparent lack of in-depth knowledge about the processes that may underlie the interaction between work and home life, and their relationships with employee health and well-being. Work and home has traditionally been considered as separate domains, but during the past decade of democracy, transformation developments (e.g., Affirmative Action, Employment Equity) changed the nature of the labour market and economy. This facilitated the increase in the number of working single-parent, dual-earner families, and of women participating in the workforce, which in turned influenced the work-home interaction of employed individuals. Furthermore, various researchers regard burnout and engagement as important constructs to consider in the well-being of employees. The level of a person's well-being subsequently affects his/her functionality in both the work and home spheres. Thus, there is a need to identify ways which both the individual and the organisation can apply to increase personal well-being and the balance between work and home life.

South Africa has 11 different national languages, and only 8,3% of the population actually speak English at home. Language differences should therefore be taken into account when administering questionnaires. Studies in South Africa generally report race, education, language, and understanding of English as the main factors which impact on construct and item comparability of psychometric tests. There is consequently an obvious need to translate research instruments before they are administered to individuals from different language groups. If language differences are not taken into account, invalid conclusions regarding the constructs under study could be made, with serious implications for culturally diverse settings such as in South Africa.

The objectives of this research were to translate the Survey Work-Home Interaction Nijmegen (SWING), Maslach Burnout Inventory-General Survey (MBI-GS) and Utrecht Work Engagement Scale (UWES) into Afrikaans and Setswana, and to investigate the construct validity, construct equivalence and reliability of these instruments. Furthermore,

differences between demographic groups regarding work-home interaction and well-being were investigated. Finally, a structural model was tested, which included job characteristics, negative and positive work-home interference (WHI) and well-being (burnout and engagement).

A cross-sectional survey design was used. Random samples ($N = 685$) were taken from police stations in the North West province. Structural equation modelling (SEM) was used to determine the construct validity and equivalence of the measuring instruments and to test the structural model.

The results indicated that work-home interaction can be described as a four-dimensional construct consisting of negative WHI, positive WHI, negative home-work interference (HWI), and positive HWI. This factor structure was equivalent across all three language groups and all the scales were reliable. A four-factor model was confirmed for burnout and included exhaustion, cognitive weariness, cynicism and professional efficacy. A one-factor model was found for engagement. Both translated instruments were found to be equivalent for the three language groups. Furthermore, a second order factor analysis revealed that the underlying structure of well-being consists of two negatively related and equivalent factors, namely burnout (exhaustion, cognitive weariness and cynicism) and an enlarged engagement construct (engagement and professional efficacy).

Members reported more negative WHI than negative HWI, and more positive HWI than positive WHI. Statistically significant differences exist between demographic groups regarding work-home interaction based on language, gender, marital status, parental status and education. Statistically significant differences of wellness exist between demographic groups based on language and educational level.

The results of the structural equation modelling revealed that job demands were directly and positively associated with negative WHI and burnout, while job resources were directly and positively associated with positive WHI and work engagement. This also indicates the partial mediating effect of WHI between job characteristics and wellness. In addition, a lack of job resources was associated with higher levels of burnout.

Recommendations for future research were made.

OPSOMMING

Onderwerp: Werk-huisinteraksie by lede van die Suid-Afrikaanse Polisie diens

Sleutelwoorde: Werk-huisinteraksie, uitbranding, begeestering, werkseenskappe, vertaling, konstruk geldingheid, konstruk ekwivalensie, betroubaarheid, strukturele model, polisie diens

Daar is 'n klaarblyklike gebrek aan indiepte-kennis aangaande die prosesse onderliggend aan die interaksie tussen werks- en huislewe, sowel as die verhoudings daarvan met werknemergesondheid en -welstand. Werk en huis is tradisioneel as aparte areas van 'n persoon se lewe beskou. Gedurende die afgelope dekade van demokrasie het herskeppende ontwikkelinge (bv. Regstellende Aksie, Werksgelykheid) egter die aard van die arbeidsmark en ekonomie verander. Hierdie verandering het die vermeerdering van die aantal werkende enkelouers, gesamentlike-inkomstegesinne, asook die deelname van vroue in die arbeidsmag gefasiliteer. Dit het weer die werk-huisinteraksie van werkende individue beïnvloed. Voorts beskou verskeie navorsers uitbranding en werksbegeestering as belangrike konstruks van welstand. 'n Persoon se vlak van welstand affekteer sy funksionaliteit in beide die werk en huis areas. Daar bestaan derhalwe 'n behoefte om maniere te identifiseer wat beide die individu en die organisasie kan gebruik om persoonlike welstand en die balans tussen werks- en huislewe te verhoog.

Suid-Afrika het 11 verskillende nasionale tale, waarvan Engels slegs 8,3% se huistaal is. Dit is daarom belangrik om taalverskille in ag te neem wanneer interpretasies aangaande verskillende taalgroepe gemaak word. Suid-Afrikaanse studies identifiseer oor die algemeen ras, opvoeding, taal en begrip van Engels as die hoofredes wat konstruk- en itemvergelyking van psigometriese toetse beïnvloed. Daar is dus 'n duidelike behoefte om navorsings-instrumente te vertaal voordat dit afgeneem word by persone van verskillende taalgroepe. Indien taalverskille nie in ag geneem word nie, kan ongeldige afleidings gemaak word aangaande die konstruks wat bestudeer word. Dit kan ook ernstige gevolge hê vir die kultureel diverse omgewing in Suid-Afrika.

Die doelwitte van hierdie studie was om die psigometriese eienskappe van 'n Afrikaanse en Setswana weergawe van die SWING, MBI-GS, en die UWES te ondersoek, om te bepaal of daar verskille is aangaande werk-huisinteraksie en welstand en verskillende demografiese

groepe, en om 'n strukturele model te toets wat werkseienskappe, negatiewe en positiewe werk-huisinteraksie (WHI) en welstand (uitbranding en werksbegeestering) insluit.

'n Dwarssnee-opname-ontwerp is gebruik. Ewekansig geselekteerde steekproewe ($N = 685$) is geneem van polisiestadies in die Noordwes provinsie. Strukturele vergelykingsmodellering (SVM) is gebruik om die konstruk geldigheid en ekwivalensie van die meetinstrumente te bepaal, asook om die strukturele model te toets.

Werk-huisinteraksie kan as 'n vierfaktormodel beskryf word, wat bestaan uit negatiewe WHI, positiewe WHI, negatiewe huis-werkinteraksie (HWI) en positiewe HWI. Hierdie faktorstruktuur was ekwivalent vir al drie taalgroepe en al die skale was betroubaar. 'n Vierfaktormodel was ook bevestig vir uitbranding en het uitputting, kognitiewe afgematheid, sinisme en professionele effektiwiteit ingesluit. 'n Eenfaktormodel is gevind vir begeestering. Beide vertaalde instrumente was ekwivalent vir al drie taalgroepe. 'n Tweede-ordefaktoranalise het bewys dat die onderliggende struktuur van welstand uit twee negatief verwante en ekwivalente faktore bestaan, naamlik uitbranding (uitputting, kognitiewe afgematheid en sinisme) en 'n vergrote begeesteringskonstruk (begeestering en professionele effektiwiteit).

Lede het meer negatiewe werk-huisinteraksie (WHI) as negatiewe huis-werkinteraksie (HWI) gerapporteer, en meer positiewe HWI as positiewe WHI. Die resultate het statisties betekenisvolle verskille aangetoon tussen demografiese groepe aangaande werk-huisinteraksie wat gebaseer was op taal, geslag, huwelikstatus, ouerstatus en opvoedkundige vlak. Statisties betekenisvolle verskille van welstand bestaan tussen demografiese groepe gebaseer op taal en opvoedkundige vlak.

Die resultate van strukturele vergelykingmodellering het getoon dat werkseise direk en positief geassosieer is met negatiewe WHI en uitbranding, terwyl werksbronne direk en positief geassosieer is met positiewe WHI en werksbegeestering. Dit dui ook op die gedeeltelike mediërende effek van WHI tussen werkseienskappe en welstand. Verder is 'n gebrek aan werksbronne geassosieer met hoë vlakke van uitbranding.

Aanbevelings vir toekomstige navorsing is gemaak.

CHAPTER 1

INTRODUCTION

This thesis deals with the work-home interaction and well-being of South African Police Service (SAPS) members in the North West Province, South Africa. In this chapter the background to the study and the problem statement are discussed. The research objectives and the significance of the study are also presented. Lastly, the research method is explained and the division of chapters is given.

1.1 PROBLEM STATEMENT

Police members are part of an occupational group that runs the risk of being involved in stressful and traumatic situations. This includes being frequently exposed to situations of abuse, including exposure to victims of serious accidents and hostages, riot control, violent confrontations, failed resuscitation attempts, and assistance in disasters (Dussich, 2003; McCaslin et al., 2006). Police officers are also exposed to a stressful working environment and have to deal with stressors such as organisational transformation, irregular working hours and a lack of resources (Biggam, Power, MacDonald, Carcary, & Moodie, 1997; Kop, Euwema, & Schaufeli, 1999). Research indicated that exposure to these situations have resulted in increased rates of cardiovascular and gastrointestinal disorders, an alarming rise in divorce rates, suicide and alcohol and drug abuse (Axelbend & Valle, 1979; Gulle, Tredoux & Foster, 1998; Lord, Gray & Pond, 1991; Nel & Burgers, 1998; Woody, 2006). These consequences are also evident in the South African Police Service (SAPS), as indicated in recent studies (Jones & Kagee, 2005; Mostert & Joubert, 2005; Pienaar & Rothmann, 2005; Rothmann & Van Rensburg, 2002).

Several findings indicate that the above-mentioned consequences tend to spill over to a person's home life (Emslie, Hunt, & Macintyre, 2004; Frone, Russel, & Cooper, 1992) and could influence an individual's well-being negatively (Brough, 2003; Strazdins & Broom, 2003). For instance, research identified poor interpersonal relationships and marital problems as reasons why members commit suicide (Janik & Kravitz, 1994; McCafferty, McCafferty, & McCafferty, 1992). Therefore, a study of the negative interaction between the work and home spheres as well as the negative consequences such as burnout, could make a positive

contribution to the police organisation. Furthermore, during the past few years, research in psychological constructs moved from a pathogenic paradigm (which focuses on the origins of illness) to a more fortigenic paradigm (which focuses on the origins of psychological strengths) (Stümpfer, 1995). Rothmann (2003) also suggests that well-being should not just be regarded as the absence of illness and dysfunctional behaviour, but that the positive side of well-being should also be addressed. In accordance with this argument, this study will also consider the positive interaction that can take place between the work and home spheres, as well as positive aspects of police work, including their work engagement.

Traditionally, work and home have been considered as separate domains (Geurts, Rutte, & Peeters, 1999). However, due to the changing nature of the workforce (an increasing amount of women entering the workforce, dual-income couples, employment equity, affirmative action, etc.) and that of work itself (e.g., increased mental and emotional demands), there is an increased interest in the interaction between work and home life, as well as the apparent effect on an individual's well-being. Even though it is a general perception that work and home life are in conflict with each other, and most research focussed on possible reasons and results of negative interference between these domains (Carnicer, Sánchez, Pérez, & Jiménez, 2004; Geurts et al., 1999; Montgomery, Peeters, Schaufeli, & Den Ouden, 2003), recent literature considered the possible positive facilitation among these domains (Bakker & Geurts, 2004; Geurts et al., 2005; Grzywacz & Marks, 2000). However, there is still a lack of in-depth knowledge about the processes that may underlie the interaction between work and home life, and its relationships with employee health and well-being (Demerouti, Geurts, & Kompier, 2004).

Instruments that measure both negative and positive interaction between both domains are largely absent (Geurts, et al., 2005). Currently, only two instruments exist that measure negative and positive interference from work and home (i.e., Geurts et al., 2005; Grzywacz & Marks, 2000). However, critique against Grzywacz and Marks's (2000) instrument is that it tends to confound negative work-home spillover with proposed antecedents (Geurts et al., 2005). The other existing instrument is the Survey Work-Home Interaction – Nijmegen (SWING), developed by Geurts et al. (2005). This theory-based instrument measures both the *direction* of influence (work to home interaction vs. home to work interaction), as well as the *quality* of influence (negative vs. positive) in a person's life.

Because a productive, motivated and healthy police service is an important contributor to the stability and resulting economic growth and development of the country, investigating and addressing aspects that could influence police members' effectiveness in areas that could impact on the standard of their services is of great importance, including their well-being. Well-being is generally reflected in measures of (life) satisfaction, psychosomatic complaints, burnout, and mental health, among other things (Van der Doef & Maes, 1999). Naudé and Rothmann (2006) found that burnout and work engagement are specific indicators of wellness among employees. They are also independent states that are negatively, but not perfectly, related (Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Schaufeli & Bakker, 2004). This study will focus on burnout and engagement as indicators of well-being.

Maslach (2003) defines job burnout as a psychological syndrome that involves a prolonged response to stressors in the workplace. Specifically, it involves the chronic strain that results from an incongruence, or misfit, between the worker and the job. Burnout, as measured in occupations outside the human services, is further segregated into three key dimensions: an overwhelming feeling of exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. A recent new development to enhance burnout research involves the inclusion of a scale that assesses cognitive weariness. Van Horn, Taris, Schaufeli and Schreurs (2004) developed an alternative exhaustion scale that was labelled *cognitive weariness*, which refers to the lack of capacity to take up new information and loss of concentration at work.

The importance of burnout as a social problem was identified by both workers and social commentators long before it became a focus of systematic study by researchers. Thus, the trajectory of burnout research began with a real social problem rather than with derivations from scholarly theory (Maslach, 2003). After the identification of the three dimensions of burnout (*emotional exhaustion*, *depersonalisation*, and *personal efficacy*), the Maslach Burnout Inventory (MBI) was developed as a measure to assess these dimensions. The MBI was originally designed for use with people working in the human services and health care, but given the recent increasing interest in burnout within occupations that are not that clearly people orientated, the MBI-GS was developed for use in any occupation. The MBI-GS assesses parallel dimensions and comprises three subscales, namely *exhaustion* (referring to fatigue, but without direct reference to people as the source of those feelings), *cynicism* (an indifferent or a distant attitude towards one's work in general) and *professional efficacy* (social and non-social accomplishments at work).

Work engagement is a multidimensional construct defined as a positive, fulfilling, work-related state of mind that is characterised by *vigour* (i.e., high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties), *dedication* (i.e., a sense of significance, enthusiasm, inspiration, pride and challenge), and *absorption* (i.e., fully concentrating on and being deeply engrossed in one's work, where time passes quickly and one has difficulty detaching oneself from work; González-Romá, Schaufeli, Bakker, & Lloret, 2006; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Engagement is not a momentary and specific state, but a more persistent and pervasive affective-cognitive state which is not focussed on a particular object, event, individual or behaviour (Schaufeli et al., 2002). In order to measure engagement, Schaufeli et al. (2002) developed the Utrecht Work Engagement Scale (UWES).

In the last decade, different cultures expressed the need to be recognised as distinct and the multicultural nature of populations has become more prominent in many countries, especially in South Africa (Van de Vijver & Rothmann, 2004). During the past twelve years, South Africa has undergone many changes in order to restore the inherent value of different cultures. These changes continually influence various spheres of the South African society, particularly psychological testing, as is evident in the new Employment Equity Act 55 of 1998, Section 8, which stipulates that psychological testing and other similar assessments are prohibited unless the test or assessment being used (a) has been scientifically shown to be valid and reliable, (b) can be applied fairly to all employees; and (c) is not biased against any employee or group (Government Gazette, 1998). This places a major responsibility on the South African research community to investigate, validate and standardise measuring instruments that will eventually encompass all of the different cultures in this country.

South Africa has 11 different national languages. Despite the fact that English is the recognised language of commerce and science, very few South Africans (8,3%) actually speak this language at home (Census, 2001). Studies in South Africa generally report race, education, language, and understanding of English as the main reasons impacting on construct and item comparability of psychometric tests (Meiring, Van de Vijver, Rothmann, & Barrick, 2005). It is therefore an obvious need to translate research instruments before it is administered amongst individuals from different language groups. If language differences are not taken into account, invalid conclusions could be made regarding the constructs under study, with serious implications for culturally diverse settings in South Africa. Language problems may be a potent source of bias when the participants differ in proficiency in the

testing language. This is not uncommon in multicultural studies, where a test is administered in the second or third language of the participants (Van de Vijver & Rothmann, 2004). Furthermore, the quality of translation also plays a significant role in ensuring that the results obtained in cross-cultural research are not due to errors in translations, but are rather due to real differences or similarities between cultures in the phenomena being measured (Maneesriwongul & Dixon, 2004).

The main measuring instruments that will be used in this study are the SWING (to measure work-home interaction), the MBI (to measure burnout) and the UWES (to measure work engagement). These instruments have been used in several South African studies in different occupational groups and their validity, reliability and construct equivalence are well documented (Barkhuizen & Rothmann, 2006; Coetzee & Rothmann, 2004; Jackson & Rothmann, 2005; Mostert & Oldfield, in press; Naudé & Rothmann, 2006; Naudé & Rothmann, 2004; Pieterse & Mostert, 2005; Storm & Rothmann, 2003a; Storm and Rothmann, 2003b; Van Tonder & Mostert, in press). Although these instruments appear to be psychometrically sound for utilisation in the South African environment, the most apparent limitation is that all the above-mentioned studies administered these questionnaires in English, although employees from different language groups had to complete them. An important objective of this study was therefore to translate these questionnaires in two official languages (i.e., Afrikaans and Setswana) and to determine the psychometric properties of these translated versions.

Another important objective of this study is to investigate if differences exist between certain demographic groups regarding work-home interaction and wellness. The importance of this is reflected through the diversity of the compilation of the participants. Several studies have indicated that demographic groups differ with regards to work-home interaction (see Geurts & Demerouti, 2003; Grzywacz & Marks, 2000), burnout (Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Enzmann, 1998) and work engagement (Schaufeli & Bakker, 2003). The various demographic and structural changes in the workforce and family structure have affected both work and family roles (Bond, Galinsky & Swanberg, 1998), as well as well-being (Burke & Mikkelsen, 2005), emphasising the importance of investigating demographic differences.

Research indicated that certain job characteristics are related to work-home interaction (Demerouti & Geurts, 2004; Geurts, Kompier, Roxburgh, & Houtman, 2001; Geurts et al., 1999), burnout (Bakker & Geurts, 2004; Janssen, Peeters, de Jonge, Houkes, & Tummers,

2004), and engagement (Bakker & Geurts, 2004; Montgomery et al., 2003). These findings show the significance of testing a structural model that will include these constructs. In order to investigate the relationships between the job characteristics, work-home interaction and well-being constructs of a possible structural model, sound theoretical frameworks should be used. Therefore the Job Demands-Resources (JD-R) model (Bakker, Demerouti, De Boer, & Schaufeli, 2003; Demerouti, Nachreiner, Bakker, & Schaufeli, 2001) and the Effort-Recovery (E-R) model (Meijman & Mulder, 1998) will be used in this study.

The JD-R model (Bakker et al., 2003; Demerouti et al., 2001) suggests that the overall wellness (psychological well-being and health) of employees are generated by two specific, yet independent processes: job demands and job resources (Demerouti et al., 2001). The first process, *job demands*, represent those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or effort and are therefore associated with certain physiological and/or psychological costs (Schaufeli & Bakker, 2004). Although job demands are not necessarily negative, they may turn into job stressors when meeting those demands require high effort from which the employee has not adequately recovered (Meijman & Mulder, 1998). The effort that job demands require, elicit negative responses such as depression, anxiety, or burnout (Schaufeli & Bakker, 2004).

Job resources (the second process of the JD-R model) refer to those physical, psychological, social, or organisational aspects of the job that either/or (1) reduce job demands and the associated physiological and psychological costs; (2) are functional in achieving work goals; (3) stimulate personal growth, learning, and development (Demerouti et al., 2001). Resources may be located in the task itself (e.g., performance feedback, skill variety, autonomy), as well as in the context of the task (e.g., organisational resources and social resources; Bakker & Geurts, 2004). Generally, job demands and job resources are negatively related, since job demands such as high work pressure and emotionally demanding interactions with clients may preclude the mobilisation of job resources. In the same way, high job resources, such as social support and feedback, may reduce job demands (Bakker, Demerouti, & Verbeke, 2004).

The E-R model (Meijman & Mulder, 1998) argues that effort expenditure is associated with specific load reactions (e.g., physiological, behavioural and subjective responses) that develop within the individual. Recovery of these load reactions will be possible if the exposure to the load cease. This model facilitates studying both *negative* and *positive* work-

home interaction. For example, in the work domain, repeated occupationally induced fatigue requires extra effort during every new working period to cope with the demands of the job. When more fatigue is experienced after the working period, it eventually causes cumulated fatigue which leads to prolonged fatigue and emotional exhaustion (De Croon, Sluiter, Blonk, Broersen, & Frings-Dresen, 2004).

Similarly, home demands that require too much effort and time and the lack of home resources to fulfil the task requirements will be associated with negative load effects that hamper one's functioning in the work domain (Geurts & Demerouti, 2003). If sufficient recovery during and after working time is warranted, high demands in either the job or the home setting will not have adverse health consequences (Geurts et al., 2005). On the other hand, activity is necessary to stabilise the production of human energy, and even while individuals are spending it, they are also converting more for later use. As a result, the adequate management of multiple roles may also create energy (Marks, 1977; Geurts & Demerouti, 2003), yielding positive load reactions (e.g., mobilisation of energy, skill acquisition, greater self-esteem).

Considering that job demands that require too much effort causes the spillover of negative load effects that have built up during working hours, to the home situation, makes the theoretical perspective offered by the JD-R model and the E-R model relevant for studying negative WHI (Bakker & Geurts, 2004). This theoretical framework is also useful and applicable when studying positive WHI. Within the framework of work-home interaction, the prevalence of job resources will promote positive load reactions to build up in the work domain, spilling over to the home domain.

Taking the above-mentioned information into account, it is evident that research has an important role to play in identifying the processes through which work-home interaction are affected by job characteristics, as well as the effect of job characteristics and work-home interaction on employee health and well-being.

Research regarding the relationship between job characteristics, work-home interaction and well-being revealed similar findings. Montgomery et al. (2003) found that negative work-home interference mediated between demands and exhaustion, whereas positive work-home interference mediated between resources and feelings of engagement. Bakker and Geurts (2004) provided strong evidence for relationships between job demands and feelings of

exhaustion, as well as job resources and work-related flow. Lastly, Geurts et al. (1999) also found evidence that work-home interaction mediates the impact of some work and home characteristics on psychological health indicators, and that work-home interaction was positively associated with emotional exhaustion and depersonalisation. To test these relationships, a structural model is tested that includes job characteristics (job demands and job resources), work-home interference (negative and positive) and well-being (burnout and engagement) (see Figure 1).

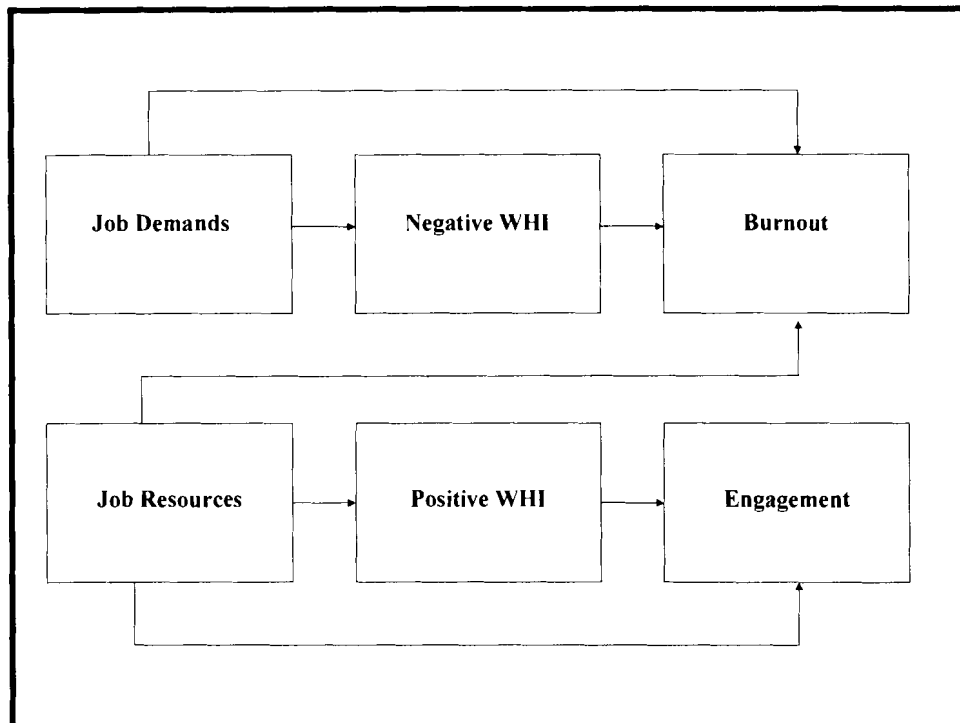


Figure 1. A structural model of job characteristics, work-home interference and well-being

Based on the problem statement, the following research questions arise:

- What is the construct validity, construct equivalence and reliability of an Afrikaans and Setswana translated version of the SWING in a sample of SAPS members in the North West province?
- What is the prevalence of work-home interaction in a sample of police officials in the North West province?
- Are there differences regarding work-home interaction between different demographic groups in terms of language, gender, marital status, parental status, and education for police officers in the North West province?

- What is the construct validity, construct equivalence and reliability of an Afrikaans and Setswana translated version of the MBI-GS and UWES in a sample of police officials in the North West province?
- What is the construct validity and construct equivalence of a total wellness dimension which includes burnout and engagement sub-scales?
- Are there differences regarding wellness (including burnout and engagement) between different demographic groups in terms of language, gender, age, marital status, education, and rank for police officers in the North West province?
- Can a structural model be tested that includes job characteristics, work-home interaction and well-being?
- Which recommendations can be made for future research and practice?

This research will make the following contributions to the subject of Industrial Psychology and the practice thereof in organisations:

- It will result in a standardised measuring instrument for work-home interaction, which has been proven to be reliable, valid, and equivalent for English, Afrikaans and Setswana members of the SAPS.
- It will result in a standardised measuring instrument for burnout and work engagement, which has been proven to be reliable, valid, and equivalent for English, Afrikaans and Setswana members of the SAPS.
- Important information for interventions will exist regarding differences between important demographic groups with regard to work-home interaction, burnout and work engagement.
- A structural model of job characteristics, work-home interaction and well-being will exist, which could be used to predict work-home interaction and well-being in the police.

1.2 RESEARCH OBJECTIVES

The research objectives can be divided into a general objective and specific objectives.

1.2.1 General objective

With reference to the above formulation of the problem, the general objective of this research is to test the psychometric properties of an Afrikaans and Setswana version of the SWING, MBI-GS and UWES, to determine if various demographic groups differ with regard to work-home interaction and well-being and to test a structural model including job characteristics, work-home interaction and well-being for the SAPS in the North West Province.

1.2.2 Specific objectives

The specific objectives of this study are:

- To test the construct validity, construct equivalence, and reliability of an Afrikaans and Setswana translated version of the SWING in a sample of SAPS members in the North West province;
- To determine the prevalence of work-home interaction in a sample of police officials in the North West province;
- To establish differences regarding work-home interaction between different demographic groups in terms of language, gender, marital status, parental status and education for police officers in the North West province;
- To establish the construct validity, construct equivalence and reliability of an Afrikaans and Setswana translated version of the MBI-GS and UWES in a sample of police officials in the North West province;
- To examine the construct validity and construct equivalence of a total wellness dimension which includes burnout and engagement sub-scales;
- To investigate the differences in wellness (including burnout and engagement) between various demographic groups in terms of language, gender, age, marital status, education and rank for police officers in the North West province;
- To test a structural model that includes job characteristics, work-home interaction and well-being; and
- To make recommendations for future research and practice.

1.3 METHOD

1.3.1. Literature review

The research method for each of the three articles which are submitted for the purposes of this thesis consists of a brief literature review and an empirical study. Because separate chapters were not targeted for literature reviews, this paragraph focuses on aspects relevant to the empirical studies that were conducted. The reader should note that a literature study was conducted for the purposes of each article.

1.3.2 Research design

A cross-sectional survey design is used to reach the research objectives. A cross-sectional design is a technique for studying developmental variables in which subjects differing on a developmental variable such as age are studied at a single point in time (Keppel, Saufley, & Tokunaga, 1992). The data can be used to assess the prevalence of certain variables in a population, which will be beneficial for this study.

1.3.3 Participants and procedure

Random samples ($N = 685$) are taken from police stations in the North West Province. After a presentation of the proposed research was made to the Provincial Head of Psychological Services, permission is granted to incorporate the research with the unit's ongoing research programme. The management of each of the identified stations in the province, which included the Station Commissioner and the Human Resource Management Head, is contacted to explain the rationale and procedures of the proposed research. Selected English-, Afrikaans- and Setswana-speaking police officers from each station receive paper-and-pencil questionnaires to complete. Each questionnaire is accompanied by a letter explaining the rationale of the study, and confidentiality and anonymity is ensured in all instances. The members are given two to four weeks to complete the questionnaire. The completed questionnaires are personally collected from each station.

1.3.4 Measuring battery

Job Resources. Recently, Jackson and Rothmann (2005) developed the Job Demands-Resources Scale (JDRS) to measure job demand and job resources. The JDRS was developed based on a literature review and interviews with participants in their study. Items were developed and checked for face validity. The JDRS consists of 48 items about pace and amount of work, mental load, emotional load, variety in work, opportunities to learn, independence in work, relationships with colleagues, relationship with immediate supervisor, ambiguities about work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration, and career possibilities. The items are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). Jackson and Rothmann (2005) found that the dimensions of the JDRS consisted of seven reliable factors, namely organisational support ($\alpha = 0,88$), growth opportunities ($\alpha = 0,80$), overload ($\alpha = 0,75$), job insecurity ($\alpha = 0,90$), relationship with colleagues ($\alpha = 0,76$), control ($\alpha = 0,71$), and rewards ($\alpha = 0,78$). In this study, 38 items of the JDRS were adapted to measure job characteristics for police offers.

Burnout. An adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) is used to measure burnout. Three subscales are used in this study, namely Exhaustion (five items, e.g., “I feel used up at the end of the workday”), Cynicism (five items, e.g., “I have become less enthusiastic about my work”) and Cognitive Weariness (four items, e.g., “I have trouble concentrating”). All items are scored on a seven-point frequency-rating scale, ranging from 0 (*never*) to 6 (*daily*). Internal consistencies found by Leiter and Schaufeli (1996) and Schaufeli, Van Diederendonck, and Van Gorp (1996) range from 0,73 (Cynicism) to 0,91 (Exhaustion). Test-retest reliabilities after one year were 0,65 for Exhaustion and 0,60 for Cynicism (Schaufeli et al., 1996). Test-retest reliability from three months to one year ranged from 0,50-0,82 (Leiter & Durup, 1996). The following Cronbach alpha coefficients were obtained for the two scales of the MBI-GS in a South African police sample: Exhaustion: 0,88; Cynicism: 0,79 (Storm & Rothmann, 2003). Van Horn et al. (2004) reported a Cronbach alpha coefficient of 0,92, while Coetzee and Rothmann (2004) reported a Cronbach alpha coefficient of 0,76.

Engagement. Engagement is measured as a two-dimensional construct; including engagement and professional efficacy (see Marais, 2006). The Utrecht Work Engagement Scale (UWES) (Schaufeli et al. 2002) is used to measure work engagement (eleven items that

measure vigour and dedication, e.g., “I am bursting with energy every day in my work”; and “I am enthusiastic about my job”). The MBI-GS is used to measure professional efficacy (four items, e.g., “I have accomplished many worthwhile things in this job”). All items are scored on a seven-point frequency rating scale, varying from 0 (*never*) to 6 (*always*). Marais (2006) and Naudé and Rothmann (2004) reported a Cronbach alpha coefficient of 0,87 for a one-factor engagement construct, whereas Mostert et al. (2006) reported Cronbach alpha coefficients of 0,74 for vigour and 0,84 for dedication. Mostert (2006) also obtained a good alpha coefficients for a one-factor engagement construct ($\alpha = 0,84$). Furthermore, Rothmann, Steyn and Mostert (2005) reported a alpha coefficient of 0,90 for an engagement factor that consisted of vigour, dedication and professional efficacy, while Jackson and Rothmann (2005) reported an alpha coefficient of 0,73 for the professional efficacy construct as part of a burnout factor.

To avoid answering bias, the burnout, cognitive weariness and engagement items are merged randomly.

Work-home interference. The *Survey Work-Home Interaction – NijmeGen* (SWING, Geurts et al., 2005) is used to measure negative WHI (eight items, e.g., “How often does it happen that you do not have the energy to engage in leisure activities with your spouse/family/friends because of your job?”) and positive WHI (five items, e.g., “How often does it happen that you fulfil your domestic obligations better because of the things you have learned on your job?”). All items are scored on a four-point frequency rating scale, ranging from 0 (“never”) to 3 (“always”). *Negative WHI* was measured by five strain-based items (e.g., “How often does it happen that you are irritable at home because your work is demanding?”) and four time-based items (e.g., “How often does it happen that you have to cancel appointments with your spouse/family/friends due to work-related commitments?”). *Positive WHI* was measured by two items which tapped the spillover of positive mood developed at work to the home domain (e.g., “How often does it happen that after a pleasant working day/working week, you feel more in the mood to engage in activities with your spouse/family/friends?”), and four items that measure the transfer of skills learned at work that improve functioning at work (e.g., “How often does it happen that you manage your time at home more efficiently as a result of the things you have learned on your job?”; Geurts et al., 2005). Geurts et al. (2005) report Cronbach alpha coefficients of 0,84 for negative WHI and 0,75 for positive WHI. In a South African sample, Pieterse and Mostert (2005) obtained the following Cronbach alpha coefficients for the SWING: Negative WHI: 0,87 and Positive WHI: 0,79.

Demographic characteristics. A biographical questionnaire was used to ascertain the biographical characteristics of the members of the SAPS. The questionnaire investigated dimensions which included background information (age, race, gender, and educational information), job situation (rank and years in service/rank), working hours and flexibility at work, dual career implications as well as the household and care giving situation.

1.3.5 Translation of the measuring battery

The measuring battery is translated from English to Afrikaans and Setswana. These languages are native to the North West Province, where 65,4% of the population are Setswana-speaking and 7,5% are Afrikaans-speaking (Burger, 2005). The Afrikaans and Setswana versions of the measuring battery are then translated back to English. The original English measuring battery is then compared with the two re-translated measuring batteries. The same procedure is followed when questionable items are found in the re-translated measuring batteries in order to find a better fit for the items. All translations are done by four registered and independent translators. The English, Afrikaans and Setswana questionnaires are then finalised and are distributed.

1.3.6 Statistical analysis

The statistical analysis is carried out with the SPSS program (SPSS 2003) and the Amos programme (Arbuckle 1999). Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 2003), are used to test the construct validity and construct equivalence of the measuring instruments, the second-order factor structure of the wellness construct and the structural model of job characteristics, WHI and wellbeing. The maximum likelihood estimation method is used. Multi-group confirmatory factor analysis is used in order to test the construct equivalence of the factor structure and the equivalence of parameter estimates (factor loadings, factor covariances and item error variances) for the English and translated versions as well as across the important subgroups. The χ^2 and several other goodness-of-fit indices are used to summarise the degree of correspondence between the implied and observed covariance matrices. The following goodness-of-fit-indices are used as adjuncts to the χ^2 statistics: a) χ^2/df ratio; b) The Goodness-of-Fit Index (GFI); c) The Normed Fit Index (NFI); d) The Incremental Fit Index (IFI); e) The Tucker-Lewis Index (TLI); f) The Comparative Fit Index (CFI); and f) The Root Mean Square Error of Approximation

(RMSEA). Acceptable fit of the model is indicated by non-significant χ^2 values, values smaller than or equal to 0,90 for GFI, NFI, IFI, TLI and CFI and RMSEA values smaller than or equal to 0,08 (Browne & Cudeck, 1993).

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

Cronbach alpha coefficients are used to assess the reliability of the constructs that are measured in this study. Descriptive statistics (e.g., means and standard deviations) and inferential statistics are used to analyse the data. Pearson product-moment correlation coefficients are used to specify the relationship between the variables. In terms of statistical significance, it is decided to set the value at a 95% confidence interval level ($p \leq 0,05$). Effect sizes are used to decide on the practical significance of the findings (Steyn, 1999). Cut-off points of 0,30 (medium effect) and 0,50 (large effect) are set for the practical significance of correlation coefficients (Cohen, 1988).

Paired-samples *t*-tests are used to determine the prevalence of work-home interaction. Multivariate analysis of variance (MANOVA) is used to ascertain the significance of differences between the work-home interaction levels of different demographic groups, as well as between the levels of burnout and engagement of different demographic groups. MANOVA is the counterpart of analysis of variance (ANOVA) methods, to cover cases where there is more than one dependent variable and where the dependent variables cannot simply be combined. It is also used to identify whether changes in the independent variables have a significant effect on the dependant variables. The multivariate analysis of variance is at its best when the assumptions are met and also when there is a substantial correlation between the dependent variables (Kerlinger & Lee, 2000). Wilk's Lambda is used to test the

likelihood of the data under the assumption of equal population mean vectors for all groups, against the likelihood under the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect is significant in MANOVA, one-way analysis of variance is used to discover which dependent variables had been affected. ANOVA reflects the expression of the hypothesis tests of interests in terms of variance estimates (Muller & Fetterman, 2002). A Bonferroni type adjustment is made for inflated Type I error. The Games-Howell procedure is used to determine if there are statistically differences between the groups.

1.4 OVERVIEW OF CHAPTERS

In Chapter 2, the psychometric properties of the SWING, the prevalence of work-home interaction for members in the SAPS in the North West Province and differences between various demographic groups with regard to work-home interaction are measured and discussed. Chapter 3 focuses on the psychometric properties of the translated MBI-GS and UWES, the construct validity and construct equivalence of a total wellness construct and differences in well-being between various demographic groups of SAPS members. Chapter 4 investigates a structural model that includes job characteristics, work-home interaction and well-being. Conclusions, recommendations and limitations of the study follow in Chapter 5.

1.5 CHAPTER SUMMARY

This chapter discussed the problem statement and research objectives. Concepts were defined and previous research findings were discussed. The measuring instruments and research method that are used in this research were explained, followed by a brief overview of the chapters that follow.

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CHAPTER 2

Research Article 1

WORK-HOME INTERACTION OF POLICE OFFICERS IN THE NORTH WEST PROVINCE

ABSTRACT

This study was conducted among randomly selected members of the South African Police Service ($N = 685$) in the North West Province and examined (1) the construct validity, construct equivalence and reliability of a translated version of the *Survey Work-Home Interaction – Nijmegen* (SWING); (2) the prevalence of work-home interaction; and (3) differences regarding work-home interaction in various demographic groups. A cross-sectional survey design was used. The SWING and a biographical questionnaire were translated into Afrikaans and Setswana and were administered together with the original English version. Structural equation modelling (SEM) showed that a four-factor model, which measures both the direction (work-to-home and home-to-work) and the quality (positive or negative) of interaction, fitted the data best. The SWING also proved to be equivalent and reliable for the three language groups and relevant sub-groups. Members reported more negative work-home interaction (WHI) than negative home-work interaction (HWI), and more positive HWI than positive WHI. Statistically significant differences exist between demographic groups based on language, gender, marital status, parental status and education.

OPSOMMING

Hierdie studie is uitgevoer onder ewekansig geselekteerde lede van die Suid-Afrikaanse Polisiediens ($N = 685$) in die Noordwes Provinsie en het die volgende ondersoek: (1) die konstrugeldigheid, konstrukekwivalensie en betroubaarheid van 'n vertaalde weergawe van die *Survey Work-Home Interaction – Nijmegen* (SWING); (2) die voorkoms van werk-huisinteraksie; en (3) verskille rakende werk-huisinteraksie tussen verskeie demografiese groepe. 'n Dwaarsnee-opname-ontwerp is gebruik. Die SWING en 'n biografiese vraelys is vertaal in Afrikaans en Setswana, en saam met die oorspronklike Engelse weergawe afgeneem. Strukturele vergelykingmodellering het getoon dat 'n vierfaktormodel, wat beide rigting (werk-na-huis en huis-na-werk) en die kwaliteit (positief of negatief) meet, die geskikste vir die data was. Die SWING het ook ekwivalensie en betroubaarheid vir die drie taalgroepe getoon, sowel as vir relevante subgroepe. Lede het meer negatiewe werk-huisinteraksie (WHI) as negatiewe huis-werkinteraksie (HWI) gerapporteer, en meer positiewe HWI as positiewe WHI. Die resultate het statisties betekenisvolle verskille aangetoon tussen demografiese groepe, wat gebaseer was op taal, geslag, huwelikstatus, ouerstatus, en opvoedkundige vlak.

Work and family constitute the dominant life roles for most employed adults in contemporary society (Montgomery, Peeters, Schaufeli, & Den Ouden, 2003). Recently, these work and family roles have been mainly influenced by the transformation of the labour market, internationally (Strachan, Burgess, & Sullivan, 2004) as well as in South Africa (Gerber, 2000; Schreuder & Theron, 2001). During the past ten years of democracy, transformation developments such as Affirmative Action and Employment Equity changed the nature of the labour market and economy (Thomas, 2002). These changes facilitated the increase in the number of working single-parent and dual-earner families, as well as the increased participation of women in the workforce (Grzywacz & Marks, 2000; Jones & Mckenna, 2002), influencing the dynamics of the work and home¹ life of employed individuals. As a result, it is generally agreed that a balanced work and home life is of growing importance for the economic viability of organisations as well as for the welfare of families (Barnett, 1998).

Although a large amount of publications in the work-home interaction literature exists, it is characterised by several limitations. Firstly, virtually all work-home conflict instruments almost exclusively focus on the interference from work to home, and do not consider the possibility that the home can influence the work environment as well (Beauregard, 2006; Howard, Donofrio, & Boles, 2004; Montgomery, Panagopoulou, Peeters, & Schaufeli, 2005; Ryan, Kriska, West, & Sacco, 2001). Secondly, research almost exclusively focuses on the negative interaction between work and home, overlooking the possibility that these two domains can also influence each other in a positive way (Barnett, 1998; Frone, 2003; Geurts & Demerouti, 2003; Grzywacz & Mark, 2000). Finally, instruments that measure both negative and positive interaction between both domains are largely absent (Geurts et al., 2005). Currently, only two instruments exist that measure negative and positive interference from work and home, namely those of Grzywacz and Marks (2000) and Geurts et al. (2005). However, critique against Grzywacz and Marks's (2000) instrument is that it tends to confound negative work-home spillover with proposed antecedents (Geurts et al., 2005). The second instrument is the Survey Work-Home Interaction–Nijmegen (SWING), developed by Geurts et al. (2005). This theory-based instrument measures both the *direction* of influence (work-to-home interaction vs. home-to-work interaction), as well as the *quality* of influence (negative vs. positive) in a person's life.

In South Africa, there is an evident lack of valid and reliable instruments that measure work-home interaction. Most of the existing instruments that have been used in the South African

¹ The term "home" is used as a global concept in this study, also incorporating other terms such as "family" and "non-work".

context displayed various limitations, for example measuring only negative work-home interference or conflict, a lack of sophisticated statistical analyses of the psychometric properties of the instrument, a lack of validity and equivalence tests for different cultural or ethnic groups and poor reliability coefficients (Mostert, 2006). However, during the last two years, several South African researchers used the SWING in different occupational groups and confirmed its construct validity, construct equivalence and reliability (Mostert & Oldfield, in press; Pieterse & Mostert, 2005; Van Tonder, 2005). Although the SWING appears to be a psychometrically valid, equivalent and reliable instrument for utilisation in the South African environment, two apparent limitations still exist: 1) all the above-mentioned studies administered the SWING in English, although employees from different language groups had to complete the questionnaire, and 2) there is a lack of studies investigating the validity, reliability and equivalence of the SWING for different sub-groups (e.g., gender, marital status, parental status, education) in the South African Police Service (SAPS).

South Africa has 11 different national languages. Despite the fact that English is the recognised language of commerce and science, very few South Africans (8,3%) actually speak this language at home (Census, 2001). Studies in South Africa generally report race, education, language, and understanding of English as the main impacting factors on construct and item comparability of psychometric tests (Meiring, Van de Vijver, Rothmann, & Barrick, 2005). It is therefore an obvious need to translate research instruments before they are administered among individuals from different language groups. If language differences are not taken into account, invalid conclusions regarding the constructs under study could be made, with serious implications for culturally diverse settings in South Africa. Language problems may be a potent source of bias when the participants differ in proficiency in the testing language. This is not uncommon in multicultural studies, where a test is administered in the second or third language of the participants (Van de Vijver & Rothmann, 2004). The quality of translation also plays a significant role in ensuring that the results obtained in cross-cultural research are not due to errors in translations, but may be ascribed to real differences or similarities between cultures with regard to the phenomena being measured (Maneesriwongul & Dixon, 2004).

In the light of the above discussion, this study seeks to address the limitations of previous research. The objectives of this study are therefore 1) to translate the SWING into two of the

eleven official languages (e.g., Afrikaans and Setswana^{*}); 2) to investigate the construct validity, construct equivalence and reliability of the English, Afrikaans and Setswana versions of the SWING; and 3) to determine the construct equivalence of the SWING for other relevant sub groups in the SAPS (including gender, marital status, parental status and education). In addition, the prevalence and differences in work-home interaction between various demographic groups within the SAPS will also be investigated.

The Survey Work-Home Interaction-Nijmegen (SWING)

Geurts et al. (2005) developed a self-report questionnaire to measure the four dimensions of work-home interaction, namely the Survey Work-Home Interference – Nijmegen (SWING). The Effort-Recovery (E-R) theory (Meijman & Mulder, 1998) provided the theoretical basis for this instrument and argues that effort expenditure is associated with specific load reactions (e.g., physiological, behavioural and subjective responses) that develop within the individual. Recovery of these load reactions will be possible if the exposure to the load ceases.

This model facilitates studying both *negative* and *positive* work-home interaction. For example, in the work domain, repeated occupationally induced fatigue requires extra effort during every new working period to cope with the demands of the job. When more fatigue is experienced after the working period, it eventually causes cumulated fatigue which leads to prolonged fatigue and emotional exhaustion (De Croon, Sluiter, Blonk, Broersen, & Frings-Dresen, 2004). Similarly, home demands that require too much effort and time and the lack of home resources to fulfil the task requirements will be associated with negative load effects that hamper one's functioning in the work domain (Geurts & Demerouti, 2003). If sufficient recovery during and after working time is warranted, high demands in either the job or the home setting will not have adverse health consequences (Geurts et al., 2005). On the other hand, activity is necessary to stabilise the production of human energy, and even while individuals are spending it, they are also converting more for later use. As a result, the adequate management of multiple roles may also create energy (Marks, 1977; Geurts & Demerouti, 2003), yielding positive load reactions (e.g., mobilisation of energy, skill acquisition, greater self-esteem).

^{*} Given that the participants in this study were situated in the North West Province, the translation of measuring instruments specifically focused on Afrikaans and Setswana, as these are the two main spoken languages in this region (Burger, 2005).

In developing the SWING, the first step was to define the dimensions using theory-guided definitions. Based on the E-R model, distinction was made between the *direction* of influence (work to home influence vs. home to work influence) and the *quality* of influence (negative vs. positive). Four types of work-home interaction can therefore be distinguished, namely (1) *negative work-home interaction (WHI)*, when negative load reactions built up at work, hampering functioning at home; (2) *positive WHI*, when positive load reactions built up at work that facilitate functioning at home; (3) *negative home-work interaction (HWI)*, when negative load reactions developed at home that impede functioning at work; and (4) *positive HWI*, when positive load reactions developed at home that facilitate functioning at work (Geurts et al., 2005).

The next step was to generate and evaluate an item pool. Item selection and development took place and the original questionnaire contained 27 items (of which 17 were newly developed items). The items were divided into a 4-response format questionnaire varying from 0 (“never”) to 3 (“always”). *Negative WHI* was measured by five strain-based items (e.g., “How often does it happen that you are irritable at home because your work is demanding?”) and four time-based items (e.g., “How often does it happen that you have to cancel appointments with your spouse/family/friends due to work-related commitments?”). *Positive WHI* was measured mostly by self-developed items which probed the spillover of positive mood developed at work to the home domain (two items, e.g., “How often does it happen that after a pleasant working day/working week, you feel more in the mood to engage in activities with your spouse/family/friends?”), as well as the transfer of skills learned at work that improve functioning at work (four items, e.g., “How often does it happen that you manage your time at home more efficiently as a result of the things you have learned on your job?”). *Negative HWI* was measured by six adapted and self-developed items (e.g., “How often does it happen that you have difficulty concentrating on your work because you are preoccupied with domestic matters?”) and parallel items from the negative WHI scale. *Positive HWI* was measured by predominantly self-developed items which captured the spillover of positive mood developed at home to the work domain and are parallel to the positive WHI scale (e.g., “How often does it happen that after spending a pleasant weekend with your spouse/family/friends, you have more fun in your job?”), as well as the transfer of skills learned at home that facilitate functioning at work (e.g., “How often does it happen that you have greater self-confidence at work because you have your home life well organised?”) (Geurts et al., 2005).

The psychometric properties of the SWING

In order to determine the psychometric properties of the SWING, Geurts et al. (2005) examined the internal and external validity of the SWING using data from 2 472 workers drawn from five different and independent samples. Confirmatory factor analyses strongly supported the proposed four-dimensional structure of the SWING. However, five problematic items had to be omitted, which resulted in a final questionnaire consisting of 22 items. The four-dimensional structure proved to be invariant/equivalent across various theoretically relevant and independent sub-groups (sample, gender, parental status, and fulltime vs. part-time status), providing evidence regarding its robustness and generalisability. Further relationships with three categories of correlates (job characteristics, home characteristics and presumed outcomes) yielded evidence regarding the discriminant validity of the SWING.

Bearing in mind that work-home interaction distinguishes between the direction *and* the quality of influence, it should be characterised as a four-dimensional construct. European studies (Demerouti, Geurts, & Kompier, 2004; Geurts et al., 2005) as well as South African studies (Mostert & Oldfield, in press; Pieterse & Mostert, 2005; Van Tonder, 2005) confirmed the four-factor structure of the SWING. It is therefore expected that a four-factor model will fit the data better than alternative models (*Hypothesis 1a*).

Multigroup comparisons that test for the equivalence of translated versions of the SWING have not been conducted in the South African context. Such information is psychometrically critical, since non-equivalence of the instrument across language groups reduces the credibility of findings (Byrne, 1993). Although no studies translated and tested the equivalence of the SWING for different language groups, it is hypothesised that the translated version will be equivalent for three language groups (*Hypothesis 1b*). Furthermore, Geurts et al. (2005) confirmed the construct equivalence for four important sub-groups (five occupational groups, males and females, parents and non-parents, part-timers and full-timers) in the Netherlands. In South Africa, the construct equivalence of the English version of the SWING was confirmed for two language groups in the earthmoving equipment industry ($n = 326$, Pieterse & Mostert, 2005) and for two language and ethnic groups in the mining industry ($n = 320$). Based on these results, it is expected that the SWING will also be equivalent for relevant sub groups, including gender (males vs. females), marital status (married vs. not married), parental status (with children vs. without children), and education (high school education vs. higher education) (*Hypothesis 1c*).

The importance of reliable instruments for the measurement of constructs is evident not only for the purpose of empirical research, but also ultimately for individual assessment (Rothmann, 2003). Geurts et al. (2005) found all the SWING scales to be reliable (NWHI $\alpha = 0,84$; PWHI $\alpha = 0,75$; NHWI $\alpha = 0,75$; PHWI $\alpha = 0,81$). Reliable Cronbach alpha coefficients are also reported in South African studies. Pieterse and Mostert (2005) reported sufficient Cronbach alpha coefficients $> 0,70$ (NWHI $\alpha = 0,87$; PWHI $\alpha = 0,79$; NHWI $\alpha = 0,79$; PHWI $\alpha = 0,79$), as well as Van Tonder (2005) (NWHI $\alpha = 0,86$; PWHI $\alpha = 0,67$; NHWI $\alpha = 0,81$; PHWI $\alpha = 0,78$) and Mostert and Oldfield (in press) (NWHI $\alpha = 0,90$; PWHI $\alpha = 0,74$; NHWI $\alpha = 0,78$; PHWI $\alpha = 0,77$). Based on these findings, it is hypothesised that the scales for the translated versions of the SWING will be reliable (*Hypothesis 1d*).

The prevalence of work-home interaction

Empirical studies have shown that negative WHI is more prevalent than negative HWI (Geurts et al., 2005; Grzywacz & Marks, 2000; Montgomery, Panagopoulou, & Benos, 2002). This has been supported by research that implies that due to the forced structure and obligatory nature of work, workers are more inclined to prioritise work over private or family matters, and to reduce their effort investment at home rather than at work (Guttek, Searle, & Klepa, 1991). Therefore, it is expected that negative WHI will be more prevalent than negative HWI (*Hypothesis 2a*).

Positive HWI is also more often found than positive WHI (Demerouti et al., 2004, Kinnunen, Feldt, Geurts, & Pulkkinen, 2006). Grzywacz and Marks (2000) suggest that positive spillover more often originates from the family than from the work domain. This was confirmed by Geurts et al. (2005), who reported that positive influence appeared to originate more often from the home than from the work domain. Based on these findings, it is expected that positive HWI will be more prevalent than positive WHI (*Hypothesis 2b*).

Differences between demographic groups

Another important objective of this study is to investigate if differences exist between certain demographic groups. The demographic groups that will be included in this study are language (English, Afrikaans, and Setswana); gender (males vs. females); marital status (married vs. not married); parental status (with children vs. without children); and education (individuals

with a high school education vs. individuals with higher education (e.g., technikon diploma, university degree).

As far as differences between language groups are concerned, Pieterse and Mostert (2005) found no significant differences between English and non-English groups. However, Oldfield (2005) showed that individuals speaking African languages experience statistically significantly higher levels of positive WHI and HWI than Afrikaans-speaking participants. Rost (2006) found that individuals speaking African languages experienced higher positive HWI than Afrikaans-speaking participants, and also that English speaking participants experienced higher levels of negative WHI than the Afrikaans and African language groups. Based on these findings, it is expected that Setswana participants will experience higher levels of positive WHI and HWI than Afrikaans-speaking participants, and that English speaking participants will experience higher levels of negative WHI (*Hypothesis 3a*).

Research has shown that men and women generally report similar levels of work-home interaction and home-work interaction (Carnicer, Sánchez, Pérez, & Jiménez, 2004; Demerouti et al., 2004; Frone, 2003). If any gender differences were found, they were usually not statistically significant (Grzywacz & Marks, 2000). However, results from a South African study by Pieterse and Mostert (2005) indicated a practically significant difference between males and females on negative WHI, indicating that males reported a higher level of negative WHI than women did. This supports the findings of Geurts et al. (2005), who observed that men experienced slightly more negative WHI than women, whereas women reported more positive HWI than men. Oldfield (2005) and Rost (2006) also found that males experienced higher levels of negative WHI than females. Therefore, it is expected that males will experience higher levels of negative WHI than females (*Hypothesis 3b*).

Research that considered marital status as a demographic variable, report that single men and women report less negative spillover from work to home than their married counterparts. However, it was also found that being unmarried was robustly associated with less positive spillover from home to work (Grzywacz & Marks, 2000). Demerouti et al. (2004) found that individuals who lived with a spouse reported less negative influence from home than those who lived alone. Oldfield (2005) reported no significant differences between married and non-married participants. This study hypothesises that single participants will experience less negative WHI but more negative HWI than married participants (*Hypothesis 3c*).

As far as the parental status of participants is concerned, Grzywacz and Marks (2000) ascertained that having a child of any age (in contrast to having no children at all) is associated with more negative spillover from home to work for both women and men. However, men who have an oldest child of younger than 5 years, experienced more positive spillover from work to family than men without children (Grzywacz & Marks, 2000). Oldfield (2005) reported that working parents appear to have higher levels of negative WHI than those without children, but at the same time also experienced higher levels of positive HWI. Demerouti et al. (2004) came to the conclusion that women with children did not report negative influence from the home domain but instead reported more positive influence in comparison to women without children and compared to men. *Hypothesis 3d* presupposes that participants with children will experience high levels of negative WHI, but also more positive HWI.

The last demographic variable that will be considered is the level of education of participants. Grzywacz and Marks (2000) found that lower levels of education and income were robustly associated with a lower level of positive spillover from work to home among women, but not among men. Rost (2006) indicates that employees with a technikon diploma experience significant higher levels of positive WHI than employees with a postgraduate degree. Oldfield (2005) also found that individuals who have tertiary education appear to experience lower levels of negative WHI and HWI than individuals with secondary education, who experience more positive HWI. Lastly, Van Tonder (2005), in a study among South African nurses, came to the conclusion that individuals who have a technikon diploma experienced significantly higher negative WHI than individuals with only grade 10 or 11. In support of these results this study anticipates that participants with a higher education will experience higher levels of negative WHI, but also higher positive WHI (*Hypothesis 3e*).

METHOD

Research design

A cross-sectional survey design was used to reach the research objectives. A cross-sectional design is a technique for studying developmental variables in which subjects differing on a developmental variable such as age are studied at a single point in time (Keppel, Saufley, & Tokunaga, 1992). The data can be used to assess the prevalence of certain variables in a population, which will be beneficial for this study.

Participants and procedure

Random samples ($N = 685$) were taken from police stations in the North West Province. After a presentation of the proposed research was made to the Provincial Head of Psychological Services, permission was granted to incorporate the research with the unit's ongoing research programme. The management of each of the identified stations in the province, which included the Station Commissioner and the Human Resource Management Head, was contacted to explain the rationale and procedures of the proposed research. Selected English-, Afrikaans- and Setswana-speaking police officers from each station received paper-and-pencil questionnaires to complete. Each questionnaire was accompanied by a letter explaining the rationale of the study, and confidentiality and anonymity were ensured in all instances. The members were given two to four weeks to complete the questionnaire. The completed questionnaires were personally collected from each station. The response rate was approximately 35%.

Table 1 presents some of the characteristics of the participants.

Table 1

Background information of the participants (N = 685)

Item	Category	Frequency	Percentage
Language	English	260	38,0
	Afrikaans	239	34,9
	Tswana	186	27,2
Gender	Male	375	54,7
	Female	308	45,0
Age	17-26	52	7,6
	27-36	292	42,6
	37-46	246	35,9
	47-56	68	9,9
	57-66	11	1,6
Marital Status	Married	418	61,0
	Not Married	154	22,5
Parental Status	With Children	431	62,9
	Without Children	141	20,6
Education	School education	417	60,9
	Higher education	211	30,8
Rank	Constable	60	8,8
	Sergeant	224	32,7
	Inspector	34	5,0
	Captain	85	12,4
	Superintendent	32	4,7
	Senior Superintendent	7	1,0
	Other	220	32,1

Table 1 shows that the sample was mostly male (54,0%) and married (61,0%), that 20,6% had children and that 60,9% had a high school education. The participants' age ranged mostly between 27 (42,6%) and 46 (35,9%) years. Regarding the participants' work situation, most members have been in the same rank for 5 years (12,4%) have been employed in the SAPS for approximately 15 years (7,6%). In total, 44,5% of the participants work 40 hours per week, while 19,0% of the participants work more that 48 hours per week. 22,5% of the participants travel approximately 10 minutes to work, and 50,8% have taken all the leave to which they were entitled for the past year.

Measuring battery

The *Survey Work-home Interaction – Nijmegen* (SWING) (Geurts et al., 2005) was used to measure work-home interaction. The SWING is a 22-item work-home interference measuring instrument (eight items measuring negative WHI; five items measuring positive WHI; four items measuring negative HWI; and five items measuring positive HWI) developed by researchers in the Netherlands (Geurts et al., 2005).

A *Biographical Questionnaire* was used to ascertain the biographical characteristics of the members of the SAPS. The questionnaire investigated dimensions which included background information (age, race, gender, and educational information), job situation (rank and years in service/rank), working hours and flexibility at work, dual career implications as well as the household and care giving situation.

Translation of the SWING

The measuring battery was translated from English to Afrikaans and Setswana. These languages are native to the North West Province, where 65,4% of the population are Setswana-speaking and 7,5% are Afrikaans-speaking (Burger, 2005). The Afrikaans and Setswana versions of the measuring battery were then translated back into English. The original English measuring battery was then compared with the two re-translated measuring batteries. The same procedure was followed when questionable items were found in the re-translated measuring batteries in order to find a better fit for the items. All translations were done by four registered and independent translators. The English, Afrikaans and Setswana questionnaires were then finalised and distributed.

Statistical analysis

The statistical analysis was carried out with the help of the SPSS programme (SPSS Inc., 2005) and the AMOS programme (Arbuckle, 2003). Following the procedure of Geurts et al. (2005), the construct validity of the SWING (the proposed four-factor structure of work-home interaction) was tested by comparing four models for the relationships among the 22 items, using structural equation modelling (SEM) methods. Multi-group confirmatory factor analysis was used in order to test the construct equivalence of the factor structure and the equivalence of parameter estimates (factor loadings, factor covariances and item error

variances) for the English and translated versions as well as across four important subgroups (e.g., gender, marital status, parental status and education).

To test for the equivalence of factor loading and covariances of the translated instruments, the χ^2 statistic was used to determine the difference in statistical fit between the unconstrained and constrained models. Non-significant differences between models indicate statistical support for the hypotheses being tested. Equivalence can also be examined by comparing other indices of the models compared. The following goodness-of-fit-indices were used as adjuncts to the χ^2 statistics: a) χ^2/df ratio; b) The Goodness-of-Fit Index (GFI); c) The Parsimony Goodness-of-Fit Index (PGFI); d) The Incremental Fit Index (IFI); e) The Tucker-Lewis Index (TLI); f) The Comparative Fit Index (CFI); and g) The Root Mean Square Error of Approximation (RMSEA). Such comparisons provide a test for equivalence at the practical level, where small differences are indicative of equivalence for groups compared. In general, before testing for measurement and structural equivalence, and differences in latent mean scores, it is necessary to ensure well fitting models for the groups involved (Byrne, 2001). Therefore, baseline models were tested for each group.

Cronbach alpha coefficients were used to assess the reliability of the scales and product-moment correlations were used to determine the relationship between the dimensions. Descriptive statistics (e.g., means, standard deviations) were used to describe the data. Paired-samples *t*-tests were used to determine the prevalence of work-home interaction.

Multivariate analysis of variance (MANOVA) was used to ascertain the significance of differences between the work-home interaction levels of different demographic groups. MANOVA is the counterpart of analysis of variance (ANOVA) methods, to cover cases where there is more than one dependent variable and where the dependent variables cannot simply be combined. It is also used to identify whether changes in the independent variables have a significant effect on the dependant variables. The multivariate analysis of variance is at its best when the assumptions are met and also when there is a substantial correlation between the dependent variables (Kerlinger & Lee, 2000). Wilk's Lambda was used to test the likelihood of the data under the assumption of equal population mean vectors for all groups, against the likelihood under the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect was significant in MANOVA, one-way analysis of variance was used to discover which dependent variables had been affected. ANOVA reflects the expression of the hypothesis

tests of interests in terms of variance estimates (Muller & Fetterman, 2002). A Bonferroni type adjustment was made for inflated Type 1 error. The Games-Howell procedure was used to determine if there are statistically differences between the groups.

RESULTS

Construct validity

In order to test *Hypothesis 1a* (the construct validity of the SWING), four models were compared to determine the relationships among the 22 items. *Model 1* proposes that all 22 items load on the same underlying latent dimension, assuming that the items cannot be distinguished on the basis of direction or quality of influence. *Model 2* (“direction model”) is a two-factor model, and distinguishes between items that refer to either influence from work or influence from home (irrespective of its quality). *Model 3* (“quality model”) also distinguishes between two factors. The first factor includes all items referring to positive interaction and the second factor includes all items referring to negative interaction (irrespective of the originating domain). Finally, *Model 4* (“hypothesised model”) represents the four-factor model and distinguishes between the four expected dimensions: Negative WHI, Positive WHI, Negative HWI, and Positive HWI. The fit indices for the four models that were compared are shown in Table 2.

Table 2
Goodness-of-fit Statistics for the Comparison of Models

Model	χ^2	χ^2/df	GFI	PGFI	IFI	TLI	CFI	RMSEA
M1 One-factor	3640,84	17,42	0,50	0,41	0,55	0,50	0,55	0,16
M2 Two-factor (“direction model”)	3330,43	15,94	0,56	0,46	0,59	0,55	0,59	0,15
M3 Two-factor (“quality model”)	1695,79	8,11	0,78	0,64	0,81	0,79	0,81	0,10
M4 Four-factor (“hypothesised model”)	1514,08	7,24	0,83	0,69	0,83	0,81	0,83	0,10
M5 Four-factor (“final model”)	825,16	3,99	0,91	0,74	0,92	0,91	0,92	0,07

Results reported in Table 2 demonstrated that Model 1 did not fit suitably to the data ($\chi^2 = 3640,84$; GFI, AGFI, IFI, TLI and CFI $< 0,90$ and RMSEA $> 0,08$). Although there is a significant improvement in the explanation of associations among items in Model 2 (“directional model” – M2 vs. M1: $\Delta \chi^2 = 310,41_{(N = 685)}$, $df = 1,00$, $p < 0,001$) and Model 3 (“quality model” – M3 vs. M1: $\Delta \chi^2 = 1945,05_{(N = 685)}$, $df = 1,00$, $p < 0,001$), both models are still inadequate with regard to what is acceptable. The four-factor hypothesised model, which distinguished between the four proposed dimensions of work-home interaction, explained the associations among the items significantly better than the other three competing models (M4 vs. M1: $\Delta \chi^2 = 2126,76_{(N = 685)}$, $df = 1,00$, $p < 0,001$; M4 vs. M2: $\Delta \chi^2 = 1816,35_{(N = 685)}$, $df = 1,00$, $p < 0,001$; M4 vs. M3: $\Delta \chi^2 = 191,71_{(N = 685)}$, $df = 1,00$, $p < 0,001$).

Upon re-examining Model 4, it was noted that even though Model 4 explained the relationships among items significantly better than the previously tested models, failure to confirm the hypothesised model are still suggested by the GFI, IFI, TLI and CFI $< 0,90$ and RMSEA $> 0,08$. In order to identify possible areas of misfit, modification indexes (M.I.) were considered in the *post hoc* analysis and it was found that the two negative (Negative WHI and Negative HWI) and the two positive (Positive WHI and Positive HWI) latent factors should be correlated. Considering the high covariances (M.I. of Negative WHI and Negative HWI = 222,18; M.I. of Positive WHI and Positive HWI = 310,48), it was decided to re-specify the model, allowing these factors to correlate. Table 2 indicates that the final model (Model 5) fitted the data significantly better than Model 4 (M₅ vs. M₄: $\Delta \chi^2 = 688,92_{(N = 685)}$, $df = 1,00$, $p < 0,001$). Since this model fit was satisfactory and the results agreed with the theoretical assumptions underlying the structure of the SWING, no further modifications of the model were deemed necessary. These results support *Hypothesis 1a*, which postulates that work-home interaction can be characterised as a four-dimensional construct that distinguishes between the direction (work to home, and home to work) and quality (negative and positive) of influence between the work and home domain.

Construct equivalence

Next, the hypotheses relating to the equivalence for factor loadings, factor variances and covariances for the translated versions of the SWING (*Hypothesis 1b*) as well as the equivalence for the sub-groups (*Hypothesis 1c*) were tested for at the statistical level. The test for the equivalence of factor loading and covariances involves using the χ^2 statistic and other

fit indices (e.g., GFI, PGFI, IFI, TLI, CFI and RMSEA) to determine the difference in fit between the unconstrained and constrained models. The results are presented in Table 3.

Table 3

Testing for Invariant Factorial Structures of the SWING

Model	χ^2	χ^2/df	GFI	PGFI	IFI	TLI	CFI	RMSEA
Language								
Baseline Model (English)	414,96	2,01	0,88	0,72	0,89	0,88	0,89	0,06
Baseline Model (Afrikaans)	498,61	2,41	0,84	0,69	0,89	0,87	0,89	0,08
Baseline Model (Tswana)	420,09	2,03	0,83	0,68	0,82	0,80	0,82	0,08
Unconstrained Model	1333,76	2,15	0,85	0,70	0,88	0,86	0,87	0,04
Constrained Model	1382,74	2,07	0,85	0,75	0,87	0,87	0,87	0,04
Difference between constrained and unconstrained model: $\Delta \chi^2 = 48,97$ ($N = 685$), $\Delta df = 48,00$ ($p < 0,01$)								
Gender								
Baseline Model (Males)	517,81	2,50	0,89	0,73	0,93	0,92	0,93	0,06
Baseline Model (Females)	589,03	2,85	0,86	0,71	0,89	0,88	0,89	0,08
Unconstrained Model	1106,89	2,67	0,88	0,72	0,91	0,90	0,91	0,05
Constrained Model	1139,22	2,60	0,88	0,76	0,91	0,90	0,91	0,05
Difference between constrained and unconstrained model: $\Delta \chi^2 = 32,34$ ($N = 685$), $\Delta df = 24,00$, ($p < 0,01$)								
Marital Status								
Baseline Model (Married)	590,01	2,85	0,89	0,73	0,92	0,91	0,92	0,07
Baseline Model (Not Married)	377,28	1,82	0,83	0,68	0,90	0,89	0,90	0,07
Unconstrained Model	967,77	2,34	0,87	0,71	0,92	0,91	0,92	0,05
Constrained Model	994,43	2,27	0,87	0,75	0,92	0,91	0,92	0,05
Difference between constrained and unconstrained model: $\Delta \chi^2 = 26,67$ ($N = 685$), $\Delta df = 24,00$, ($p < 0,01$)								
Parental Status								
Baseline Model (With Children)	561,39	2,71	0,90	0,73	0,93	0,92	0,93	0,06
Baseline Model (Without Children)	392,16	1,89	0,81	0,66	0,90	0,89	0,90	0,08
Unconstrained Model	954,31	2,31	0,87	0,72	0,92	0,91	0,92	0,05
Constrained Model	970,27	2,22	0,87	0,76	0,92	0,92	0,92	0,05
Difference between constrained and unconstrained model: $\Delta \chi^2 = 15,96$ ($N = 685$), $\Delta df = 24,00$, ($p < 0,01$)								
Education								
Baseline Model (School)	615,64	2,97	0,89	0,73	0,92	0,91	0,92	0,07
Baseline Model (Post-school)	447,67	2,16	0,84	0,69	0,90	0,90	0,90	0,07
Unconstrained Model	1063,53	2,57	0,87	0,71	0,91	0,90	0,91	0,05
Constrained Model	1101,13	2,51	0,87	0,75	0,91	0,91	0,91	0,05
Difference between constrained and unconstrained model: $\Delta \chi^2 = 37,60$ ($N = 685$), $\Delta df = 24,00$, ($p < 0,01$)								

As can be seen in Table 3, differences between the models based on the differences of χ^2 value for the constraint and unconstraint models were non-significant relative to the difference of degrees in freedom ($p < 0,01$). The practical fit indices of the unconstrained models were very good. The indices for the constrained models also showed very good fit, and their values were very close to those for the unconstrained models. These results show that the translated versions of the SWING are equivalent for each of the appropriate groups, confirming *Hypothesis 1b*. As a result, the SWING could be used to measure work-home interaction for English-, Afrikaans- and Setswana-speaking police officers that could lead to acceptable comparisons across these language groups. The results also provide support for the equivalence of the pattern of factor loadings across gender, marital status, parental status and education, providing support for *Hypothesis 1c*. It therefore seems that the SWING is an equivalent measuring instrument to measure work-home interaction for several sub groups.

Descriptive statistics, reliability and the relationship between dimensions

The descriptive statistics, Cronbach's alpha coefficient and correlations between the four dimensions are displayed in Table 4.

Table 4

Descriptive Statistics, Cronbach's Alpha Coefficient and Correlations of the SWING (N = 685)

Item	Mean	SD	A	NWHI	PWHI	NHWI
Negative WHI	1,83	0,79	0,90	-	-	-
Positive WHI	2,09	0,85	0,84	0,26*	-	-
Negative HWI	1,36	0,79	0,87	0,58***	0,39*+	-
Positive HWI	2,43	0,86	0,82	0,23*	0,69***	0,36*+

* Correlation is statistically significant at the 0,01 level

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

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

Table 4 shows that all four scales have high internal consistencies ($\alpha > 0,70$, Nunnally & Bernstein, 1994). It can therefore be concluded that the SWING is a reliable measuring instrument, providing support for *Hypothesis 1d*.

Furthermore, the correlations between the two negative scales ($r = 0,58, p < 0,01$) and between the two positive scales ($r = 0,69, p < 0,01$) were the highest. A post hoc confirmatory analysis with SEM was conducted to exclude the possibility that the items belonging to the different negative and positive components actually tapped the same underlying dimension. Two models were tested for the negative as well as for the positive items. In the one-factor model (M_1), it was assumed that all the items load on one factor, while the two-factor model (M_2) assumed that two different dimensions can be distinguished. For the negative items, the results indicated that the two-factor solution ($\chi^2 = 226,67$; $\chi^2/df = 4,28$; GFI = 0,95; IFI = 0,96; TLI = 0,95; CFI = 0,96; RMSEA = 0,07) fitted the data significantly better than the one-factor solution ($\chi^2 = 924,80$; $\chi^2/df = 17,13$; GFI = 0,76; IFI = 0,80; TLI = 0,76; CFI = 0,80; RMSEA = 0,07; M_2 vs. M_1 : $\Delta \chi^2 = 698,13_{(N = 685)}$), indicating that Negative WHI and Negative HWI are two empirically different constructs, although they are related. The same was true for the positive items, where a two-factor solution ($\chi^2 = 178,64$; $\chi^2/df = 5,25$; GFI = 0,95; IFI = 0,95; TLI = 0,94; CFI = 0,95; RMSEA = 0,08) fitted the data significantly better than the one-factor solution ($\chi^2 = 351,22$; $\chi^2/df = 9,76$; GFI = 0,90; IFI = 0,89; TLI = 0,87; CFI = 0,89; RMSEA = 0,11; M_2 vs. M_1 : $\Delta \chi^2 = 172,58_{(N = 685)}$), implying that Positive WHI and Positive HWI are also two empirically different, albeit related, constructs.

Prevalence

As for the prevalence of work-home interaction, paired-samples *t*-tests revealed that employees reported more Negative WHI ($M = 1,83$) than Negative HWI ($M = 1,36, t_{(685)} = 17,22, p < 0,001$) and more Positive HWI ($M = 2,43$) than Positive WHI ($M = 2,09, t_{(685)} = -13,28, p < 0,001$). These results confirm both *Hypothesis 2a* and *Hypothesis 2b*.

Differences between demographic groups

Next, MANOVA was used to determine differences between demographic groups with regard to work-home interaction. Demographic groups included were language, gender, marital status, parental status, and education. Results were first analysed for statistical significance using Wilks' Lambda statistics. ANOVA was used to determine specific differences whenever statistical differences were found. The results of the MANOVA analysis are given in Table 5.

Table 5

MANOVAS – Differences in Work-Home Interaction Levels of Demographic Groups

Variable	Value	F	Df	p	Partial Eta Squared
Language	0,42	93,38	8	0,00*	0,36
Gender	0,94	5,40	8	0,00*	0,03
Marital Status	0,02	3,43	4	0,01*	0,02
Parental Status	0,98	3,13	4	0,01*	0,02
Education	0,97	4,22	4	0,00*	0,03

* Statistically significant difference: $p < 0.05$

In an analysis of Wilks' Lambda values, as shown in Table 5, all the variables of work-home interaction levels appeared to show statistically significant differences ($p < 0,05$). The relationship between work-home interaction and these demographic variable levels was further analysed using ANOVA. Because sample sizes were different, the Games-Howell procedure was used to determine whether there were any statistical differences between the groups. The results of the ANOVA analysis based on language are given in Table 6.

Table 6

ANOVA – Differences in Work-Home Interaction Levels Based on Language

Item	English	Afrikaans	Tswana	p	Partial Eta Squared
Negative WHI	2,18 ^{ac}	1,37 ^b	1,95 ^{bc}	0,00*	0,20
Positive WHI	2,43 ^{ac}	1,33 ^b	1,58 ^c	0,00*	0,43
Negative HWI	1,66 ^{ac}	0,80 ^b	1,66 ^c	0,00*	0,27
Positive HWI	2,83 ^{ac}	1,70 ^b	2,80 ^c	0,00*	0,39

* Statistically significant difference: $p \leq 0.05$

^a Group differs statistically significantly from type (in row) where ^b is indicated

^b Group differs statistically significantly from type (in row) where ^c is indicated

Table 6 shows that there exist statistically significant differences between the three language groups. Evidently, English-speaking participants experienced statistically significantly higher levels of Negative WHI, whereas Afrikaans-speaking participants experienced statistically significantly lower levels of Negative WHI. However, Afrikaans-speaking participants experienced the lowest levels of Positive WHI, whereas English-speaking participants

experienced the highest levels of Positive WHI. English- and Setswana-speaking participants were also apparently subjected to significant higher levels of Negative HWI than Afrikaans-speaking participants. Finally, both English- and Setswana-speaking participants endured higher levels of Positive HWI, whereas Afrikaans-speaking participants experienced significant lower levels of Positive HWI. *Hypothesis 3a* is thus accepted.

Table 7

ANOVA – Differences in Work-Home Interaction Levels Based on Gender

Item	Male	Female	<i>p</i>	Partial Eta Squared
Negative WHI	1.98	1,65	0,00*	0,04
Positive WHI	2.14	2,02	0,11	0,01
Negative HWI	1.39	1,31	0,10	0,01
Positive HWI	2.42	2,43	0,44	0,00

* Statistically significant difference: $p \leq 0.05$

Table 7 shows that there are statistically significant differences between males and females in the SAPS regarding levels of Negative WHI. It appears that males in the SAPS experience higher levels of Negative WHI than females, which is in accordance with *Hypothesis 3b*.

Table 8

ANOVA – Differences in Work-Home Interaction Levels Based on Marital Status

Item	Married	Not Married	<i>p</i>	Partial Eta Squared
Negative WHI	1.86	1,78	0,33	0,00
Positive WHI	2.01	2,22	0,01*	0,01
Negative HWI	1.31	1,40	0,25	0,00
Positive HWI	2.38	2,46	0,33	0,00

* Statistically significant difference: $p \leq 0,05$

Table 8 indicates that statistically significant differences exist between participants who are married and those who are not married, with regard to levels of Positive WHI. The findings confirm *Hypothesis 3c*, that participants who are not married experience higher levels of Positive WHI than married participants.

Table 9

ANOVA – Differences in Work-Home Interaction Levels Based on Parental Status

Item	With Children	Without Children	<i>p</i>	Partial Eta Squared
Negative WHI	1,87	1,73	0,07	0,01
Positive WHI	2,06	2,07	0,96	0,00
Negative HWI	1,36	1,26	0,21	0,00
Positive HWI	2,45	2,27	0,03*	0,01

* Statistically significant difference: $p \leq 0,05$

Table 9 indicates that there are statistically significant differences between participants who have children and those who do not have children, with regard to levels of Positive HWI. According to the results, participants with children experience higher levels of Positive HWI and participants without children experience lower levels of Positive HWI. These results support *Hypothesis 3d*.

Table 10

ANOVA – Differences in Work-Home Interaction Levels Based on Education

Item	School	Post School	<i>p</i>	Partial Eta Squared
Negative WHI	1,78	1,92	0,04*	0,01
Positive WHI	2,12	1,98	0,05	0,01
Negative HWI	1,36	1,29	0,30	0,00
Positive HWI	2,42	2,38	0,57	0,00

* Statistically significant difference: $p \leq 0,05$

Table 10 shows that there exist statistically significant differences between participants with a high school education and those with a higher education (participants in possession of tertiary qualifications, such as diplomas and degrees) regarding levels of Negative WHI. According to the results, participants with a higher education experience higher levels of Negative WHI, whereas participants with a high school education experience lower levels of Negative WHI – confirming *Hypothesis 3e*.

DISCUSSION

Work and home are considered to be the two most important spheres of employed individuals' lives. Yet, these spheres are not separate but rather interact with each another, where one sphere influences, enhances or impairs the functioning of the other. Measuring the interaction between these spheres with a validated instrument (the SWING) within the South African context therefore presents certain challenges. These include the prevention of measurement bias through the use of translated instruments, as well as validating these translated instruments for use within the SAPS.

The first objective of this study was to investigate the psychometric properties of the translated versions of the SWING. The first step in achieving this was to determine whether the translated versions could be described as a four-dimensional construct that differentiates between the direction and the quality of influence when completed by members of the SAPS. Following Geurts' (2005) example, the construct validity of the SWING was tested by comparing four models for the relationships among the 22 items, using structural equation modelling.

The results revealed that a four-factor model fitted the data best. This model distinguishes between the four expected dimensions (negative WHI, positive WHI, negative HWI, and positive HWI). Correlations between positive WHI and positive HWI were allowed, as well as between negative WHI and negative HWI, indicating that these factors are in some way related to each other. However, these parameters could also represent non-random measurement error due to method effects associated with the response format of the instrument; as such, their presence here was not unexpected. Previous research with psychological constructs in general, and with measuring instruments in particular has demonstrated that the specification of correlated errors can often lead to substantially better fitting models (Byrne, 1991). Therefore, it was regarded as more sensible to include these parameters into the model, rather than to ignore their presence. To exclude the possibility that the items belonging to the different negative and positive factors actually tapped the same underlying dimension, a post hoc analysis was conducted, testing two competing models (a one-factor vs. a two-factor model) for the negative and positive items. The results indicated that negative WHI and negative HWI were two empirically different, albeit related constructs. The same was true for positive WHI and positive HWI. These results support

previous findings regarding the proposed four-structure model of the SWING (Geurts et al., 2005; Pieterse & Mostert, 2005; Van Tonder, 2005).

Next, the equivalence for factor loadings, factor variances and covariances of the four-factor structure of the original and translated versions of the SWING were tested for at the statistical level, using the χ^2 statistic and other relevant goodness-of-fit indices which provided a test for equivalence at the practical level. The results provided support for the equivalence in the pattern of factor loadings of the English, Afrikaans and Setswana versions of the SWING. Construct equivalence was also proven for relevant subgroups, including gender, marital status, parental status and education. These findings demonstrate that work-home interaction, as measured by the SWING, is an equivalent construct for English-, Afrikaans- and Setswana-speaking police members, as well as other relevant sub groups and support previous findings that the SWING items do not function differently in different sub-groups (Geurts et al., 2005; Pieterse & Mostert, 2005). Finally, the results also showed high Cronbach alpha coefficients for all four scales, indicating that all four scales are internally consistent. Several other authors also made this finding (Geurts et al., 2005; Pieterse & Mostert, 2005; Van Tonder, 2005).

Previous research indicated that language is a restraint when valid conclusions regarding work-home interaction have to be made between different cultural groups (Pieterse & Mostert, 2005; Van Tonder, 2005). This study intended to address this limitation and succeeded through establishing the construct validity, construct equivalence and reliability for the translated versions of the SWING. When taking these findings into account, it appears that these versions of the SWING can be used to accurately measure work-home interaction for English-, Afrikaans- and Setswana-speaking police officers in the SAPS and that they are also useful for making valid conclusions regarding differences or similarities between different language groups.

The second objective of this study was to determine the prevalence of work-home interaction within the SAPS. The results revealed that employees reported more negative WHI than negative HWI. As police work is in general seen as a highly stressful profession (Anderson, Litzenberger, & Plecas, 2002; Burke & Mikkelsen, 2005), elements such as demanding work characteristics (shift work, unplanned overtime, exposure to suffering and death), job pressures, emotional stressors, lower levels of decision latitude and support at work, will be related to the experience of high levels of negative work-home interaction (Violanti & Aron,

1995). These findings seem to be in line with other empirical studies (Geurts et al., 2005; Grzywacz & Marks, 2000; Montgomery et al., 2002). Gutek et al. (1991) point out that this implies that due to the forced structure and obligatory nature of work, workers are more inclined to prioritise work over private or family matters, and to reduce their effort investment at home rather than at work, leading to more interference from work to home than the other way around.

The results also indicate that police officers experienced more positive HWI than positive WHI. These findings support previous studies (Demerouti et al., 2004, Kinnunen et al., 2006), indicating that the home domain may offer more possibilities to adjust behaviour to one's current need for recovery than the work domain (Geurts et al., 2005). The presence of home resources (e.g., a domestic help, domestic appliances, a babysitter) and support (e.g., spouse, family, friends) in a person's life may make it possible for the individual to deal with the demanding aspects in his/her home environment. This will be related with positive load effects or spillover from home to work, facilitating one's functioning at work (Demerouti et al., 2004; Geurts & Demerouti, 2003; Grzywacz & Marks, 2000).

The third and last objective of this study was to identify the differences of work-home interaction between various demographic groups within the SAPS. Multivariate analysis of variance was used to determine significance of differences between demographic groups with regard to work-home interaction. The demographic groups that have been investigated in this study included language (English, Afrikaans and Setswana), gender (males vs. females), marital status (married vs. not married), parental status (with children vs. without children), and education (school vs. post school). Statistically significant differences were found regarding work-home interaction in terms of all these groups.

For *language*, it was found that English-speaking participants experienced significantly higher levels of negative WHI, while Afrikaans-speaking participants experienced significantly lower levels of negative WHI. However, Afrikaans-speaking participants also experienced the lowest levels of positive WHI, whereas English-speaking participants experienced the highest levels of positive WHI. English- and Setswana-speaking participants were also apparently subjected to significant higher levels of negative HWI than Afrikaans-speaking participants. Lastly, both English- and Setswana-speaking participants experienced higher levels of positive HWI compared to Afrikaans-speaking participants. These findings are in accordance with studies done by Oldfield (2005) and Rost (2006). In agreement with

findings of Oldfield (2005), a possible explanation could be that the Afrikaans culture is a very reserved individualistic culture where there are distinct boundaries for work and home interaction, whereas the Setswana culture is a more collective culture where people are more socially orientated and more often merge the boundaries between work and home.

Statistically significant results regarding differences in relationship between work-home interaction and *gender* showed that men in the SAPS experience higher levels of negative WHI than women. Previous studies confirm this finding (Geurts et al., 2005; Pieterse & Mostert, 2005). This may suggest that men perceive their work activities as more demanding than women, and that men might find it difficult to separate their work life (and problems) from their home life. This invariably causes negative load reactions to spill over from work to home, hindering their functioning at home.

Results on *marital status* revealed that those who are not married, experience more positive WHI than those who are married. These results are in contrast with previous studies, which revealed that non-married people tend to experience less positive WHI (Grzywacz & Marks, 2000). Police members are generally more exposed to life-threatening situations than public members (Burke, 1994); therefore members who are married might tend to be more concerned for the well-being of their family and worry about what would happen to them if something should happen to the police member. In contrast, unmarried members might still enjoy the excitement and adventure that police work initially offer. Furthermore, police work requires many members to work according to shift schedules, which could negatively influence a married member's family life, whereas an unmarried person is usually more flexible due to less demanding responsibilities.

In terms of the *parental status* of participants, the results indicated that participants with children experience higher levels of positive HWI than those without children. Similar findings were made by Demerouti et al. (2004) and Geurts et al. (2005) with reference to the role enhancement hypothesis, which assumes that managing multiple roles (in this case employee, spouse and parent) may create energy and provide extra resources that "contribute" to positive interaction from the home to the work sphere.

The last demographic factor that was investigated was *education*. Individuals with a higher education experienced statistically significant higher levels of negative WHI. This confirms findings by Van Tonder (2005), which indicated that participants with a Technikon diploma

experienced statistically higher levels of negative WHI than participants with grade 10 or grade 11. A general reason why people obtain higher education qualifications is to improve their lives in some way, mainly financially (e.g., to apply for a higher, better paying position). Members in the SAPS experience difficulty when applying for promotions; therefore they might feel that they do not receive the appropriate acknowledgement from their organisation for the higher education qualifications that they obtained. Another reason might be the appointment of people in higher positions for which are not qualified: suitably qualified employees (in lower positions) are then expected to assist their unqualified superiors with their work, while still having to perform their own duties as well.

In conclusion, the results revealed that the SWING (English, Afrikaans and Setswana versions) is a valid, reliable and equivalent measuring instrument that can be used to measure work-home interaction among members of the SAPS, and that the prevalence and differences of work-home interaction between various demographic groups within the SAPS can be identified by means of it.

Limitations of the study include the fact that the study used a homogeneous sample, consisting of individuals of a specific organisation, namely the South African Police Service. This organisation has its own, unique characteristics and culture, which could have influenced the participants' responses. Furthermore, the results were obtained solely through self-report questionnaires, which increase the possibility of contamination of the reported relationships through common-method variance. Lastly, the study did not take into account external variables (e.g., job/home characteristics, personality; psychological involvement) that have been found to be related to work-home interaction.

RECOMMENDATIONS

In light of this study, recommendations regarding the further use of the SWING as an instrument to measure work-home interaction are made. Keeping the results of this study in mind, it is recommended that the SWING be used as a measuring instrument to measure work-home interaction in the South African Police Service.

This study only focused on the population of the SAPS in the North West Province; therefore, it is recommended that additional studies with both the original and the translated instruments are carried out in the other eight provinces of South Africa. Those results can then be

compared with the results obtained in the current study. It is also recommended that further studies investigate the prevalence of work-home interaction, as well as differences between demographic groups in order to broaden and strengthen the current findings.

This study translated the SWING into only two of the 11 official languages of South Africa; therefore it is recommended that the SWING be translated into the other 8 official languages. This will promote the in-depth investigation of work-home interaction across cultures in South Africa.

Since this study was conducted among a relatively homogenous group, other studies, comprising a greater variety of demographic characteristics will enhance the reliability and usefulness of the SWING. Furthermore, it is recommended that external variables such as job characteristics and home characteristics be investigated in relation to work-home interaction research in South Africa.

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CHAPTER 3

Research Article 2

Burnout and Work Engagement of Police Officers in the North West Province

ABSTRACT

This study was conducted among randomly selected members of the South African Police Service (SAPS, $N = 685$) in the North West Province and examined the construct validity, construct equivalence and reliability of (1) the translated versions (Afrikaans, Setswana, English) of the *Maslach Burnout Inventory – General Survey* (MBI-GS) and the *Utrecht Work Engagement Scale* (UWES); and of (2) a total wellness construct; and (3) examined differences regarding wellness in various demographic groups. A cross-sectional survey design was used. Structural equation modelling (SEM) showed that a four-factor model for the translated MBI fitted that data best. A one-factor model was found for engagement. All the scales were reliable. SEM analyses supported a two-factor model for the total wellness construct, consisting of burnout (exhaustion, cognitive weariness and cynicism) and engagement (engagement and professional efficacy), which was equivalent for all three language groups. Finally, statistically significant differences of wellness exist between demographic groups based on language and educational level.

OPSOMMING

Hierdie studie is uitgevoer onder ewekansig geselekteerde lede van die Suid Afrikaanse Polisiediens (SAPD, $N = 685$) in die Noordwes Provinsie en het die konstrugeldigheid en betroubaarheid van (1) die vertaalde weergawes (Afrikaans, Setswana, English) van die *Maslach Burnout Inventory – General Survey* (MBI-GS) en die *Utrecht Work Engagement Scale* (UWES); en van (2) 'n algehele welstandkonstruk; asook (3) verskille rakende welstand tussen verskeie demografiese groepe. 'n Dwarssnee-opname-ontwerp is gebruik. Strukturele vergelykingmodellering het getoon dat 'n vierfaktormodel vir die vertaalde MBI die geskikste vir die data was. 'n Eenfaktormodel is gevind vir begeestering. Alle skale was betroubaar. SEM analyses 'n tweefaktormodel vir die algehele welstandkonstruk ondersteun, wat uit uitbranding (uitputting, kognitiewe afgematheid en sinisme) en begeestering (begeestering en professionele effektiwiteit) bestaan, wat betroubaar was vir al drie taalgroepe. Laastens is daar bevind dat daar statisties betekenisvolle verskille tussen demografiese groepe bestaan ten opsigte van welstand gebaseer op taal en opvoedkundige vlak.

Barriers between cultures seem to have grown faint. Migration and globalisation brought cultures closer together, facilitating the extensive research regarding differences between cultures. However, though the world seems smaller and barriers less defined, that does not imply that the inherent characteristics of different cultures have merged into one unison world culture. In fact, it rather seems that over the last decade different cultures have taken more of a stand to be recognised as distinct and that the multicultural nature of populations has become more prominent in many countries, especially in South Africa (Van de Vijver & Rothmann, 2004).

During the past 12 years, South Africa has undergone many changes aimed at restoring the value of belonging to different cultures. These changes continually influence various spheres of the South African society, particularly psychological testing, as is evident in the Employment Equity Act, no. 55 of 1998, Section 8, which stipulates that “Psychological testing and other similar assessments are prohibited unless the test or assessment being used (a) has been scientifically shown to be valid and reliable, (b) can be applied fairly to all employees, and (c) is not biased against any employee or group” (Government Gazette, 1998). This places a major responsibility on the South African research community to investigate, validate and standardise measuring instruments that will eventually encompass all of the different cultures in this country.

Multicultural assessment is a new branch of the tree of psychological assessment. Van de Vijver and Rothmann (2004) report that the advent of multicultural assessment is mainly inspired by a growing societal need. It is a response to the perceived need to deal with a multitude of cultures in assessment without the *a priori* designation of a single culture as the target or model for other cultures. Cross-cultural studies therefore aim at establishing similarities and differences of cultural groups, relying on more structured means of data collection, such as standardised inventories (Van de Vijver & Leung, 2001). Without cross-cultural comparisons, psychological theory is confined to its own cultural boundaries, but a blind “exportation” of Western instruments to other cultures without any concern for the appropriateness of the measures is also unlikely to lead to major theoretical advancements (Van de Vijver & Leung, 2001).

Two of these western psychological theories include *burnout* (a psychological syndrome that involves a prolonged response to stressors in the workplace) and *work engagement* (a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and

absorption). These two concepts are currently being studied around the globe among various professions and cultural settings (see Burke & Greenglass, 2001; Roelofs, Verbraak, Keijsers, De Bruin, & Schmidt, 2004; Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002). In South Africa alone, many studies regarding these two constructs have been done across various professional samples, including members of a pharmaceutical group (Storm & Rothmann, 2003a), members of the South African Police Service (SAPS, Storm & Rothmann, 2003b, Storm & Rothmann, 2003c), emergency medical technicians (Naudé & Rothmann, 2003; Naudé & Rothmann, 2004), academic staff (Coetzee & Rothmann, 2004) and educators (Jackson & Rothmann, 2005). Several of these researchers confirmed the construct validity and equivalence of instruments that measures burnout (the Maslach Burnout Inventory – MBI) and engagement (the Utrecht Work Engagement Survey – UWES).

Even though the MBI and UWES appear to be psychometrically valid, equivalent and reliable instruments for application in the South African context, an apparent limitation still exists. Both the MBI and UWES were administered in the original English version, although employees from different language groups had to complete the questionnaire. South Africa is a multicultural society in which only 8,3% of its citizens speak English at home, and only 1,2% of the population of the North West Province can be identified as English-speaking (Census, 2001). Studies in South Africa generally report race, education, language, and understanding of English as the main factors which impact on construct and item comparability of psychometric tests (Meiring, Van de Vijver, Rothmann, & Barrick, 2005). This confirms the apparent need to translate measuring instruments, including the MBI and UWES, for administration among participants from various language groups. Language problems may be a potent source of bias when the participants differ in proficiency in the testing language. This is not uncommon in multicultural studies, where a test is administered in the second or third language of the participants (Van de Vijver & Rothmann, 2004). If no attention is paid to language differences, invalid conclusions regarding the constructs under study could be made, with serious consequences for culturally diverse settings, such as in South Africa.

Up to date, no research regarding burnout and engagement has been done in South Africa within different language groups with translated measuring instruments. Given that the participants in this study were taken from the North West Province, the translation of measuring instruments specifically focused on Afrikaans and Setswana, as these are the two main languages in this region (Burger, 2005). In addition, clinical observations indicate that

chronic burnout is associated with impaired cognitive functioning (Sandström, Rhodin, Lundberg, Olsson, & Nyberg, 2005). However, few studies included cognitive weariness as a measurable burnout construct (Coetzee & Rothmann, 2004; Van Horn, Taris, Schaufeli, & Schreurs, 2004). This study therefore also included cognitive weariness as an additional dimension of burnout.

Apart from the concern regarding the translation of instruments, another aspect in the burnout and engagement literature has recently received much attention, in that various researchers no longer regard burnout and engagement as two separate constructs, but rather as part of a total wellness continuum (Rothmann, Steyn, & Mostert, 2005; Schaufeli & Bakker, 2004; Schaufeli et al., 2002). Maslach and Leiter (1997), for example, consider burnout and engagement to be the opposite poles of one continuum. However, subsequent research revealed that burnout (as measured by the MBI) and work engagement (as measured by the UWES) are independent states that are negatively, but not perfectly, related (Demerouti, Bakker, De Jonge, Jansen, & Schaufeli, 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002).

Further research regarding a possible wellness construct investigated combined factor loadings of the MBI and UWES and revealed that, instead of loading on one single general well-being dimension, the burnout and engagement scales loaded on two separate, moderately and negatively correlating dimensions (cf. Salanova, Schaufeli, Llorens, Peiro, & Grau, 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002), supporting previous findings by Demerouti et al. (2001). The burnout dimension included exhaustion and cynicism, whereas an enlarged engagement dimension included vigour, dedication, absorption and personal efficacy. This was also confirmed in a South African study by Rothmann et al. (2005). Although it should be noted that these findings could be the result of artificial differences (seeing that one factor consists of negative loadings and the other of positive loadings), it seems important to investigate the underlying structure and equivalence of the combined burnout and engagement scales in order to determine if it is one general wellness construct, ranging from engagement to burnout, or if the data represents two different, albeit related constructs.

Based on the above arguments, the objectives of this study were (a) to determine the construct validity, construct equivalence and internal consistency of the translated MBI and UWES, and (b) to determine the construct validity and construct equivalence of a total

wellness construct (including burnout and engagement). In addition, differences in wellness between various demographic groups within the SAPS were also investigated.

Burnout

The importance of burnout as a social problem was identified by both workers and social commentators long before it became a focus of systematic study by researchers. Thus, the trajectory of burnout research began with a real social problem rather than with derivations from scholarly theory (Maslach, 2003). After the identification of the three dimensions of burnout (emotional exhaustion, depersonalisation, and personal efficacy), the MBI was developed as a measure to assess these dimensions. The MBI was originally designed for use with people working in the human services and health care, but given the recent increasing interest in burnout within occupations that are not that clearly people orientated, the MBI-GS was developed for use in any occupation. Maslach (2003) defines job burnout as a psychological syndrome that involves a prolonged response to stressors in the workplace. Specifically, it involves the chronic strain that results from an incongruence, or misfit, between the worker and the job. Burnout, as measured in occupations outside the human services, is further segregated into three key dimensions: an overwhelming feeling of exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment.

The three-factor structure of the MBI has been confirmed both internationally (Roelofs et al., 2005; Schaufeli et al., 2002) and also in South African studies (Jackson & Rothmann, 2005; Naudé, 2003; Rothmann, Jackson, & Kruger, 2003; Storm & Rothmann, 2003c). However, a new development recently took place in burnout research. According to Schaufeli (2003), the MBI is a good instrument, but, from a clinical point of view, its scope is rather limited and should be supplemented by a scale that assesses cognitive weariness. As a result, recent research on burnout includes a new scale that enhances the burnout concept. Van Horn et al. (2004) developed an alternative exhaustion scale that was labelled *cognitive weariness*, which refers to the lack of capacity to take up new information and loss of concentration at work. This scale includes items such as “*I have trouble concentrating*” and “*I am forgetful and absent-minded*”.

Van Horn et al. (2004), in a study among teachers, tested and confirmed four different models, which included a one-factor model (all facets of occupational well-being load on the

one underlying factor), a five-factor orthogonal model (representing the five factors (uncorrelated) as described in their model of occupational well-being), a five-factor oblique model (representing the five factors (correlated) as described in their model of occupational well-being), and a five-factor orthogonal model with a second-order overall factor on which the five first-order factors loaded. The final model verified a new five-factor structure of burnout, including exhaustion, cognitive weariness, cynicism, professional efficacy, and psychosomatic complaints.

Coetzee and Rothmann (2004) attempted to verify a comparable model of Van Horn et al. (2004) by testing three default models, including a one-factor model (where exhaustion, cognitive weariness, cynicism and professional efficacy load on one single factor) a three-factor model (where exhaustion and cognitive weariness form one factor and cynicism and professional efficacy form the other two factors) and finally, a four-factor model, where the four scales each represent a separate factor. Their results confirmed the proposed four-factor model of burnout for employees at a higher education institution in South Africa. Based on these results, it is hypothesised that a four-factor structure, consisting of exhaustion, cognitive weariness, cynicism and professional efficacy will fit the data best (*Hypothesis 1a*).

Various studies regarding the MBI confirmed the soundness of the psychometric properties of the instrument (including variance of factor loadings), as well as its reliability and validity (Leiter & Schaufeli, 1996; Roelofs et al., 2004; Taris, Schreurs, & Schaufeli, 1999). Schaufeli et al. (2002) found that the Dutch, Portuguese and Spanish translations of the three-factor MBI were not equivalent across these samples. Instead, different patterns of equivalence were found between countries with efficacy items showing the most consistent pattern of equivalence of factor loadings. However, Storm and Rothmann (2003c) confirmed the structural and construct equivalence for the original three-factor MBI-GS for members of the SAPS. Jackson and Rothmann (2005) also found that the construct equivalence of the original three-factor MBI-GS was acceptable for the Afrikaans and African language groups in a sample of educators. This study hypothesises that the English, Afrikaans and Setswana translated MBI will be equivalent across all three language groups (*Hypothesis 1b*).

Internationally, internal consistencies for the MBI are satisfactory, ranging from 0,73 (Cynicism) to 0,91 (Exhaustion). Reliable Cronbach alpha coefficients are also reported in South African studies. Naudé and Rothmann (2004) reported satisfactory Cronbach alpha coefficients for the original three factor model of the MBI (Emotional Exhaustion: $\alpha = 0,77$;

Depersonalisation: $\alpha = 0,68$; Personal Accomplishment: $\alpha = 0,78$). Coetzee and Rothmann (2004) also found the four burnout scales to be reliable (Emotional Exhaustion: $\alpha = 0,85$; Cynicism: $\alpha = 0,70$; Professional Efficacy: $\alpha = 0,66$; Cognitive Weariness: $\alpha = 0,76$). Therefore, this study expects that the four factors will all show expectable internal consistencies (*Hypothesis 1c*).

Work Engagement

Work engagement is a multidimensional construct defined as a positive, fulfilling, work-related state of mind that is characterised by *vigour* (high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties), *dedication* (a sense of significance, enthusiasm, inspiration, pride and challenge), and *absorption* (fully concentrating on and being deeply engrossed in one's work, where time passes quickly and one has difficulty detaching oneself from work) (González-Romá, Schaufeli, Bakker, & Lloret, 2006; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Furthermore, work engagement is not a momentary and specific state, but a more persistent and pervasive affective-cognitive state which is not focused on a particular object, event, individual or behaviour (Schaufeli et al., 2002). In order to measure engagement, Schaufeli et al. (2002) developed the Utrecht Work Engagement Scale (UWES).

An international study confirmed the hypothesised three-factor solution of the UWES, using confirmatory factor analysis (Schaufeli et al., 2002) as a better fit than a one-factor structure. In South Africa, Storm and Rothmann (2003b) confirmed a three-factor model of work engagement, although a one-factor model fitted the data significantly better. Barkhuizen and Rothmann (2006) also confirmed a three-factor structure for the UWES, whereas Naudé and Rothmann (2004) established a two-factor structure consisting of vigour and dedication. *Hypothesis 1d* proposes that work engagement is a three-factor structure that consists of vigour, dedication and absorption.

Several studies investigated the construct equivalence of the UWES. In a cross-cultural study regarding the translated versions of the UWES for students in Spain, Portugal and the Netherlands, Schaufeli et al. (2002) found that the factor loadings of the absorption scale were equivalent for all three countries, whereas vigour was equivalent for only two of the three countries. In South Africa, Naudé (2004) found the construct equivalence of the UWES to be acceptable for Whites and Blacks, although two items appeared to be complex with

moderate loadings. In addition, Storm and Rothmann (2003b) used exploratory factor analysis with target rotations and found acceptable construct equivalence for White, Black, Coloured and Indian police members. This study therefore expects that the translated UWES will show construct equivalence for English, Afrikaans and Setswana police members (*Hypothesis 1e*).

Internationally, Schaufeli et al. (2002) found acceptable reliability coefficients for the UWES. The results showed that the three engagement scales (as reported in two samples) have sufficient internal consistencies (Vigour: $\alpha = 0,68$ and $0,80$; Dedication: $\alpha = 0,91$ for both samples; Absorption: $\alpha = 0,73$ and $0,75$). In South Africa, Storm and Rothmann (2003b) also reported satisfactory internal consistencies for the UWES (Vigour: $\alpha = 0,78$; Dedication: $\alpha = 0,89$; Absorption: $\alpha = 0,78$). However, Naudé and Rothmann (2004) reported acceptable Cronbach alpha coefficients for the Vigour/Dedication subscale ($\alpha = 0,87$), but not for the Absorption subscale ($\alpha = 0,61$). *Hypothesis 1f* postulates that all three scales for the translated version of the UWES will be reliable.

Wellness

Burnout and work engagement are indicators of wellness among employees and are independent states that are negatively, but not perfectly, related (Demerouti et al., 2001; Schaufeli & Bakker, 2004). Schaufeli and Bakker (2004) found that when these two independent states are combined in a possible model of well-being, instead of loading on a single general well-being dimension, the burnout and engagement scales loaded on two separate, moderately negatively correlating dimensions. It appeared that exhaustion and cynicism loaded on one factor, whereas an enlarged engagement dimension not only included vigour, dedication and absorption, but also the positively worded burnout scale that assesses professional efficacy. This confirms that exhaustion and cynicism are the core dimensions of burnout (González-Romá et al., 2006; Green, Walkey, & Taylor, 1991), and that professional efficacy form part of an enlarged engagement factor (Naudé & Rothmann, 2004; Rothmann et al., 2005; Schaufeli & Bakker, 2004).

This study will follow Schaufeli and Bakker's (2004) example to test a wellness model that includes burnout (exhaustion, cognitive weariness and cynicism) and b) an extended engagement factor (vigour, dedication, absorption and professional efficacy). It is expected that this wellness model will fit the data significantly better compared to a model assuming

that all burnout and engagement scales load on a single factor (see Maslach & Leiter, 1997). *Hypothesis 2a* therefore predicts that the total wellness construct will be a two-dimensional construct, consisting of burnout (exhaustion, cognitive weariness and cynicism) and engagement (engagement and professional efficacy) and that the proposed two-factor wellness model will be equivalent for English-, Afrikaans- and Setswana-speaking police members (*Hypothesis 2b*).

Differences between demographic groups

While it is important to consider the psychometric properties of translated versions of the MBI-GS and UWES, it seems equally important to consider if differences exist between certain demographical groups with regards to wellness. The demographic differences that will be investigated include language (English, Afrikaans, and Setswana); gender (males vs. females); age; marital status (married vs. not married); education (school education vs. higher education); and rank (Constable, Sergeant, Inspector, Captain, Superintendent and Senior Superintendent).

The first demographic group that will be investigated is *language*. Analysis of variance revealed differences in burnout and cognitive weariness for groups with different languages amongst educators in South Africa (Coetzee & Rothmann, 2004), where Afrikaans- and English-speaking participants experienced higher levels of exhaustion and cognitive weariness than indigenous language groups. In terms of engagement, Coetzee and Rothmann (in press) found that indigenous language groups are more engaged in their work than Afrikaans-speaking groups (Coetzee & Rothmann, in press). It was found that indigenous language groups score significantly higher than Afrikaans language groups in terms of Vigour. In accordance with these findings, *Hypothesis 3a* expects that Afrikaans and English speaking members will display higher levels of burnout and lower levels of work engagement than Setswana-speaking members.

Research regarding *gender* as a demographic variable shows no practically significant differences between males and females for the experiencing of burnout and engagement (Barkhuizen & Rothmann, 2006; Hakanen, Bakker, & Schaufeli, 2006; Jackson & Rothmann, 2005; Kop, Euwema, & Schaufeli, 1999; Storm, 2002). Therefore, it is expected that no significant differences will be found between males and females (*Hypothesis 3b*).

With reference to *age*, Maslach, Jackson and Leiter (1996) found in the USA that burnout appears to be more prevalent among young employees aged under 30 or 40, who have relatively little work experience, while in European countries (such as the Netherlands), burnout is more prevalent among older age groups (Schaufeli & Van Dierendonck, 2000). In South Africa, Jackson and Rothmann (2005) determined that educators in the age group 45 to 50 experienced significantly lower levels of exhaustion and cynicism than younger educators (between the age of 18 and 27) and those approaching retirement (older than 57 years). Storm (2002) found statistically significant differences between age and engagement, but these differences were not practically significant. Furthermore, Barkhuizen and Rothmann (2006) found no significant differences between age and engagement. It is therefore expected that younger employees will experience more burnout than their older counterparts, but that no significant differences will be found regarding engagement (*Hypothesis 3c*).

Research shows that *marital status* also plays a role in the experiencing of burnout. Singles have an increased risk of burnout, compared to those who are living with a partner (Maslach & Jackson, 1985). No information is available regarding the relationship between work engagement and marital status. *Hypothesis 3d* postulates that non-married participants will experience higher levels of burnout and that married participants will display higher levels of engagement.

Studies regarding *education* as a demographic variable revealed that police officers with higher education (e.g., members with a technikon diploma, university degree or postgraduate degree) experience practically significantly higher levels of professional efficacy than less educated members (for example those with grade 10 and grade 11, Storm, 2002). Barkhuizen and Rothmann (2006) also found that higher educated participants tend to display higher levels of absorption and vigour. However, Storm (2002) observed no significant differences between engagement and levels of education. Schaufeli and Enzmann (1998) observed that those with a higher level of education were more prone to experience burnout than less educated employees, whereas Cannizzo and Liu (1995) found that officers with no college education reported higher burnout levels than officers with higher education. This study therefore expects that police officers with a higher education will experience higher levels of engagement and lower levels of burnout than less educated members (*Hypothesis 3e*).

As far as *rank* (years of experience) is concerned, Coetzee and Rothmann (2004) determined that there are differences in burnout and cognitive weariness for groups with different years

of experience among educators in South Africa. It appears that educators with more than 10 years of experience display higher levels of exhaustion, cynicism and cognitive weariness. Storm (2002) shows that statistically significant differences exist between different ranks of police officers on the exhaustion, cynicism and professional efficacy dimensions. However, none of these differences were practically significant. They also found that no significant differences exist between work engagement and the different ranks. *Hypothesis 3f* therefore expects that participants with higher ranks will experience higher levels of burnout, but that no differences exist between different ranks with regards to work engagement.

METHOD

Research design

A cross-sectional survey design was used to reach the research objectives. A cross-sectional design is a technique for studying developmental variables in which subjects differing on a developmental variable such as age are studied at a single point in time (Keppel, Saufley, & Tokunaga, 1992). The data can be used to assess the prevalence of certain variables in a population, which will be beneficial for this study.

Participants and procedure

Random samples ($N = 685$) were taken from police stations in the North West Province. After a presentation of the proposed research was given to the Provincial Head of Psychological Services, permission was granted to incorporate the research with the unit's ongoing research programme. The management of each of the identified stations in the province, which included the Station Commissioner and the Human Resource Management Head, was contacted to explain the rationale and procedures of the proposed research. Selected English-, Afrikaans- and Setswana-speaking police officers from each station received paper-and-pencil questionnaires to complete. Each questionnaire was accompanied by a letter explaining the rationale of the study, as well as ensuring confidentiality and anonymity. The members were given two to four weeks to complete the questionnaire. The completed questionnaires were personally collected from each station. The response rate was approximately 35%.

Table 1 presents some of the characteristics of the participants.

Table 1

Background information of the participants (N = 685)

Item	Category	Frequency	Percentage
Language	English	260	38,0
	Afrikaans	239	34,9
	Setswana	186	27,2
Gender	Male	375	54,7
	Female	308	45,0
Age	17-26	52	7,6
	27-36	292	42,6
	37-46	246	35,9
	47-56	68	9,9
	57-66	11	1,6
Marital Status	Married	418	61,0
	Not Married	154	22,5
Parental Status	With Children	431	62,9
	Without Children	141	20,6
Education	School education	417	60,9
	Higher education	211	30,8
Rank	Constable	60	8,8
	Sergeant	224	32,7
	Inspector	34	5,0
	Captain	85	12,4
	Superintendent	32	4,7
	Senior Superintendent	7	1,0
	Other	220	32,1

Table 1 shows that the sample was mostly male (54,0%) and married (61,0%), that 20,6% had children, that and 60,9% had a high school education. The participants' age ranged mostly between 27 (42,6%) and 46 (35,9%) years. Most members have been in the same rank for 5 years (12,4%) and haven been employed in the SAPS for approximately 15 years (7,6%). In total, 44,5% of the participants work 40 hours per week, while 19,0% of the participants work more that 48 hours per week. 22,5% of the participants travel approximately 10 minutes to work, and 50,8% have taken all the leave to which they were entitled during the past year.

Measuring battery

The *Maslach Burnout Inventory – General Survey* (MBI-GS) (Maslach et al., 1996) was used to measure burnout. The MBI-GS consists of 16 items and has three subscales, namely Exhaustion (EX; five items, e.g., “I feel used up at the end of the workday”); Cynicism (CY; four items, e.g., “I have become less enthusiastic about my work”) and Professional Efficacy (PE; seven items, e.g., “In my opinion, I am good at my job”). All items are scored on a seven-point frequency rating scale ranging from 0 (*never*) to 6 (*every day*). These three components of the burnout construct are conceptualised in broader terms relating to the job and not just to the personal relationships that may be part of the job (Maslach, Schaufeli, & Leiter, 2001). Together the sub-scales of the MBI-GS provide a three-dimensional perspective on burnout. In addition, the *Cognitive Weariness Scale* (CWS) (five items) was administered. The CWS was developed by Van Horn et al. (2004) to measure cognitive well-being. Initially, this scale consisted of seven items, but they recommended that due to high internal consistency of items 3 and 7, item 7 be dropped in the general six-item version. The scale refers to the capacity to take up new information and loss of concentration at work, such as “I have trouble concentrating”. It is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*).

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli et al., 2002) was used to assess engagement. The UWES is a 17-item self-reporting questionnaire that includes three subscales: Vigour (VI; six items, e.g., “I am bursting with energy in my work”), Dedication (DE; five items, e.g., “My job inspires me”), and Absorption (AB; six items, e.g., “I feel happy when I’m engrossed in my work”). Schaufeli et al. (2002) revealed in his studies of the UWES that the three engagement scales have sufficient internal consistencies. They found that most of the Cronbach alphas for the UWES-S scales meet the criterion of 0,70.

To avoid answering bias, the burnout, cognitive weariness and engagement items were merged randomly.

A *Biographical Questionnaire* was used to ascertain the biographical characteristics of the members of the SAPS. The questionnaire investigated dimensions which included background information (age, race, gender, and educational information), job situation (rank and years in service/rank), working hours and flexibility at work, dual career implications as well as the household and care giving situation.

Translation of measuring battery

The measuring battery was translated from English to Afrikaans and Setswana. These languages are native to the North West Province, where 65,4% of the population are Setswana-speaking and 7,5% are Afrikaans-speaking (Burger, 2005). The Afrikaans and Setswana versions of the measuring battery were then translated back to English. The original English measuring battery was then compared with the two re-translated measuring batteries. The same procedure was followed when questionable items were found in the re-translated measuring batteries in order to find a better fit for the items. All translations were done by four registered and independent translators. The English, Afrikaans and Setswana questionnaires were then finalised and distributed.

Statistical analysis

The statistical analysis was performed with the help of the SPSS Program (SPSS Inc., 2005) and the AMOS programme (Arbuckle, 2003). Firstly, the construct validity and equivalence of the adapted and translated MBI were tested. Adhering to the procedures of various researchers (Jackson & Rothmann, 2005; Schaufeli et al., 2002; Storm & Rothmann, 2003c), structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 2003) were used to test factorial models for the translated MBI. The construct validity of the translated MBI (the proposed four-factor structure of the translated MBI) was tested by comparing three models for the relationships among the 21 items. Multi-group confirmatory factor analysis (CFA) was used in order to test the construct equivalence of the factor structure and the equivalence of parameter estimates (factor loadings, factor covariances and item error variances) for the English and translated versions.

To test for the equivalence of factor loading and covariances of the translated MBI, the χ^2 statistic was used to determine the difference in statistical fit between the unconstrained and constrained models. Non-significant differences between models indicate statistical support for the hypotheses being tested. Equivalence can also be examined by comparing other indices of the models compared. The following goodness-of-fit-indices were used as adjuncts to the χ^2 statistics: a) χ^2/df ratio; b) The Goodness-of-Fit Index (GFI); c) The Parsimony Goodness-of-Fit Index (PGFI); d) The Incremental Fit Index IFI; e) The Tucker-Lewis Index (TLI); f) The Comparative Fit Index (CFI); and g) The Root Mean Square Error of Approximation (RMSEA). Such comparisons provide a test for equivalence at the practical

level, where small differences are indicative of equivalence for groups compared. In general, before testing for measurement and structural equivalence, and differences in latent mean scores, it is necessary to ensure well fitting models for the groups involved (Byrne, 2001). Therefore, baseline models were tested for each group.

Given the contrasting findings in South Africa regarding the construct validity of the UWES, exploratory factor analysis was used to examine construct validity and equivalence of the UWES. A principal component analysis was conducted to determine the number of factors of the UWES in the total sample. Target rotations were used to determine the solution for each language group. Factors obtained in each group were compared (after target rotation). The agreement was evaluated by a factor congruence coefficient, namely Tucker's phi (Van de Vijver & Leung, 1997). Values above 0,90 were taken to point to essential agreement between cultural groups, while values above 0,95 point to very good agreement. A high agreement implies that the factor loadings of the lower and higher level are equal up to a multiplying constant. The latter is needed to accommodate possible differences in eigenvalues of factors for the different language groups.

Descriptive statistics (e.g., means, standard deviations, skewness and kurtosis) were used to describe the data. Cronbach alpha coefficients were used to assess the reliability of the scales and product-moment correlations were used to determine the relationship between the dimensions. The construct validity of the total wellness construct was assessed by testing competing models. Multi-group CFA was also used to test the construct equivalence of the total wellness construct for the three language groups.

Multivariate analysis of variance (MANOVA) was used to ascertain the significance of differences between the levels of burnout and engagement of different demographic groups, namely language (English, Afrikaans, & Setswana), gender (males vs. females); age, marital status (married vs. not married); education (school education vs. higher education and rank (Constable, Sergeant, Inspector, Captain, Superintendent, Senior Superintendent). MANOVA is the counterpart of analysis of variance (ANOVA) methods, to cover cases where there are more than one dependent variable and where the dependent variables cannot simply be combined. It is also used to identify whether changes in the independent variables have a significant effect on the dependant variables. The multivariate analysis of variance is at its best when the assumptions are met and also when there is a substantial correlation between the dependent variables (Kerlinger & Lee, 2000). Wilk's Lambda was used to test the

likelihood of the data under the assumption of equal population mean vectors for all groups, against the likelihood under the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect was significant in MANOVA, one-way analysis of variance was used to discover which dependent variables had been affected. ANOVA reflects the expression of the hypothesis tests of interests in terms of variance estimates (Muller & Fetterman, 2002). A Bonferroni type adjustment was made for inflated Type I error. The Games-Howell procedure was used to determine if there are statistically differences between the groups.

RESULTS

Construct validity and construct equivalence of the adapted MBI

Firstly, the construct validity and construct equivalence of the adapted and translated MBI were tested. Prior to the SEM analyses, Item 13 was removed. This decision was based on constant findings regarding the ambivalent nature of this item (for reviews, see Jackson & Rothmann, 2005; Storm & Rothmann, 2003c; Schutte, Toppinen, Kalimo, & Schaufeli, 2000). In order to test the factor structure, three models were compared. *Model 1* proposed that all 20 items load on the same underlying latent dimension. *Model 2* was a three-factor model that differentiates between 1) Fatigue (Exhaustion and Cognitive Weariness); 2) Cynicism; and 3) Professional Efficacy. Finally, *Model 3* (“hypothesised model”) represented the proposed four-factor model and differentiated between the four expected dimensions: Exhaustion, Cognitive Weariness, Cynicism, and Professional Efficacy. The fit indices for the four models that were compared are shown in Table 2.

Table 2

Goodness-of-fit Statistics for the Comparison of the MBI Models

Model		χ^2	χ^2/df	GFI	PGFI	IFI	TLI	CFI	RMSEA
M1	One-factor model	1401,49	8,24	0,78	0,63	0,70	0,67	0,70	0,10
M2	Three-factor model	728,48	4,36	0,89	0,71	0,86	0,84	0,86	0,07
M3	Four-factor model	435,38	2,66	0,94	0,73	0,93	0,92	0,93	0,05

The results reported in Table 2 demonstrate that Model 1 did not suitably fit the data ($\chi^2 = 1401,49$; GFI, PGFI, IFI, TLI and CFI < 0,90 and RMSEA > 0,08). Although a

significant improvement can be seen in the explanation of associations among items in Model 2 (M2 vs. M1: $\Delta \chi^2 = 673,01_{(N = 685)}$, $df = 3,00$, $p < 0,001$), this model also fell short of what is acceptable. The four-factor hypothesised model, which distinguished between the four proposed dimensions of burnout, explained the associations among the items significantly better than the other two competing models (M3 vs. M1: $\Delta \chi^2 = 966,11_{(N = 685)}$, $df = 3,00$, $p < 0,001$; M3 vs. M2: $\Delta \chi^2 = 239,10_{(N = 685)}$, $df = 0,00$, $p < 0,001$). Since this model fit was satisfactory and the results agreed with the theoretical assumptions underlying the structure of the adapted MBI, no further modifications of the model were deemed necessary. *Hypothesis 1a*, which postulates that burnout can be characterised as a four-dimensional construct that distinguishes between Exhaustion, Cognitive Weariness, Cynicism, and Professional Efficacy, is thus accepted.

Next, the hypotheses relating to the equivalence for factor loadings, factor variances and covariances of the four-factor structure of the adapted MBI (*Hypothesis 1b*) were tested at the statistical level. First, baseline models were tested for each language group, followed by the test for the equivalence of factor loadings and covariances to determine the difference in fit between the unconstrained and constrained models. The results are presented in Table 3.

Table 3

Testing for Equivalent Factorial Structures of the Adapted MBI

Model	χ^2	χ^2/df	GFI	PGFI	IFI	TLI	CFI	RMSEA
Baseline models for the English group								
M1	253,00	1,54	0,91	0,71	0,95	0,94	0,95	0,05
M2	242,82	1,66	0,91	0,70	0,95	0,94	0,95	0,05
Baseline models for the Afrikaans group								
M1	372,36	2,27	0,86	0,67	0,88	0,85	0,87	0,07
M2	291,93	2,01	0,89	0,66	0,91	0,89	0,91	0,07
Baseline models for the Setswana group								
M1	305,85	1,87	0,86	0,67	0,86	0,84	0,86	0,07
M2	206,99	1,83	0,89	0,66	0,90	0,88	0,90	0,07
Equivalence analysis								
Unconstrained Model	640,36	1,89	0,90	0,67	0,92	0,90	0,92	0,04
Constrained Model	735,66	1,91	0,89	0,74	0,91	0,90	0,91	0,04
Difference between constrained and unconstrained model: $\Delta \chi^2 = 95,30_{(N = 685)}$, $\Delta df = 46,00$ ($p < 0,01$)								

The results showed that in the first baseline model tested for the English group, MBI 5 is problematic (low standardised regression weight) and was removed. After the removal of this item, the final baseline model for the English group showed excellent fit ($\chi^2 = 242,82_{(n = 260)}$, $df = 146$, $p < 0,001$). Next, the results of the initial baseline model tested for the Afrikaans group also revealed that MBI 5 was problematic (low standardised regression weight) and was therefore also removed for this group. Furthermore, based on the modification indices, errors were allowed to correlate between MBI 12 and MBI 16. The final baseline model for the Afrikaans group showed excellent fit (Afrikaans: $\chi^2 = 291,93_{(n = 239)}$, $df = 145$, $p < 0,001$). The results of the baseline model tested for the Setswana group revealed that MBI 5, as well as two Cognitive Weariness items (“during work, my thoughts stray” and “I am forgetful and absent-minded”) were problematic items for this group. After removing these items, the baseline model for the Setswana group showed excellent fit ($\chi^2 = 206,99_{(n = 186)}$, $df = 113$, $p < 0,001$).

The final model that was used to test for the equivalence between language groups, had the problematic items removed and errors were allowed to correlate between MBI 12 and MBI 16. As is evident in Table 3, the χ^2 -difference relative to the change in number of degrees of freedom was statistically significant, thus indicating that the constrained model provided a worse fit ($\Delta \chi^2 = 95,30_{(N = 685)}$, $\Delta df = 46,00$ ($p < 0,01$). However, because of the large sample size, even small differences between the specified and the underlying “true” model will be significant (Bentler & Bonett, 1980). Therefore, other fit indices were inspected to verify the equivalence of the four-factor structure. The practical fit indices of the unconstrained models were very good. The indices for the constrained models also showed good fit, and their values were very close to those of the unconstrained models. Furthermore, the values of the practical fit-indices were not much lower for the constraint model compared to the unconstrained model, indicating that the parameter estimates did not differ strongly across the three languages. These results provide support for the equivalence in the pattern of factor loadings of the adapted MBI across the three languages. Burnout therefore seems to be an equivalent construct for English, Afrikaans and Setswana police members. *Hypothesis 1b* is therefore accepted.

Construct validity and equivalence of the adapted UWES

Before the construct validity of the UWES was tested, the Absorption items of the UWES were omitted. This decision was based on the low internal consistency of the Absorption

scale for this sample ($\alpha = 0,53$) and on previous research that questioned whether absorption should be included in the conceptualisation and measurement of work engagement (González-Romá et al., 2006; Montgomery et al., 2003; Naudé & Rothmann; 2004). The literature also regard Vigour and Dedication as the “core dimensions” of work engagement (Schaufeli & Bakker, 2004), whereas Absorption is regarded as “flow” – a state of optimal experience (Csikszentmihalyi, 1990), and seems to play a less central role in the engagement concept (Naudé & Rothmann, 2004).

A simple principal component analysis was conducted on the 11 Vigour and Dedication items of the UWES. By analysing the eigenvalues (larger than 1) as well as the scree plot, there was an indication that one factor, which explained 44,79% of the total variance, could be extracted (the component matrix are reported in Table 4). Next, the three pattern matrices of the one-factor solutions for the English, Afrikaans and Setswana groups were then used as input for an exploratory factor analysis with target rotations. By rotating one solution to the other, the one-factor structure was compared between the three groups. After rotation, the following Tucker’s phi coefficients were obtained: (a) English vs. Afrikaans = 0,99; (b) English vs. Setswana = 0,96; and (c) Afrikaans vs. Setswana = 0,97, indicating that the factor is equivalent for the three language groups. The component matrices, communalities and percentage of variance explained by the factor for each language group are shown in Table 4.

Table 4

Factor Loadings, Communalities (h^2), Percentage Variance and Covariance for the UWES Items

Items	Total group		English		Afrikaans		Setswana	
	F_1^a	h^2	F_1	h^2	F_1	h^2	F_1	h^2
VI1	0,63	0,50	0,48	0,23	0,57	0,45	0,56	0,32
VI2	0,74	0,59	0,74	0,55	0,76	0,58	0,58	0,33
VI3	0,77	0,61	0,77	0,60	0,82	0,68	0,60	0,35
VI4	0,40	0,57	0,41	0,17	0,43	0,19	0,50	0,25
VI5	0,49	0,24	0,29	0,09	0,47	0,22	0,63	0,39
VI6	0,41	0,57	0,47	0,22	0,36	0,13	0,53	0,28
DE1	0,76	0,59	0,80	0,65	0,70	0,49	0,64	0,41
DE2	0,84	0,74	0,82	0,68	0,85	0,73	0,80	0,64
DE3	0,81	0,68	0,83	0,68	0,82	0,68	0,66	0,44
DE4	0,62	0,51	0,67	0,44	0,85	0,34	0,71	0,51
DE5	0,71	0,51	0,78	0,61	0,82	0,68	0,45	0,20
Percentage of variance explained	44,79%		44,54%		46,93%		37,36%	

a Factor labels: Factor; Engagement

Table 4 shows that the extracted factor for the total group accounted for 44,79% of the total variance in the data. With a cut-off of 0,45 for inclusion of a variable in interpretation of a factor, all the variables loaded on one factor. The factor was labelled *Engagement*. Items loading on this factor relate to experiencing vigour at work as well as a feeling of dedication towards one's work. The extracted factor for the English group accounted for 44,45% of the total variance in the data, whereas 46,93% of the total variance in the data is explained by the extracted factor for the Afrikaans group. Lastly, the extracted factor for the Setswana group explains 37,36% of the total variance in the data. Although certain items revealed loadings below 0,30 (e.g., VI5 and VI6) and low communalities, these findings were not taken into account due to the acceptable factor loadings and phi coefficients for the total group. These

results do not support *Hypothesis 1c*, which postulates that engagement is a three-factor structure. Therefore, *Hypothesis 1c* is rejected. However, the results provide support for the equivalence in the pattern of factor loadings of the UWES across the three languages. Therefore, *Hypothesis 1d* is accepted.

Descriptive statistics, reliability and the relationship between burnout and engagement

The descriptive statistics, alpha coefficients and correlations of the MBI and UWES are reported in Table 5.

Table 5

Descriptive Statistics, Alpha Coefficients and Correlations of the adapted MBI and UWES

Item	Mean	SD	α	1	2	3	4
1. Exhaustion	2.92	1.61	0.84	1.00	-	-	-
2. Cognitive Weariness	1.90	1.32	0.70	0.49 ^{**}	1.00	-	-
3. Cynicism	2.12	1.28	0.65	0.55 ^{***}	0.51 ^{***}	1.00	-
4. Professional Efficacy	4.79	1.20	0.70	-0.23 [*]	-0.30 ^{***}	-0.38 ^{***}	1.00
5. Engagement	4.44	1.22	0.87	-0.39 ^{**}	-0.32 ^{**}	0.52 ^{***}	0.71 ^{***}

* Correlation is statistically significant at the 0,01 level

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

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

Table 5 shows that all five scales are reliable with the guideline of $\alpha > 0,70$, as suggested by Nunnally and Bernstein (1994), offering support for *Hypothesis 1c*. Since the Absorption scale was found not to be reliable ($\alpha = 0,53$), only partial support could be found for *Hypothesis 1f*. The results in Table 5 also indicate that Exhaustion is positively and statistically significantly related to Cognitive Weariness (medium effect) and Cynicism (large effect). Furthermore, Cynicism is also positively statistically significantly related to Cognitive Weariness (large effect). Professional Efficacy is negatively and statistically significantly related to Exhaustion, Cognitive Weariness (medium effect) and Cynicism (medium effect). Engagement is negatively and statistically significantly related to Exhaustion (medium effect), Cognitive Weariness (medium effect) and Cynicism (large effect), as well as positively and statistically significantly related to Professional Efficacy (large effect).

Second-order factor analyses and equivalence of the burnout and engagement dimensions

SEM was used to determine the construct validity and construct equivalence of wellness. A second-order factor analysis was conducted to determine if a one-factor or two-factor model fitted the data best. *Model 1* proposed that all five factors load on the same underlying latent dimension. *Model 2* is a two-factor model that differentiates between *Burnout* (Exhaustion, Cognitive Weariness and Cynicism) and the new *Engagement* factor (Engagement and Professional Efficacy). The fit indices for the two models that were compared are shown in Table 6.

Table 6
Goodness-of-fit Statistics for the Comparison of Models

Model	χ^2	χ^2/df	GFI	AGFI	IFI	TLI	CFI	RMSEA
One-factor model	310,89	62,18	0,82	0,47	0,76	0,51	0,76	0,30
Two-factor model ("hypothesised model")	37,12	9,28	0,98	0,92	0,97	0,93	0,97	0,11
Unconstrained two-factor model	39,14	3,26	0,98	0,92	0,98	0,94	0,98	0,06
Constrained two-factor model	59,38	2,97	0,97	0,93	0,97	0,95	0,97	0,05
Difference between constrained and unconstrained model: $\Delta \chi^2 = 20,24$ ($N = 685$), $\Delta df = 8,00$, $p < 0,01$								

Results reported in Table 6 demonstrated that Model 1 did not fit suitably to the data ($\chi^2 = 310,89$; GFI, AGFI, IFI, TLI and CFI $< 0,90$ and RMSEA $> 0,08$). The two-factor hypothesised model, which distinguished between the two proposed dimensions of burnout and engagement, explained the associations among the items significantly better than Model 1 (M2 vs. M1: $\Delta \chi^2 = 273,77$ ($N = 685$), $df = 1,00$, $p < 0,001$). This confirms *Hypothesis 2a*, which postulates that wellness can be characterised as a two-dimensional construct, namely *burnout* and *engagement*.

Next, the equivalence for factor loadings, factor variances and covariances of the two-factor wellness model were tested for the three language groups. As shown in Table 6, the practical fit indices of the unconstrained models were very good, supporting the equivalence for the number of factors. The indices for the constrained models also showed good fit, and their values were very close to those for the unconstrained models. In addition, differences between the models based on the χ^2 value were also non-significant. These results provide

support for the equivalence of the two-factor wellness construct across the three language groups, providing support for *Hypothesis 2b*.

Next, MANOVA was used to determine differences between demographic groups with regard to wellness. Demographic groups included were language, gender, age, marital status, education and rank. Results were first analysed for statistical significance using Wilks' Lambda statistics. ANOVA was used to determine specific differences whenever statistical differences were found. The results of the MANOVA analysis are given in Table 7.

Table 7

MANOVAS – Differences in Wellness Levels of Demographic Groups

Variable	Value	F	Df	p	Partial Eta Squared
Language	0,84	12,60	1356,00	0,00*	0,09
Gender	0,98	1,73	1356,00	0,07	0,01
Age	0,96	1,43	2189,92	0,10	0,01
Marital Status	0,99	0,69	566,00	0,63	0,01
Education	0,98	2,45	622,00	0,03*	0,02
Rank	0,93	1,33	2833,49	0,09	0,01

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

In an analysis of Wilks' Lambda values, as shown in Table 7, the language and education variables showed statistically significant differences ($p < 0,05$) regarding wellness. No statistically significant differences were found between gender, age, marital status, and rank. Therefore, *Hypotheses 3d* (non-married participants will experience higher levels of burnout and married participants will display higher levels of engagement) and *3f* (participants with higher ranks will experience higher levels of burnout, but no differences are expected between rank and levels of engagement) are rejected, whereas *Hypotheses 3b* (no significant differences between males and females and wellness) is accepted. Hypothesis *3c* (younger employees will experience more burnout than their older counterparts; and no significant differences will be found regarding engagement and age) is partly accepted.

The relationship between wellness, language and education was further analysed using ANOVA. Because sample sizes were different, the Games-Howell procedure was used to

determine whether there were any statistical differences between the groups. The results of the ANOVA analysis based on language are given in Table 8.

Table 8

ANOVA – Differences in Wellness Based on Language

Item	English	Afrikaans	Setswana	<i>p</i>	Partial Eta Squared
Exhaustion	2,92	3,19 ^a	2,56 ^b	0,00*	0,02
Cognitive Weariness	2,02	1,91	1,94	0,09	0,01
Cynicism	2,37 ^b	2,43 ^b	1,37 ^a	0,00*	0,08
Professional Efficacy	4,66 ^b	4,59 ^b	5,24 ^a	0,00*	0,05
Engagement	4,38 ^a	4,01 ^b	5,07 ^{bc}	0,00*	0,12

* Statistically significant difference: $p \leq 0,05$

^a Group differs statistically significantly from type (in row) where ^b is indicated

^b Group differs statistically significantly from type (in row) where ^c is indicated

Table 8 shows that there exist statistically significantly differences between the three language groups regarding all variables except Cognitive Weariness. Evidently, Afrikaans-speaking participants experienced significantly higher levels of Exhaustion than Setswana-speaking participants. It also appears that both English- and Afrikaans-speaking participants experience significantly higher levels of Cynicism, as well as significant lower levels of Professional Efficacy than Setswana-speaking members. The experiencing of Engagement differs significantly between the three language groups: Afrikaans-speaking members display low levels of Engagement, whereas Setswana-speaking members experience high levels of Engagement. Therefore *Hypothesis 3a* is accepted.

The results of the ANOVA analysis based on education are given in Table 9.

Table 9

ANOVA – Differences in Wellness Based on Education

Item	School Education	Higher Education	<i>p</i>	Partial Eta Squared
Exhaustion	2,88	3,05	0,21	0,00
Cognitive Weariness	1,94	1,85	0,42	0,00
Cynicism	2,10	2,21	0,42	0,00
Professional Efficacy	4,84	4,60	0,02*	0,01
Engagement	4,48	4,20	0,01*	0,01

* Statistically significant difference: $p \leq 0,05$

Table 9 shows that there are statistically significant differences regarding levels of Engagement between participants with a school education and those with a higher education. According to the results, participants with a higher education experience lower levels of Professional Efficacy, whereas participants with a school education experiences higher levels of Professional Efficacy. Similarly, higher levels of Engagement are experienced by participants with a school education, whereas participants with a higher education experienced lower levels of Engagement. *Hypothesis 3e* is therefore rejected.

DISCUSSION

Since the first democratic elections in 1994 in South Africa, the country has been regulated by a new constitution in which basic human rights and equality of individuals are guaranteed (Van de Vijver & Rothmann, 2004). According to Van de Vijver and Rothmann (2004), the demands on cultural appropriateness of psychological tests and their usage were placed in the spotlight with the promulgation of the new South African Employment Equity Act 55 of 1998, Section 8. Even though research regarding equivalence and bias of assessment tools in South Africa is still in its infancy stage (Van de Vijver & Rothmann, 2004), it reflects the need for researchers to take up their professional responsibility to develop new culturally appropriate tests and even new testing practices, also regarding burnout and engagement. The diverse cultural composition of the SAPS, as well as its members' apparent levels of burnout and engagement as found in previous studies (see Storm & Rothmann, 2003b; Storm & Rothmann, 2003c), make members of the SAPS an appropriate study population for developing and testing translated versions of the MBI and UWES.

The first objective of this study was to determine the construct validity, construct equivalence and internal consistency of the translated MBI and UWES. The first step in achieving this was to determine the construct validity of an adapted burnout model, including exhaustion, cognitive weariness, cynicism and professional efficacy. This model was tested by comparing three models using structural equation modelling. The results revealed that burnout can indeed be characterised as a four-dimensional construct that distinguishes between the four dimensions, supporting previous research done regarding the proposed four-structure model of the MBI (Coetzee & Rothmann, 2004; Van Horn et al., 2004).

Next, the hypotheses relating to the equivalence for factor loadings, factor variances and covariances of the four-factor structure of the translated MBI were tested for at the statistical level (using χ^2 statistics). Other goodness-of-fit indices were also used (the GFI, PGFI, IFI, TLI, CFI, and RMSEA), which provided a test for equivalence at the practical level. The results provided support for the equivalence in the pattern of factor loadings of the English, Afrikaans and Setswana versions of the MBI. These results support previous research done regarding the psychometric properties of the instrument (Leiter & Schaufeli, 1996; Roelofs et al., 2004; Storm & Rothmann, 2003c; Taris et al., 1999).

The next step was to determine whether engagement is a three-factor structure, characterised by vigour, dedication and absorption. However, the absorption items of the translated UWES were removed due to the low internal consistency of the scale. It is evident that compared to other countries, studies in South Africa tend to experience problems with acceptable internal consistencies, leading to the general exclusion of certain scales (see Naudé & Rothmann, 2004; Redelinghuys & Rothmann, 2005; Rothmann, 2005). Therefore, a simple principal component analysis was conducted on the remaining 11 items of the translated UWES. Contrary to expectations, support was found for a one-factor engagement construct. This is in accordance with the findings of Storm and Rothmann (2003b) and Naudé and Rothmann (2004), who also found superior fit for a one-factor model. The possibility that work engagement (as measured by the UWES) is a one-dimensional construct could be due to the high correlations between the vigour and dedication items (Storm & Rothmann, 2003b) and should be further investigated in other samples.

The equivalence for factor loadings, factor variances and covariances of the translated UWES was determined through exploratory factor analysis. The results provide support for the equivalence in the pattern of factor loadings of the translated UWES across the three

languages, providing proof that engagement is an equivalent construct for English-, Afrikaans- and Setswana-speaking police members. These results confirm previous research regarding this matter (Schaufeli et al., 2002; Naudé & Rothmann, 2004; Storm & Rothmann, 2003b).

Finally, with the exception of the absorption scale, it seems that the four scales of the MBI and the engagement scale were reliable, indicating that the items measuring exhaustion, cognitive weariness, cynicism, professional efficacy and engagement measure burnout and engagement as it is supposed to, lending support to various international and South African findings (e.g., Barkhuizen & Rothmann, 2004; Coetzee & Rothmann, 2004; Leiter & Schaufeli, 1996; Naudé, 2003; Naudé & Rothmann, 2004; Roelofs et al., 2004; Storm & Rothmann, 2003b; Storm & Rothmann, 2003c; Taris et al., 1999).

The second objective of this study was to determine construct validity and construct equivalence of a total wellness construct (including all the burnout dimensions as well as engagement). The results indicated that the fit of the hypothesised two-factor model, including exhaustion, cognitive weariness and cynicism as one factor and engagement and professional efficacy as another factor, fit the data significantly better than the alternative models. Furthermore, the results for the equivalence analyses provided support for the equivalence of factor loadings, factor variances and covariances in the pattern of second-order factor loadings of the total wellness construct across the three language groups, providing support that wellness manifests in the same way for English-, Afrikaans- and Setswana-speaking police members. These findings are also in line with those of Schaufeli and Bakker (2004).

In addition to the first two objectives, this study also investigated the possibility that important demographic groups in the SAPS differ with regard to wellness. Several demographic variables were included in the study, including language, gender, age, marital status, education and rank. However, statistically significant differences were only found for language and education.

With regard to language, the results indicated that Afrikaans-speaking participants experienced significantly higher levels of exhaustion and cynicism, as well as significantly lower levels of professional efficacy and engagement than Setswana-speaking participants. To a certain extent, these results are similar to those of Coetzee and Rothmann (2004), who

found that Afrikaans- and English-speaking participants experienced higher levels of exhaustion and cognitive weariness than indigenous language groups. One possible explanation could be that the Afrikaans culture is a very reserved, individualistic culture with a very high work ethic. Interviews with Afrikaans-speaking member of the SAPS revealed that the lack of promotion due to affirmative action, the demanding workload, lack of resources and a general negative view from the public towards the SAPS influence their levels of burnout and work engagement.

As far as education is concerned, participants with a school education and those with a higher education differed in terms of professional efficacy and engagement. Individuals with a higher education experience statistically significantly lower levels of professional efficacy and engagement than less educated participants. This is in contrast with studies by Barkhuizen and Rothmann (2006), who found that higher educated participants tend to display higher levels of absorption and vigour. Storm (2002) also found no significant differences between engagement and levels of education. A universal motive for obtaining higher qualifications is to improve one's life in some or other way, mostly financially (e.g., to apply for a higher, better paying position). Members in the SAPS experience difficulty to get promoted and may therefore feel that they do not receive the appropriate acknowledgement from their organisation for the higher education qualifications that they obtained, which may cause a lack of professional efficacy in their work. It is also possible that people have been appointed in senior positions for which they are not qualified, and that appropriately qualified members (in lower, subordinate positions) are then expected to assist their unqualified superiors with their work, while still having to perform their own duties as well. Subordinate members who are in such situations could feel betrayed by the organisation, with resulting lower levels of professional efficacy and engagement.

Limitations of the study include the fact that a homogeneous sample was used, consisting of individuals of a specific organisation, namely the South African Police Service. This organisation has its own, unique characteristics and culture, which could have influenced the participants' responses. Furthermore, the results were obtained solely by means of self-report questionnaires, which increase the possibility of contamination of the reported relationships through common-method variance. Lastly, the study did not take into account external variables (e.g., job characteristics, ill health, personality, psychological involvement) that have been found to be related to work-home interaction.

RECOMMENDATIONS

Based on the results of this study, it is recommended that the translated versions of the MBI and UWES could be used to measure burnout and engagement of English-, Afrikaans- and Setswana-speaking individuals in the South African Police Service. However, this study only focused on the population of the SAPS in the North West Province. It is therefore recommended that additional studies with the original as well as the translated instruments are carried out in the other eight provinces of South Africa. Those results can then be compared with the results obtained in the current study. Furthermore, this study translated the two instruments into only two of the 11 official languages of South Africa. It is therefore recommended that the SWING be translated into the other eight official languages as well. This will promote the in-depth investigation of burnout and engagement across cultures in South Africa.

Since this study was conducted among a relatively homogenous group, other studies, comprising with a greater variety of demographic characteristics will enhance the reliability and usefulness of the MBI and UWES. Furthermore, it is recommended that external variables such as job characteristics, ill health and personality variables be investigated in terms of burnout and engagement research in South Africa.

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CHAPTER 4

Research Article 3

Job Characteristics, Work-Home Interaction and Wellness of Police Officers in the North West Province

ABSTRACT

This study was conducted among randomly selected members of the South African Police Service ($N = 685$) in the North West Province and examined a structural model of job characteristics (including overload, organisational support, advancement, growth opportunities and contact with colleagues), negative and positive work-home interference (WHI) and well-being (including burnout and work engagement). A cross-sectional survey design was used. The Job Demands-Resources Scale, Survey Work-Home Interaction – Nijmegen, Maslach Burnout Inventory – General Survey and Utrecht Work Engagement Scale were administered. The results of the structural equation modelling revealed that job demands were directly and positively associated with negative WHI and burnout, while job resources were directly and positively associated with positive WHI and work engagement. This also indicates the partial mediating effect of WHI between job characteristics and wellness. In addition, a lack of job resources was associated with higher levels of burnout.

OPSOMMING

Hierdie studie is uitgevoer onder ewekansig geselekteerde lede van die Suid Afrikaanse Polisie ($N = 685$) in die Noordwesprovinsie en het 'n strukturele model ondersoek wat werkseienskappe (bestaande uit oerlading, organisatoriese ondersteuning, bevordering, groeigeleenthede en kontak met kollegas), negatiewe en positiewe werk-huisinteraksie (WHI) en welstand (bestaande uit uitbranding en werksbegeestering) insluit. 'n Dwarsnee-opname-ontwerp is gebruik. Die Job Demands-Resources Scale, Survey Work-Home Interaction – Nijmegen, Maslach Burnout Inventory, en Utrecht Work Engagement Scale is afgeneem. Die resultate van strukturele vergelykingmodellering het getoon dat werkseise direk en positief geassosieer is met negatiewe WHI en uitbranding, terwyl werksbronne direk en positief geassosieer is met positiewe WHI en werksbegeestering. Dit dui ook op die gedeeltelike mediërende effek van WHI tussen werkseienskappe en welstand. Verder is 'n gebrek aan werksbronne geassosieer met hoë vlakke van uitbranding.

Police members are part of an occupational group at risk of being involved in stressful and traumatic situations. These include frequent exposure to situations of abuse, victims of serious accidents and hostages, riot control, violent confrontations, failed resuscitation attempts, and assistance in disasters (Dussich, 2003; McCaslin et al., 2006). Police officers are also subjected to a stressful working environment and have to deal with stressors such as organisational transformation, irregular working hours and a lack of resources (Biggam, Power, MacDonald, Carcary, & Moodie, 1997; Kop, Euwema, & Schaufeli, 1999). Research indicates that exposure to these situations have consequently resulted in increased rates of cardiovascular and gastrointestinal disorders, an alarming rise in divorce rates, suicide, and alcohol and drug abuse (Axelbend & Valle, 1979; Gulle, Tredoux & Foster, 1998; Lord, Gray & Pond, 1991; Nel & Burgers, 1998; Woody, 2006). These consequences are also evident in the South African Police Service (SAPS), as found in recent studies (Jones & Kagee, 2005; Mostert & Joubert, 2005; Pienaar & Rothmann, 2005; Rothmann & Van Rensburg, 2002).

Several findings indicate that the above-mentioned consequences tend to spill over to a person's home² life (Emslie, Hunt, & Macintyre, 2004; Frone, Russel, & Cooper, 1992) and could influence an individual's well-being negatively (Brough, 2003; Strazdins & Broom, 2003). For instance, research shows that one reason for suicide among police members is poor interpersonal relationships and marital problems (Janik & Kravitz, 1994; McCafferty, McCafferty, & McCafferty, 1992). In addition, the changing nature of the workforce could also influence a person's work and home life (Gerber, 2000; Schreuder & Theron, 2001; Strachan, Burgess, & Sullivan, 2004). During the past ten years of democracy, transformation developments such as Affirmative Action and Employment Equity changed the nature of the labour market and the economy (Thomas, 2002). These changes facilitated the increase in the number of working single-parent and dual-earner families, as well as the increased participation of women in the workforce (Grzywacz & Marks; 2000; Jones & Mckenna, 2002), influencing the dynamics of the work and home life of employed individuals. As a result, it is generally agreed that a balanced work and home life is of growing importance for the economic viability of organisations as well as for the welfare of families (Barnett, 1998).

A large body of research has identified job characteristics (work overload, changes in the task, emotional demands, a lack of social support and autonomy) as a major antecedent of

² The term "home" is used as a global concept in this study, also referring to other terms such as "family" and "non-work".

burnout (Bakker, Demerouti, De Boer, & Schaufeli, 2003; Bakker, Demerouti, & Schaufeli, 2003; Bakker, Demerouti, & Verbeke, 2004; Demerouti, Nachreiner, Bakker, & Schaufeli, 2001). According to Peeters, Montgomery, Bakker, and Schaufeli (2005) job demands that require too much effort and resources that are not available to mitigate the effect of demands, are associated with the building up of negative load effects that spill over to the home domain. Consequently, sufficient recovery at home will be more difficult, increasing the possibility that job demands could harm psychological health and could, in the long run lead to burnout.

However, during the past few years, research regarding psychological constructs moved from a pathogenic paradigm (which focuses on the origins of illness) to a more fortigenic paradigm (which focuses on the origins of psychological strengths; Stümpfer, 1995). Rothmann (2003) also suggested that well-being should not just be regarded as the absence of illness and dysfunctional behaviour, but that the positive side of well-being should also be addressed. In accordance with this argument, this study will also consider the positive interaction that can take place between the work and home spheres, as well as positive aspects of police work, including their work engagement. Bakker and Geurts (2004) suggested that job resources are associated with the mobilisation of energy (engagement) and the development of positive load effects that spill over to the home life (positive work-home interaction). This was also confirmed by Geurts and Demerouti (2003) and Montgomery, Peeters, Schaufeli, and Den Ouden (2003). Therefore, job resources enable employees to cope with high job demands, increasing their willingness to put effort into the job, thus yielding a reduced need for recovery and more positive outcomes, increasing the probability that job resources positively affect psychological health and are associated with higher work engagement (Bakker & Geurts, 2004; Mostert, 2006; Mostert, Cronjé, & Pienaar, 2006).

A need therefore exists to identify ways that both the individual and the organisation can apply to increase personal well-being and the balance between work and home life. However, there is still a lack of in-depth knowledge about the processes that may underlie the interaction between work and home life, as well as its relationships with employee health and well-being (Geurts & Demerouti, 2003). Research indicated that certain job characteristics are related to work-home interaction (Geurts & Demerouti, 2003; Geurts, Kompier, Roxburgh, & Houtman, 2003; Geurts, Rutte, & Peeters, 1999), burnout (Bakker & Geurts, 2004; Janssen, Peeters, de Jonge, Houkes, & Tummers, 2003), and work engagement (Bakker

& Geurts, 2004; Montgomery et al., 2003). Furthermore, according to several authors (Geurts et al., 2003; Jansen et al., 2004; Peeters et al., 2005), work-home interaction (negative and positive) can be rooted in the spillover effects of certain characteristics in the job and consequently, that such spillover can have an effect on the well-being of employees, including burnout and work engagement. It therefore seems that work-home interference (WHI) could act as a mediating variable in the relationship between job characteristics and well-being, where negative WHI will mediate between job demands and burnout, and positive WHI could mediate between job resources and work engagement.

In light of this discussion, the objective of this study is to test a structural model that will include job characteristics (consisting of job demands and job resources), negative and positive WHI, and well-being (burnout and engagement). The model will also be based on two strong conceptual frameworks that explain the associations between the variables from a theoretical perspective.

Job characteristics

A theoretically sound framework that could be used to investigate the relationship between job characteristics, WHI and well-being is the job demands-resources (JD-R) model (Bakker et al., 2003; Demerouti, et al., 2001). The JD-R model suggests that the overall wellness (psychological well-being and health) of employees could be influenced by two specific types of characteristics, namely job demands and job resources (Demerouti et al., 2001). The first aspect, *job demands*, represents those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with certain physiological and/or psychological costs (Schaufeli & Bakker, 2004). Although job demands are not necessarily negative, they may turn into job stressors when meeting those demands require high effort from which the employee can not adequately recover (Meijman & Mulder, 1998). The effort required by excessive job demands elicits negative responses such as depression, anxiety, or burnout (Schaufeli & Bakker, 2004).

Job resources (the second aspect of the JD-R model) refer to those physical, psychological, social or organisational aspects of the job that either (1) reduce job demands and the associated physiological and psychological costs; (2) are functional in achieving work goals; and/or (3) stimulate personal growth, learning, and development (Demerouti et al., 2001).

Resources may be located in the task itself (e.g., performance feedback, skill variety, autonomy), as well as in the context of the task (e.g., organisational resources and social resources; Bakker & Geurts, 2004). Generally, job demands and job resources are negatively related, since job demands such as high work pressure and emotionally demanding interactions with clients may preclude the mobilisation of job resources. In the same way, high job resources such as social support and feedback may reduce job demands (Bakker et al., 2004).

Work-home interaction

Work-home interaction can be defined as the extent to which one's functioning in one domain (e.g., work) is influenced (negatively or positively) by demands from the other domain (e.g., home), and vice versa (cf. Geurts & Demerouti, 2003). This definition suggests that work can affect home life but also that home life can affect work. According to Geurts et al. (2005), the interference from work to home can be negative and positive. Negative WHI occurs when negative load reactions built up at work and hamper functioning at home, while positive WHI occurs when positive load reactions built up at work facilitate functioning at home.

The Effort-Recovery (E-R) model (Meijman & Mulder, 1998) can be used to demonstrate the impact of job characteristics on the individual's work behaviour, health and wellness. The E-R model argues that effort expenditure is associated with specific load reactions (e.g., physiological, behavioural and subjective responses) that develop within the individual. Recovery of these load reactions will be possible if the exposure to the load ceases. According to this model, the quantity and quality of recovery plays an important part when job demands are involved. When opportunity or time for recovery after being exposed to a high workload is insufficient, the person will have to make compensatory effort to recover or adapt. This may result in an increased intensity of the load reactions, which, in turn, will place higher demands on the recovery process, yielding a state of exhaustion (Bakker & Geurts, 2004). The second process involves job resources, which is influenced by the willingness to put effort into the tasks. Following the E-R theory, work environments that offer sufficient resources (e.g., performance feedback, autonomy, and possibilities for professional development) may foster the willingness to dedicate one's abilities to the task and yield positive outcomes (Bakker & Geurts, 2004). Thus, employees will have the opportunity to

develop their skills and may find satisfaction through their work activities (Bakker & Geurts, 2004).

This model facilitates studying both *negative* and *positive* WHI. When job demands require too much effort and time and job resources are insufficient to fulfil the job requirements, energy and time resources are depleted. As a consequence, negative load effects build up and hamper one's functioning at home (work negatively influencing home) and could eventually lead to burnout. On the other hand, when existing job resources are sufficient to deal with high job demands, individuals may be stimulated to learn from and "grow" in their job and energy will be mobilised rather than depleted. This will facilitate one's functioning in the home domain (work positively influencing home) (Geurts & Demerouti, 2003) and could have an impact on work engagement.

Burnout and work engagement

Burnout is a metaphor that is commonly used to describe a state of mental weariness which includes feelings of exhaustion, fatigue, cynicism, mental distance, and cognitive weariness (Schaufeli & Bakker, 2004; Van Horn et al., 2004). Engagement can be described as a multidimensional construct, a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption (González-Romá, Schaufeli, Bakker, & Lloret, 2006; Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Recent studies revealed that burnout and engagement can be seen as independent states that are negatively, but not perfectly, related (Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Schaufeli & Bakker, 2004). Schaufeli and Bakker (2004) found that when these two independent states are combined in a possible model of well-being, instead of loading on a single general well-being dimension, the burnout and engagement scales loaded on two separate, moderately negatively correlating dimensions. It appeared that exhaustion and cynicism loaded on one factor, whereas an enlarged engagement dimension not only included vigour, dedication and absorption, but also the positively worded burnout scale that assesses professional efficacy.

In this same sample of police officers ($n = 685$), Marais (2006) explore how the factor structure of the five wellness scales will manifest, using a second order factor analysis. Two

factors were identified: the first factor was labelled Burnout, where the exhaustion, cognitive weariness, and cynicism scales loaded on this factor; the second factor was labelled Engagement, including the engagement and professional efficacy scales. As a result, in this study burnout will be assessed as a three-dimensional construct consisting of exhaustion, cognitive weariness and cynicism, while engagement will be assessed as a two-dimensional construct, consisting of engagement and professional efficacy.

A structural model of job characteristics, WHI and well-being

Research revealed that a strong relationship exists between job demands and negative WHI – employees particularly experience negative interference between work and family life when they are exposed to a high workload and demanding interactions with clients. (Bakker & Geurts, 2004; Demerouti, Geurts, & Kompier, 2004; Geurts et al., 2003; Mostert & Oosthuizen, 2006; Peeters et al., 2005). Several research findings also suggest that negative WHI are associated with burnout (Demerouti et al., 2004; Geurts et al., 2003; Koekemoer & Mostert, 2006; Peeters et al., 2005; Van Hooff et al., 2005). The first part of the structural model therefore assumes that high or negative job demands are most strongly related to negative WHI (*Hypothesis 1a*), and consequently to burnout (*Hypothesis 1b*). Therefore it can be expected that negative WHI will play a mediating role between job demands and burnout as suggested by research (Geurts et al., 2003; Geurts et al., 1999; Jansen et al., 2004; Koekemoer & Mostert, 2006; Montgomery et al., 2003).

In order to determine whether negative WHI will play a full or partially mediating role, it is important to determine the relationship between job demands and burnout. Job demands are considered as instigators of action, and when demands are too high, as possible sources of stress reactions and health complaints occur (Karasek, 1979). Bakker et al. (2003) found that job demands (work overload, changes in the task, emotional demands, etc.) were the most important predictors of call centre employees' levels of exhaustion. Furthermore, a large body of research has also identified job demands as an antecedent of burnout (Bakker et al., 2003; Bakker & Geurts, 2004; Geurts et al., 2003; Jansen et al., 2003; Montgomery et al., 2003). This study thus predicts that job demands will have a direct relationship with burnout (*Hypothesis 1c*), and therefore will verify the partially mediating role of negative WHI between job demands and burnout.

Several findings also indicate a relationship between job resources and burnout. Bakker and Geurts (2004) suggest that the availability of job resources will alleviate exhaustion, whereas Siegall and McDonald (2004) found that emotional exhaustion and diminished personal accomplishment are akin to lacking resources in general. Furthermore, Bakker et al. (2004) suggest that mental fatigue is a response of the mind and body to the reduction in resources due to mental task execution. Since people have limited resources (e.g., time and energy) to function effectively in daily life, burnout results when job demands are high and job resources are low (Bakker et al., 2003; Demerouti et al., 2001). It is therefore expected that the availability of sufficient job resources will be associated with less burnout (*Hypothesis 2*).

The second part of the structural model assumes that the availability of adequate job resources (availability of social support by colleagues, supervisory coaching, performance feedback, time control) will be strongly related to positive WHI (*Hypothesis 3a*). Only a few studies investigated the effect of job resources on positive WHI. These studies confirmed that job resources such as opportunities for development, autonomy, and performance feedback evoke more positive experiences among employees, which spill over to the home (Bakker & Geurts, 2004; Demerouti et al., 2004; Mostert, 2006; Mostert et al., 2006). Consequently, it is also hypothesised that positive WHI will correlate with engagement (*Hypothesis 3b*). Several findings suggest that a positive spillover between the work and home domain will contribute to engagement (Grzywacz & Marks, 2000; Mostert, 2006; Mostert et al., 2006; Montgomery et al., 2003), indicating the possibility of a partial mediating role of positive WHI between job resources and engagement.

The relationship between job resources and engagement will also be investigated. Bakker et al. (2003) found that job resources (availability of social support by colleagues, supervisory coaching, performance feedback, time control) were unique predictors of commitment and dedication (positive relationship), and indirectly of turnover intentions (negative relationship). Further studies also confirmed the relationship between job resources and engagement (Bakker et al., 2003; Bakker & Geurts, 2004; Bakker et al., 2004; Demerouti et al., 2001; Mostert, 2006; Mostert et al., 2006; Schaufeli & Bakker, 2004). It is therefore hypothesised that job resources will be directly associated to work engagement, in addition to the indirect effect through positive WHI (*Hypothesised 3c*).

This argument provides a foundation for the expectation that work-home interaction will play a partially mediating role between job characteristics and well-being, and not a full mediating role. A mediator specifies how a given effect will occur, more specifically, it is a variable that functions as a mediator to the extent that it accounts for the relation between the predictor and the criterion (Baron & Kenny, 1986). A mediating effect can therefore be seen as the pathway between an independent variable, the mediator and the outcome. A distinction can be made between a full mediating effect and a partial mediating effect. A full mediating effect, according to Baron and Kenny (1986), is when the relationship between the independent variable and the dependent variable is completely explained by the mediator (e.g., job demands are related to negative work-home interaction and subsequently to burnout, without a direct relationship between job demands and burnout). However, a partial mediating effect will be found when the effect size of the independent variable on the dependent variable, is smaller (after the entering of the mediating variable) than the size of the effect of the independent variable on the dependent variable (e.g., job demands have a direct relationship with burnout, as well as an indirect relationship through negative work-home interaction; Baron & Kenny, 1986).

Previous studies suggested that negative work-home interference can play either a full mediating (Geurts, et al., 1999; Geurts et al., 2003) or a partially mediating role between job demands and burnout (Jansen et al., 2004; Koekemoer & Mostert, 2006; Montgomery et al., 2003). Even though Montgomery et al. (2003) found no mediation role for positive work-home interaction between job resources and engagement (ascribing it to having to collapse the scales into one scale, losing specificity), Mostert et al. (2006) found that positive work-home interaction partially mediates the relationship between job resources and work engagement in a sample of police officers. Additionally, a study done by Mostert (2006) in a sample of employees working in the earthmoving industry also showed that work-home interaction partially mediated between job resources (job control and job support) and work engagement.

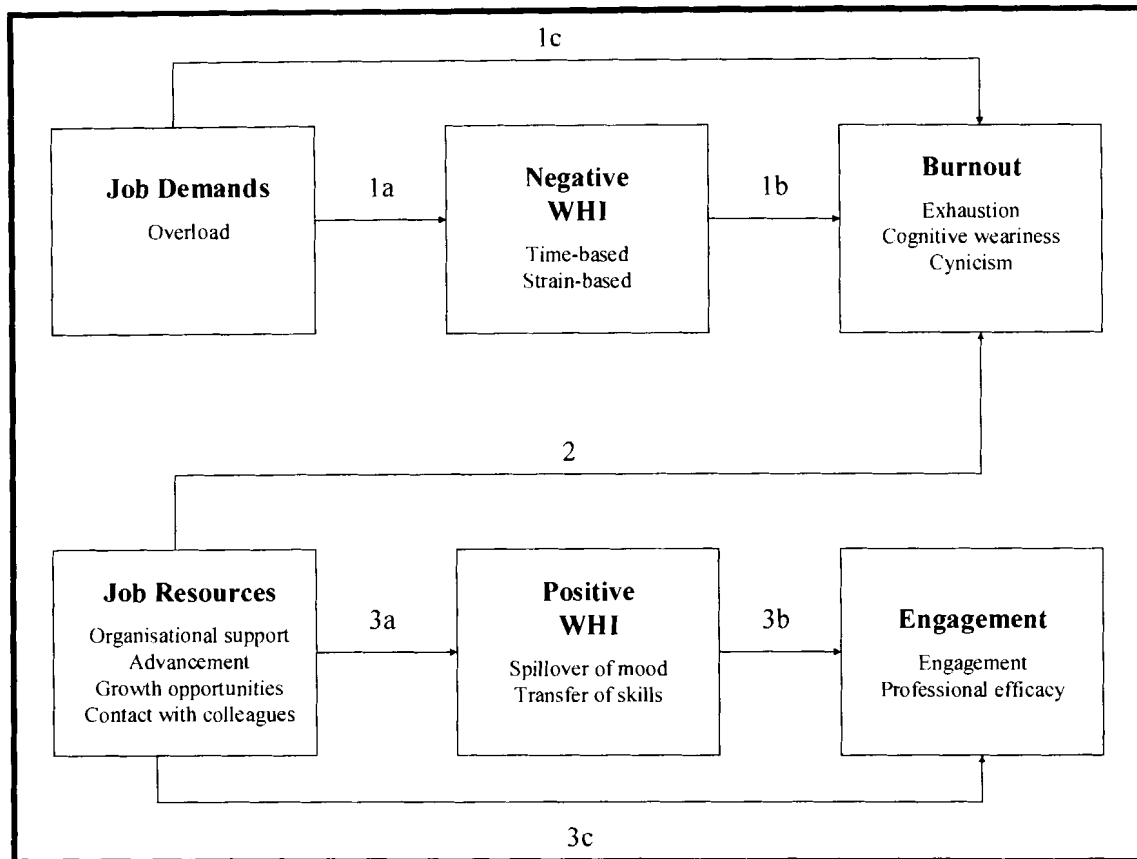


Figure 1. Theoretical model. (Note: Numbers correspond with hypotheses)

METHOD

Research design

A cross-sectional survey design was used to reach the research objectives. A cross-sectional design is a technique for studying developmental variables in which subjects differing on a developmental variable such as age are studied at a single point in time (Keppel, Saufley, & Tokunaga, 1992). The data can be used to assess the prevalence of certain variables in a population, which will be beneficial for this study.

Participants and procedure

Random samples ($N = 685$) were taken from police stations in the North West Province. After a presentation of the proposed research was given to the Provincial Head of

Psychological Services, permission was granted to incorporate the research with the unit's ongoing research programme. The management of each of the identified stations in the province, which included the Station Commissioner and the Human Resource Management Head, was contacted to explain the rationale and procedures of the proposed research. Selected English-, Afrikaans- and Setswana-speaking police officers from each station received paper-and-pencil questionnaires to complete. Each questionnaire was accompanied by a letter explaining the rationale of the study, as well as ensuring confidentiality and anonymity. The members were given two to four weeks to complete the questionnaire. The completed questionnaires were personally collected from each station. The response rate was approximately 35%.

Table 1 presents some of the characteristics of the participants.

Table 1

Background information of the participants (N = 685)

Item	Category	Frequency	Percentage
Language	English	260	38,0
	Afrikaans	239	34,9
	Tswana	186	27,2
Gender	Male	375	54,7
	Female	308	45,0
Age	17-26	52	7,6
	27-36	292	42,6
	37-46	246	35,9
	47-56	68	9,9
	57-66	11	1,6
Marital Status	Married	418	61,0
	Not Married	154	22,5
Parental Status	With Children	431	62,9
	Without Children	141	20,6
Education	School education	417	60,9
	Higher education	211	30,8
Rank	Constable	60	8,8
	Sergeant	224	32,7
	Inspector	34	5,0
	Captain	85	12,4
	Superintendent	32	4,7
	Senior Superintendent	7	1,0
	Other	220	32,1

Table 1 shows that the sample was mostly male (54,0%) and married (61,0%), of which (20,6%) had children, and 60,9% had a high school education. The participants' age ranged mostly between 27 (42,6%) and 46 (35,9%) years. As far as the participants' work situation is concerned, most members have been in the same rank for 5 years (12,4%) and have been employed in the SAPS for approximately 15 years (7,6%). In total, 44,5% of the participants work 40 hours per week, while 19,0% of the participants work more than 48 hours per week. 22,5% of the participants travel approximately 10 minutes to work, and 50,8% have taken their full entitlement of leave for the past year.

Measuring battery

Job Resources. Recently, Jackson and Rothmann (2005) developed the Job Demands-Resources Scale (JDERS) to measure job demand and job resources. The JDERS was developed based on a literature review and interviews with participants in their study. Items were developed and checked for face validity. The JDERS consists of 48 items about pace and amount of work, mental load, emotional load, variety in work, opportunities to learn, independence in work, relationships with colleagues, relationship with immediate supervisor, ambiguities about work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration, and career possibilities. The items are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). Jackson and Rothmann (2005) found that the dimensions of the JDERS consisted of seven reliable factors, namely organisational support ($\alpha = 0,88$), growth opportunities ($\alpha = 0,80$), overload ($\alpha = 0,75$), job insecurity ($\alpha = 0,90$), relationship with colleagues ($\alpha = 0,76$), control ($\alpha = 0,71$), and rewards ($\alpha = 0,78$). In this study, 38 items of the JDERS were adapted to measure job characteristics for police offers.

Burnout. An adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) was used to measure burnout. Three subscales were used in this study, namely Exhaustion (five items, e.g., “I feel used up at the end of the workday”), Cynicism (five items, e.g., “I have become less enthusiastic about my work”) and Cognitive Weariness (four items, e.g., “I have trouble concentrating”). All items are scored on a seven-point frequency-rating scale, ranging from 0 (*never*) to 6 (*daily*). Internal consistencies found by Leiter and Schaufeli (1996) and Schaufeli, Van Diederendonck, and Van Gorp (1996) range from 0,73 (Cynicism) to 0,91 (Exhaustion). Test-retest reliabilities after one year were 0,65 for Exhaustion and 0,60 for Cynicism (Schaufeli et al., 1996). Test-retest reliability from three months to one year ranged from 0,50-0,82 (Leiter & Durup, 1996). The following Cronbach alpha coefficients were obtained for the two scales of the MBI-GS in a South African police sample: Exhaustion: 0,88; Cynicism: 0,79 (Storm & Rothmann, 2003). Van Horn et al. (2004) reported a Cronbach alpha coefficient of 0,92, while Coetzee and Rothmann (2004) reported a Cronbach alpha coefficient of 0,76.

Engagement. Engagement was measured as a two-dimensional construct, including engagement and professional efficacy (see Marais, 2006). The Utrecht Work Engagement

Scale (UWES) (Schaufeli et al. 2002) was used to measure work engagement (eleven items that measure vigour and dedication, e.g., “I am bursting with energy every day in my work”; and “I am enthusiastic about my job”). The MBI-GS was used to measure professional efficacy (four items, e.g., “I have accomplished many worthwhile things in this job”). All items are scored on a seven-point frequency rating scale, varying from 0 (*never*) to 6 (*always*). Marais (2006) and Naudé and Rothmann (2004) reported a Cronbach alpha coefficient of 0,87 for a one-factor engagement construct, whereas Mostert et al. (2006) reported Cronbach alpha coefficients of 0,74 for vigour and 0,84 for dedication. Mostert (2006) also obtained a good alpha coefficients for a one-factor engagement construct ($\alpha = 0,84$). Furthermore, Rothmann, Steyn and Mostert (2005) reported a alpha coefficient of 0,90 for an engagement factor that consisted of vigour, dedication and professional efficacy, while Jackson and Rothmann (2005) reported an alpha coefficient of 0,73 for the professional efficacy construct as part of a burnout factor.

To avoid answering bias, the burnout, cognitive weariness and engagement items were merged randomly.

Work-home interference. The *Survey Work-Home Interaction – NijmeGen* (SWING, Geurts et al., 2005) was used to measure negative WHI (eight items, e.g., “How often does it happen that you do not have the energy to engage in leisure activities with your spouse/family/friends because of your job?”) and positive WHI (five items, e.g., “How often does it happen that you fulfil your domestic obligations better because of the things you have learned on your job?”). All items are scored on a four-point frequency rating scale, ranging from 0 (“never”) to 3 (“always”). *Negative WHI* was measured by five strain-based items (e.g., “How often does it happen that you are irritable at home because your work is demanding?”) and four time-based items (e.g., “How often does it happen that you have to cancel appointments with your spouse/family/friends due to work-related commitments?”). *Positive WHI* was measured by two items which tapped the spillover of positive mood developed at work to the home domain (e.g., “How often does it happen that after a pleasant working day/working week, you feel more in the mood to engage in activities with your spouse/family/friends?”), and four items that measure the transfer of skills learned at work that improve functioning at work (e.g., “How often does it happen that you manage your time at home more efficiently as a result of the things you have learned on your job?”; Geurts et al., 2005). Geurts et al. (2005) report Cronbach alpha coefficients of 0,84 for negative WHI and 0,75 for positive WHI. In a

South African sample, Pieterse and Mostert (2005) obtained the following Cronbach alpha coefficients for the SWING: Negative WHI: 0,87 and Positive WHI: 0,79.

Translation of the instruments

In order to prevent the limitations associated with administering the questionnaires to individuals who are not English-speaking, the measuring battery was translated from English to Afrikaans and Setswana. These languages are native to the North West Province, where 65,4% of the population are Setswana-speaking and 7,5% are Afrikaans-speaking (Burger, 2005). The Afrikaans and Setswana versions of the measuring battery were then translated back to English. The original English measuring battery was then compared with the two re-translated measuring batteries. The same procedure was followed when questionable items were found in the re-translated measuring batteries in order to find a better fit for the items. All translations were done by four registered and independent translators. The English, Afrikaans and Setswana questionnaires were then finalised and distributed. Marais (2006) confirmed the construct validity, construct equivalence and reliability of the translated versions of the SWING, MBI-GS and UWES.

Statistical analysis

The statistical analysis was carried out with the SPSS program (SPSS, 2005) and the Amos programme (Arbuckle, 2003). Cronbach alpha coefficients were used to assess the reliability of the constructs that were measured in this study. Descriptive statistics (e.g., means and standard deviations) and inferential statistics were used to analyse the data.

Exploratory factor analyses were carried out to determine the construct validity of the Job Demands-Resources Scale (JDERS). The following procedure was followed: Firstly, a simple principal components analysis was conducted on the items of the questionnaire. The eigenvalues and scree plot were studied to determine the number of factors. Secondly, a principal components analysis with a direct oblimin rotation was conducted if factors were related ($r > 0,30$). A principal component analysis with a varimax rotation was used if the obtained factors were not related (Tabachnick & Fidell, 2001).

Pearson product-moment correlation coefficients were used to specify the relationship between the variables. In terms of statistical significance, it was decided to set the value at a 95% confidence interval level ($p \leq 0,05$). Effect sizes were used to decide on the practical significance of the findings (Steyn, 1999). Cut-off points of 0,30 (medium effect) and 0,50 (large effect) were set for the practical significance of correlation coefficients (Cohen, 1988).

A comprehensive test of the hypothesised and alternative models was carried out through Structural Equation Modelling (SEM) methods, as implemented by AMOS (Arbuckle 1999). SEM is a statistical methodology that takes a confirmatory (hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne 2001). The χ^2 and several other goodness-of-fit indices were used to summarise the degree of correspondence between the implied and observed covariance matrices. The following goodness-of-fit-indices were used as adjuncts to the χ^2 statistics: a) χ^2/df ratio; b) The Goodness-of-Fit Index (GFI); c) The Normed Fit Index (NFI); d) The Incremental Fit Index (IFI); e) The Tucker-Lewis Index (TLI); f) The Comparative Fit Index (CFI); and f) The Root Mean Square Error of Approximation (RMSEA). Acceptable fit of the model is indicated by non-significant χ^2 values, values smaller than or equal to 0,90 for GFI, NFI, IFI, TLI and CFI and RMSEA values smaller than or equal to 0,08 (Browne & Cudeck, 1993).

The following models (hypothesised and alternative) were tested:

- In Model 1 (alternative model) it was assumed that Negative WHI fully mediated the relationship between Job Demands and Burnout, and that Positive WHI also fully mediated the relationship between Job Resources and Engagement (i.e., paths were specified between 1) Job Demands and Negative WHI; 2) Negative WHI and Burnout; 3) Job Resources and Positive WHI; 4) Positive WHI and Engagement);
- In Model 2 (alternative model), it was assumed that Negative WHI partially mediated the relationship between Job Demands and Burnout, and that Positive WHI partially mediated the relationship between Job Resources and Engagement (thus, in addition to the paths in Model 1, additional paths were specified between 1) Job Demands and Burnout; and 2) Job Resources and Engagement);

- Model 3 (hypothesised model) was similar to Model 2, except that it was also presupposed that Job Resources will have a significant negative relationship with Burnout.

RESULTS

Preliminary analyses

Exploratory factor analyses were carried out to determine the construct validity of the JDRS. A simple principal component analysis was conducted on the 38 items of the JDRS. By analysing the eigenvalues (larger than 1) as well as the scree plot, there was an indication that five factors, which explained 52,39% of the total variance, could be extracted. An oblimin rotation was used to extract the five factors. Items loading on the first factor relate to Overload and refer to the amount of pressure a person experiences at work. The second factor represents Organisational Support and refer to the amount of support received a person's supervisor, as well as the amount of information regarding the person's job description. The third factor addresses Possibilities for Advancement and refers to a person's satisfaction with his/her salary, as well as opportunities for further training and promotion. The fourth factor represents Growth Opportunities and refers to the opportunity for personal development and participation in decision making. Items loading on the fifth factor relate to Contact with Colleagues and refer to the amount of contact a person has with colleagues during working hours.

A second-order factor analysis was conducted to explore how the factor structure of the five job characteristics scales will manifest. A simple principal component analysis was conducted on the Overload, Organisational Support, Advancement, Growth Opportunities and Contact with Colleagues scales. Inspection of the eigenvalues and scree plot indicated two factors that accounted for 66,08% of the total variance in the data. Seeing that the factors were not related ($r = -0,09$), it was decided to use a principal factor analysis with a varimax rotation to extract the factors. The first factor was labelled *Job Demands* with one scale loading on this factor, namely Overload (loading = 0,92). The second factor was labelled *Job Resources*. Items loading on this factor include Organisational Support (loading = 0,84), Advancement (loading = 0,57), Growth Opportunities (loading = 0,83), and Contact with Colleagues (loading = 0,71). Based on these findings, job characteristics can be described as job demands (that consists of overload) and job resources (that consists of organisational

support, possibilities for advancement, growth opportunities, and contact with colleagues).

Descriptive statistics, reliability and the relationship between dimensions

The descriptive statistics, Cronbach's Alpha Coefficients and correlations between the dimensions are displayed in Table 2.

Table 2

Descriptive Statistics, Alpha Coefficients and Correlations between Job Characteristics, Work-Home Interference, Burnout and Engagement (N = 685)

Item	M	SD	α	1	2	3	4	5	6	7	8	9	10	11
Job Characteristics														
1. Overload	2.76	0.59	0.80											
2. Organisational Support	2.92	0.62	0.90	-0.12*										
3. Advancement	1.90	0.70	0.83	-0.14*	0.37* ⁺									
4. Growth Opportunities	2.66	0.67	0.84	-0.09*	0.63* ⁺⁺⁺	0.40* ⁺								
5. Contact with Colleagues	3.05	0.70	0.67	0.03	0.44* ⁺	0.19*	0.39* ⁺							
Work-Home Interaction														
6. Negative WHI	1.83	0.79	0.89	0.33* ⁺	-0.25*	-0.02	-0.10*	-0.13*						
7. Positive WHI	2.09	0.85	0.87	-0.12*	0.18*	0.24*	0.41* ⁺	0.07*	0.26*					
Burnout														
8. Exhaustion	2.92	1.61	0.84	0.50* ⁺⁺⁺	-0.38* ⁺	-0.27*	-0.35* ⁺	-0.16*	0.40* ⁺	-0.23*				
9. Cognitive Weariness	1.90	1.32	0.70	0.30* ⁺	-0.26*	-0.01	-0.23*	-0.14*	0.38* ⁺	-0.09*	0.49* ⁺			
10. Cynicism	2.12	1.58	0.65	0.33* ⁺	-0.29*	-0.11*	-0.33* ⁺	-0.09*	0.32* ⁺	-0.23*	0.55* ⁺⁺⁺	0.51* ⁺⁺⁺		
Engagement														
11. Engagement	4.44	1.22	0.87	-0.08*	0.31* ⁺	0.12*	0.43* ⁺	0.18*	-0.10*	0.31* ⁺	-0.23*	-0.30* ⁺	-0.38* ⁺	
12. Professional Efficacy	4.79	1.20	0.70	-0.16*	0.39* ⁺	0.23*	0.53* ⁺⁺⁺	0.17*	-0.11*	0.42* ⁺	-0.39* ⁺	-0.32* ⁺	-0.52* ⁺⁺⁺	0.71* ⁺⁺⁺

* Statistically significant correlation: $p > 0,05$

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

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

Table 2 shows the means, standard deviations, Cronbach alphas and correlations between the variables. As is evident in this table, most scales show good reliabilities (Cronbach's alpha coefficients are higher than 0,70), except for Contact with Colleagues ($\alpha = 0,67$) and Cynicism ($\alpha = 0,65$). Overload was highly correlated with Exhaustion ($r = 0,50, p < 0,01$). The item Growth Opportunities was highly correlated with Professional Efficacy ($r = 0,53, p < 0,01$). Negative WHI was moderately correlated with Exhaustion ($r = 0,40, p < 0,01$), Cognitive Weariness ($r = 0,38, p < 0,01$), and Cynicism ($r = 0,32, p < 0,01$), whereas Positive WHI was moderately correlated with Engagement ($r = 0,31, p < 0,01$) and Professional Efficacy ($r = 0,42, p < 0,01$). Cynicism was strongly correlated to Exhaustion ($r = 0,55, p < 0,01$) and Cognitive Weariness ($r = 0,51, p < 0,01$). Lastly, Professional Efficacy was moderately related to Exhaustion ($r = -0,39, p < 0,01$), Cognitive Weariness ($r = -0,32, p < 0,01$), and highly correlated with Cynicism ($r = -0,52, p < 0,01$) and Engagement ($r = 0,71, p < 0,01$).

Test of the structural model

Next, SEM methods were used to test the hypothesised model. All the latent factors were operationalised by exogenous observed variables. The hypothesised and alternative models were tested on the scale level, rather than on the item level, because of the undesirable effect of having too many manifest indicators for a latent variable. It is likely to find an unsatisfactory fit if there are too many parameters to be estimated, which could result in less reliable and unstable results (cf. Bagozzi & Heatherton, 1994).

For Job Demands there was only one indicator (Overload), meaning that in these cases there was a one-to-one correspondence between the manifested variables (scales) and the underlying latent dimensions. Usually no distinction is made in these cases between random error variance and true score variance, so that the correlations among these one-indicator latent variables and other latent variables may be biased (Little, Cunningham, Shahar, & Widaman, 2002). A procedure suggested by Bagozzi and Heatherton (1994) was used to overcome this problem. Firstly, a one-factor model was fitted for all items belonging to the Overload scale. Secondly, separate indicators were formed by selecting items on the basis of their loadings, alternating items with high and low loadings. As a result, three item parcels were created for job demands. The manifest indicators of the latent exogenous factor job resources were organisational support, advancement, growth opportunities and contact with colleagues. Manifest indicators for Negative WHI were Time-based interference and Strain-

based interference and for Positive WHI it was Spillover of mood and Transfer of Skills. The latent burnout factor was assessed by three observed variables, namely Exhaustion, Cognitive Weariness and Cynicism. The latent engagement factor was assessed by two observed variables, namely Engagement and Professional Efficacy. Based on the findings of Marais (2006), the errors of Negative and Positive WHI as well as Burnout and Engagement were allowed to correlate.

According to the structural model, Job Demands are most strongly related to Negative WHI (*Hypothesis 1a*), and consequently to Burnout (*Hypothesis 1b*), whereas Job Demands will also have a direct relationship with Burnout (*Hypothesis 1c*), and therefore will verify the partial mediating role of Negative WHI. In addition, Job Resources will also be associated with Burnout (*Hypothesis 2*). Furthermore, Job Resources will be strongly related to Positive WHI (*Hypothesis 3a*), and consequently, Positive WHI will be associated with Engagement (*Hypothesis 3b*). In addition, Job Resources will also have a direct effect on Engagement (*Hypothesised 3c*), indicating the partial mediating role of Positive WHI. The results of the alternative models are also presented in Table 3.

Table 3
Goodness-of-fit Statistics for the Comparison of Models

Model	χ^2	χ^2/df	GFI	NFI	IFI	TLI	CFI	RMSEA
M1 Alternative model	767,25	9,13	0,87	0,83	0,85	0,81	0,85	0,12
M2 Alternative model	589,13	7,18	0,90	0,87	0,89	0,85	0,89	0,10
M3 Hypothesised model	461,80	5,70	0,92	0,90	0,91	0,89	0,91	0,08

The first alternative model that was tested hypothesises that (negative and positive) WHI play a full mediating role between job characteristics and wellness. Results show that this model (M1) does not adequately fit the data ($\chi^2 = 767,25$; GFI, NFI, IFI, TLI and CFI < 0,90 and RMSEA > 0,08). To test the second model (which assumes that WHI partially mediate between job characteristics and wellness), additional paths were added between job demands and burnout and between job resources and engagement. Although these paths were both highly significant ($p < 0,01$) and Model 2 fitted the data significantly better than Model 1 (M2 vs. M1: $\Delta \chi^2 = 178,12_{(N - 685)}$, $df = 2,00$, $p < 0,001$), the results revealed that this model also does not fit the data adequately ($\chi^2 = 589,13$; NFI, IFI, TLI and CFI < 0,90 and RMSEA

> 0,08). Finally, the hypothesised model was tested assuming a partially mediating effect of WHI between job characteristics and wellness and, in addition that a relationship exists between job resources and burnout. As can be seen in Table 3, the hypothesised model fitted the data significantly better than Model 1 (M3 vs. M1: $\Delta \chi^2 = 305,45_{(N = 685)}$, $df = 3,00$, $p < 0,001$) and Model 2 (M3 vs. M2: $\Delta \chi^2 = 127,33_{(N = 685)}$, $df = 1,00$, $p < 0,001$). In addition, all relationships in the model were significant in the expected directions. Parameter estimates for Model 3 are shown in Figure 2.

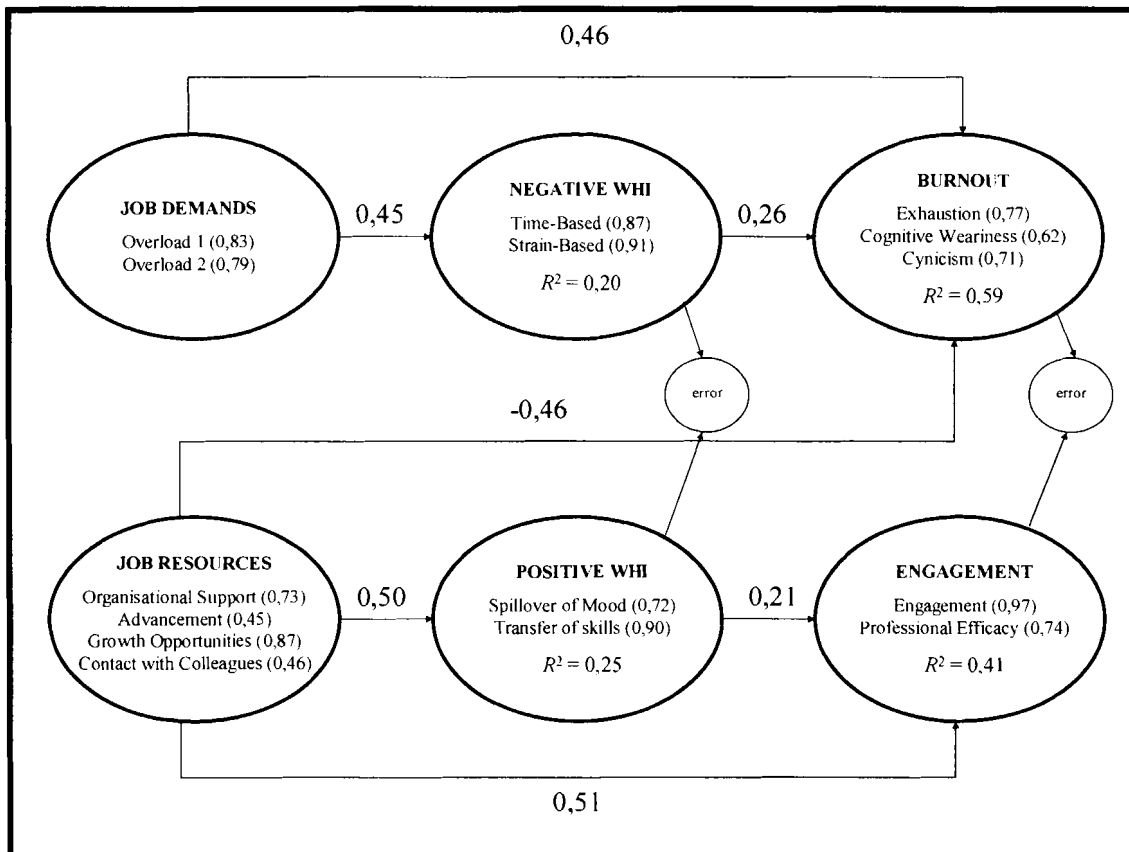


Figure 2. Standardised maximum likelihood (ML) estimates for the hypothesised structural model, $N = 680$. Note: All parameter estimates are indicated between brackets and are significant at the $p < 0,05$ level.

Figure 2 shows that the paths between Job Demands, Negative WHI and Burnout were statistically significant and provide support for *Hypothesis 1a*, *Hypothesis 1b* and *Hypothesis 1c*. In addition, the path from Job Resources to Burnout was also highly significant ($p < 0,01$), providing support for *Hypothesis 2*. It also seems as if Job Demands explained 20% of the variance in Negative WHI and that Job Demands, Job Resources and Negative

WHI explained 59% of the variance in Burnout. Furthermore, the paths between Job Resources, Positive WHI and Engagement are all significant ($p < 0,01$), providing support for *Hypothesis 3a*, *Hypothesis 3b* and *Hypothesis 3c*. It seems that Job Resources explain 25% of the variance in Positive WHI and that Job Resources and Positive WHI explain 41% of the variance in Work Engagement. Finally, this model implies that Negative WHI partially mediates between Job Demands and Burnout and that Positive WHI partially mediates between Job Resources and Engagement.

DISCUSSION

The objective of this study was to test a structural model that includes job characteristics, work-home interaction and wellness. Two alternative models and the hypothesised model were tested for the associated relationships between the constructs. The first model assumed that negative WHI fully mediated the relationship between job demands and burnout, and that positive WHI also fully mediated the relationship between job resources and engagement. However, this model did not fit the data adequately. The second alternative model assumed that negative WHI partially mediated the relationship between job demands and burnout, and that positive WHI partially mediated the relationship between job resources and engagement (thus, additional paths were specified between 1) job demands and burnout; and 2) job resources and engagement). This model also failed to fit the data adequately. Finally, the hypothesised model was tested. This model was similar to the second model, except that it was also presupposed that job resources will have a significant negative relationship with burnout. Therefore this model tested the partially mediating effect of WHI between job characteristics and wellness, with an additional relationship between job resources and burnout. This model fitted the data significantly better and all the expected relationships in the model were significant and in the expected directions.

With reference to the mediating role of negative work-home interaction in the relationship between job demands and burnout, the results proved for a partially mediating effect. The results suggested that higher job demands (such as work overload), contribute to negative interaction (time- and strain-based) between the work and home life of police members, as well as the experience of burnout (which includes exhaustion, cynicism, and also cognitive weariness). In addition, the experience of negative work-home interaction (time- and strain-based) also affects the experience of burnout. This is in line with previous findings (Bakker et al., 2003; Bakker & Geurts, 2004; Demerouti et al., 2004; Geurts et al., 2003; Jansen et al,

2003; Karasek, 1979; Koekemoer & Mostert, 2006; Montgomery et al., 2003; Peeters et al., 2005).

The results also provided support for a partially mediating effect regarding the mediating role of positive work-home interaction in the relationship between job resources and work engagement. Job resources such as organisational support, advancement, growth opportunities, and contact with colleagues therefore enhance positive interaction between work and home, as well as the experience of work engagement (which includes feelings of engagement and professional efficacy). Moreover, positive work-home interaction may increase the experience of work engagement. These results confirm previous findings (Bakker et al., 2003; Bakker & Geurts, 2004; Bakker et al., 2004; Demerouti et al., 2003; Schaufeli & Bakker, 2004). Lastly, it also appears that, apart from the relationship of job demands and negative work-home interference, that a lack of resources could increase a person's level of burnout as proved in literature (Bakker et al., 2003; Demerouti et al., 2003). This indicates that a lack of important resources, including organisational support, advancement, growth opportunities, and contact with colleagues, will not only decrease an employees' work engagement, but will also contribute to higher levels of burnout.

From the perspective of the JD-R model and the E-R model, it seems that when a person is faced with high job demands (physical, psychological, social, or organisational) that require sustained physical or psychological effort, without having sufficient recovery time, negative load reactions will develop and consequently spill over to the home environment, and result in burnout. The findings suggest that when the demands placed upon a police member causes his effort expenditure to exceed his recovery ability, the member's functioning at work and/or home will be negatively influenced. In addition, cumulating job demands without sufficient recovery time causes police members to make compensatory effort to recover or adapt, yielding a state of burnout (Bakker & Geurts, 2004; Meijman & Mulder, 1998; Schaufeli & Bakker, 2004). Therefore, members of the SAPS particularly experience negative interference between work and home when they are exposed to a very high workload. Moreover, police members' experience of burnout could be predicted by the intensity of the job demands placed on them, as well as the prevalence of negative work-home interaction.

Furthermore, in accordance with the JD-R and E-R models, the apparent lack of job resources will also increase the experience of burnout. However, it also seems that if a person has sufficient resources, which will enhance performance (including sufficient recovery time),

positive load reactions will develop and will subsequently spill over to the home environment and increase the experience of engagement. In the context of the policing environment, it is evident that when police officials do not have adequate resources with which to achieve their prescribed job requirements, a lack of engagement and burnout develop. In contrast, when police members have access to appropriate resources to accomplish their given tasks, together with sufficient recovery time, their levels of engagement will be increased, as well as the positive spillover between their work and home life (Bakker et al., 2003; Bakker & Geurts, 2004; Bakker et al., 2004; Demerouti et al., 2003; Schaufeli & Bakker, 2004). Finally, when police members experience positive interaction between the work and home spheres, their work engagement will subsequently be enhanced.

LIMITATIONS AND RECOMMENDATIONS

This study had a number of limitations. First, a cross-sectional design was used to obtain the data. This implies that care should be taken when drawing conclusions regarding causal relationships between the dimensions of the study. It makes it also impossible to verify causal assumptions about “antecedents” and “consequences”. In this study, it was hypothesised that work-home interference “leads” to burnout and engagement and acts as mediator between job characteristics and burnout/engagement. However, it is equally possible that high burnout could “lead” to a negative spillover from work to the home domain, as burnout is a work-related state. Also, individuals who feel engaged could arrive at home in a positive state of mind and influence the home situation in a positive way. Although several studies argue that work-home interference acts as a mediator (Geurts et al., 1999; Geurts et al., 2003; Jansen et al., 2003; Montgomery et al., 2003; Mostert, 2006; Mostert et al., 2006), it is also possible that burnout and engagement could mediate between job characteristics and work-home interference (Bakker & Geurts, 2004).

Future longitudinal studies regarding a structural model will allow stronger inferences concerning the relationships between job characteristics, work-home interference and wellness. In order to solve cause-and-effect issues and to disentangle the complex interplay between past experiences and psychological functioning, longitudinal research is needed (Montgomery et al., 2003). The use of longitudinal research will clarify previous studies that confirmed the mediating role of work-home interaction.

Another limitation was the use of a homogeneous sample, consisting of individuals of a specific organisation, namely the South African Police Service. This organisation has its own, unique characteristics and culture, which could have influenced the participants' responses. Furthermore, the results were obtained solely by self-report questionnaires, which increase the possibility of contamination of the reported relationships through common-method variance.

This study only looked at the population of the SAPS in the North West Province; therefore, it is recommended that additional studies are carried out in the other eight provinces of South Africa. Those results can then be compared with the results obtained in the current study. It is also recommended that further studies investigate the structural model, as well as differences between demographic groups in order to broaden and strengthen the current findings.

It is also recommended that a more objective and detailed analysis of a person's activities during non-working hours be obtained, as well as what consequences this might have in terms of energy consumption, recovery and accumulation of load effects (Geurts et al., 2003), instead of using self-report questionnaires. One example of this is Sonnentag's (2001) diary study where leisure time activities were measured with a diary method. Therefore, the problems associated with the use of retrospective data for assessing activities over long periods of time were avoided. Using this method to obtain data from participants regarding work-home interaction and well-being, a more detailed analysis of the effects between the two spheres could be formulated.

Finally, it is recommended that the findings regarding the structural model be used to develop interventions aimed at addressing police members' wellness and work-home interaction levels. Therefore, the police organisation should seek to provide sufficient job resources in order for police officers to deal with high job demands, specifically overload.

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CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter presents conclusions regarding the literature review and the empirical study according to the specific objectives. The limitations of the research are discussed, followed by recommendations to the organisation with regard to the specific research problem. Lastly, suggestions are made for further studies.

5.1 CONCLUSIONS

The first objective of this study was to determine the construct validity, construct equivalence, and reliability of two translated versions of the SWING in a sample of members in the South African Police Service (SAPS) in the North West province. Following Geurts's (2005) example, the construct validity of the SWING was tested by comparing four models for the relationships among the 22 items, using structural equation modelling. The results revealed that a four-factor model fitted the data best. This model distinguishes between the four expected dimensions (negative WHI, positive WHI, negative HWI, and positive HWI). Correlations between positive WHI and positive HWI were allowed, as well as between negative WHI and negative HWI, indicating that these factors are in some way related to one another. Therefore, a post hoc analysis was conducted for the negative and positive factors to explore the possibility that these factors are actually part of one factor. Two competing models (a one-factor vs. a two-factor) were tested for the negative and positive items. The results indicated that negative WHI and negative HWI are indeed two empirically different, albeit related constructs. The same was true for positive WHI and positive HWI. These results support previous findings regarding the proposed four-structure model of the SWING (Geurts et al., 2005; Pieterse & Mostert, 2005; Van Tonder, 2005).

Findings also demonstrated that work-home interaction, as measured by the SWING, is an equivalent and unbiased construct for English-, Afrikaans- and Setswana-speaking police members, as well as other relevant sub groups. Reliability analyses revealed that all three subscales were sufficiently internally consistent. When taking these findings into account, it appears that the translated versions of the SWING can be used to accurately measure work-

home interaction for English-, Afrikaans- and Setswana-speaking police officers in the SAPS and is also useful for making valid conclusions regarding differences or similarities between different language groups.

The second objective was to determine the prevalence of work-home interaction in a sample of police officials in the North West province. The results revealed that employees reported more negative WHI than negative HWI. It was concluded that, due to the forced structure and obligatory nature of work, workers are more inclined to prioritise work over private or family matters, and to reduce their effort investment at home rather than at work, leading to more interference from work to home than the other way around. The results also indicated that police officers experienced more positive HWI than positive WHI, indicating that the home domain may offer more possibilities to adjust behaviour to one's current need for recovery than the work domain (Geurts et al., 2005).

The third objective was to establish differences regarding work-home interaction between different demographic groups in terms of language, gender, marital status, parental status and education for police officers in the North West province. With reference to *language*, it was found that English-speaking participants experienced significantly higher levels of negative WHI, whereas Afrikaans-speaking participants experienced the lowest levels of positive WHI. Both English- and Setswana-speaking participants were also apparently subjected to significant higher levels of negative HWI and higher levels of positive HWI. Differences regarding *gender* showed that men in the SAPS experience higher levels of negative WHI than women, which confirms previous findings (see Geurts et al., 2005; Pieterse & Mostert, 2005). Results on *marital status* revealed that those who are not married experience more positive WHI than those who are married. These results are in contrast with previous studies, which revealed that unmarried people tend to experience less positive WHI (Grzywacz & Marks, 2000). Considering the *parental status* of participants, the results indicated that participants with children experience higher levels of positive HWI than those without children. The last demographic group that was investigated was *education*: individuals with a higher education experienced statistically significant higher levels of negative WHI.

The next objective was to determine the construct validity, construct equivalence and reliability of the two translated versions of the MBI-GS and UWES in a sample of police officials in the North West province. Using structural equation modelling, results indicated

that burnout can indeed be characterised as a four-dimensional construct that distinguishes between four dimensions (exhaustion, cognitive weariness, cynicism and professional efficacy), supporting previous research regarding the proposed four-structure model of the adapted version of the MBI-GS (Coetzee & Rothmann, 2004; Van Horn, Taris, Schaufeli & Schreurs, 2004). Furthermore, a test for equivalence at the practical level supported the equivalence in the pattern of factor loadings of the English, Afrikaans and Setswana versions of the MBI-GS.

When investigating the UWES, the absorption items of the translated UWES were firstly removed due to the low internal consistency of the scale. Simple principal component analysis was then conducted on the remaining 11 items of the translated UWES. Contrary to expectations, support was found for a one-factor engagement construct. Equivalence testing of the translated UWES revealed that engagement is an equivalent construct for English-, Afrikaans- and Setswana-speaking police members. Lastly, with the exception of the absorption scale, reliability analyses showed that the four burnout scales and the engagement scale were sufficiently internally consistent. This indicates that items measuring exhaustion, cognitive weariness, cynicism, professional efficacy and engagement measure burnout and engagement as they are supposed to.

The fifth objective of this study was to determine the construct validity and construct equivalence of a total wellness dimension which includes burnout and engagement subscales. The results indicated that the fit of the hypothesised two-factor model, including exhaustion, cognitive weariness and cynicism as one factor and engagement and professional efficacy as another factor, fit the data significantly better than the alternative models. Furthermore, the results for the equivalence analyses provided support for the equivalence of factor loadings, factor variances and covariances in the pattern of second-order factor loadings of the total wellness construct across the three language groups, providing support that wellness manifest in the same way for English-, Afrikaans- and Setswana-speaking police members.

The following objective was to investigate the differences in wellness (including burnout and engagement) between various demographic groups in terms of language, gender, age, marital status, education and rank for police officers in the North West province. Significant differences were found only regarding language and education. For language, the results indicated that Afrikaans-speaking participants experienced significantly higher levels of

exhaustion and cynicism, as well as significantly lower levels of professional efficacy and engagement compared to Setswana speaking participants. Differences regarding education revealed that participants with a school education and those with a higher education differed with regard to professional efficacy and engagement. Individuals with a higher education experience statistically significantly lower levels of professional efficacy and engagement than less educated participants.

The seventh objective was to test a structural model that includes job characteristics, work-home interaction and well-being. Two alternative models and the hypothesised model were tested for the associated relationships between the constructs. The hypothesised model fitted the data best, which tested the partial mediating effect of WHI between job characteristics and wellness, with an additional relationship between job resources and burnout. The results indicated that job demands were directly and positively associated with negative WHI and burnout, while job resources were directly and positively associated with positive WHI and work engagement. In addition, a lack of job resources was associated with higher levels of burnout.

As far as the mediating role of negative work-home interaction in the relationship between job demands and burnout is concerned, the results pointed towards a partially mediating effect. The results suggested that higher job demands (such as work overload), contribute to negative interaction (time- and strain-based) between the work and home life of police members, as well as the experience of burnout (which includes exhaustion, cynicism, and also cognitive weariness). In addition, the experience of negative work-home interaction (time- and strain-based) also affects the experience of burnout.

The results also provided support for a partially mediating effect regarding the mediating role of positive work-home interaction in the relationship between job resources and work engagement. Job resources such as organisational support, advancement, growth opportunities, and contact with colleagues therefore enhance positive interaction between work and home, as well as the experience of work engagement (which includes feelings of engagement and professional efficacy). Moreover, positive work-home interaction may increase the experience of work engagement. Apart from the relationship of job demands and negative work-home interference, it also appears that a lack of resources could increase a person's level of burnout. This indicates that a lack of important resources, including

organisational support, advancement, growth opportunities, and contact with colleagues, will not only decrease an employees' work engagement, but will also contribute to higher levels of burnout.

5.2 LIMITATIONS

The first limitation of this study is that a cross-sectional design was used to obtain the data. This implies that care should be taken when drawing conclusions regarding causal relationships between the dimensions of the study. It makes it also impossible to verify causal assumptions about "antecedents" and "consequences". In this study, it was hypothesised that work-home interference "leads" to burnout and engagement and acts as a mediator between job characteristics and burnout/engagement. However, it is equally possible that high burnout could "lead" to a negative spillover from work to the home domain, as burnout is a work-related state. Furthermore, individuals who feel engaged could arrive home in a positive state of mind and influence the home situation in a positive way. Although several studies argue that work-home interference acts as a mediator (Geurts, Rutte, & Peeters, 1999; Geurts et al., 2003; Jansen et al., 2003; Montgomery, Peeters, Schaufeli, & Den Ouden, 2003; Mostert, 2006; Mostert, Cronje, & Pienaar, 2006), it is also possible that burnout and engagement could mediate between job characteristics and work-home interference (Bakker & Geurts, 2004).

Secondly, a homogeneous sample was used, consisting of individuals of a specific organisation, namely the SAPS. This organisation has its own unique characteristics and culture, which could have influenced the participants' responses. In addition, this study only included a sample of police officers situated in the North West Province; therefore results can not be generalised without caution across all the provinces in South Africa. An important reason for this is that each province has its own inherent characteristics (language, culture, crime rate, types of crime, etc.). As a result, each policing population will also have its own antecedents and consequences. For example, Pienaar and Rothmann (2005) found in their study regarding suicide ideation in the SAPS that the Gauteng, Limpopo and Free State provinces had the highest frequencies of suicide ideation. Furthermore, the Annual Report of the South African Police Service (2005/2006) also indicated differences regarding the prevalence of crime among the different provinces. The Northern Cape has the highest

attempted murder ratio (115,4 per 100 000) and rape ratio (155,7 per 100 000), whereas the highest figures of assault with the intent to inflict grievous bodily harm were recorded in Gauteng (48 205 cases), the Eastern Cape (37 868 cases), and the Western Cape (28 479 cases). In the North West province the most prevalent crimes are assault with the intent to inflict grievous bodily harm, common assault, arson, and burglary at residential premises, whereas stock theft is more prevalent in the Free State and Eastern Cape provinces. The type of crime which is prevalent in a province could also influence the experience of work-home interaction and well-being. Therefore different results regarding members' work-home interaction and well-being levels could be indicated for different provinces.

Thirdly, the results were obtained solely by self-report questionnaires, which increases the possibility of contamination of the reported relationships through common-method variance. Although the strength of this type of variance cannot be tested for, Semmer, Zapf, and Greif (1996) reported that common-method variance is not that problematic. They showed similar patterns of correlations in studies in which self-reported stressors on the one hand and observed stressors on the other were related to variables of health and well-being respectively. In addition, the impact of this methodological artefact can be expected to be relatively constant across all relationships (Geurts et al., 2003).

Another limitation specifically applicable to work-home interaction and wellness research is the lack of consideration of external variables (e.g. home characteristics and personality). Geurts et al. (1999) included five home characteristics in their study of work-home interaction. These consisted of dual career, parental status, partner overtime, child care arrangements and social support. Results indicated that significant relationships existed only between work-home interaction and having a partner who works overtime. Montgomery et al. (2003) divided home demands into three sub-groups, namely quantitative home demands, emotional home demands and mental home demands. However, their results indicated that none of the home demands indicated any direct relationship with the well-being outcomes. It therefore seems that more research is needed to investigate the effect of certain home demands and home resources on work-home interaction. Regarding personality, Dijkstra, Van Dierendonck, Evers, and De Dreu (2004) examined the moderating influence of the Big Five factors on the relationship between conflict and well-being. The results indicated that conflict was negatively associated with well-being, especially when individuals were low in agreeableness, low in emotional stability or low in extraversion, providing evidence that

personality has a significant effect on well-being. Seeing that these variables have been found to be related to work-home interaction and wellness, it is important to investigate the possible moderating effect that it could have on current findings.

5.3 RECOMMENDATIONS

The following recommendations are made to the organisation as well as for future research.

5.3.1 Recommendations to the organisation

There has been an increasing interest in the interaction between work and home life, and the consequences that failure to achieve balance between these domains might have for health and well-being (Emslie, Hunt, & Macintyre, 2004), as well as for the functioning of an organisation (Bond, Galinsky, & Swanberg, 1998; Mauno, Kinnunen, & Pyykkö, 2005). Keeping the results of this study in mind, it is recommended that the SWING, MBI, and UWES be used as measuring instruments to measure the appropriate constructs of English-, Afrikaans- and Setswana-speaking individuals in the South African Police Service. In doing this, certain concerns in the SAPS could be addressed.

Firstly, the SAPS employs more than 150 000 people from different backgrounds, cultures and languages (Annual report of the SAPS, 2005/2006), but only 8,3% of the total South African population speak English at home (Census, 2001). Therefore, the use of validated multilingual questionnaires in measuring important constructs within the SAPS will enhance the analysis and validity of data. Furthermore, work-home interaction and well-being is significantly related to the lives of members of the SAPS. Measuring, analysing and interpreting these constructs could help the management of the SAPS to improve the general service delivery of its members by helping the members to achieve balance between their work and home life, as well as improving their personal well-being.

It is also recommended that the findings regarding the structural model be used to develop interventions aimed at addressing police members' well-being and work-home interaction levels. Using the structural model as frame of reference, understanding regarding the prevalence of work-home interaction and well-being within the organisation will be

improved, as well as providing valuable information for the development of wellness programmes. The structural model can therefore be specifically applied for workplace interventions aimed at optimising employees' health and psychological well-being. The results suggest that to avoid employees' burnout, specific job demands have to be reduced or redesigned. In addition, increasing their job resources may enhance employees' experience of engagement and decrease their experience of burnout, improving general well-being. It is also important for the SAPS to tailor-make their interventions for their members, contributing to a reduction of job demands and an increase of job resources. This will in effect also lead to more positive spillover between work and home and less negative work-home interaction, as well as improved job performance. Furthermore, sending members for well-being and work-home interaction interventions, where they can learn how to balance work and personal life by making time for family, hobbies, and sports, is likely to enhance mental health (Stinchcomb, 2004).

Lastly, the Employee Assistance Services (involving psychologists, social workers, and chaplains) of the SAPS presents various programmes to address the general well-being of members of the SAPS. These programmes include Suicide Prevention, Initial Debriefing (addressing the experience of traumatic incidents), Money Wise (equipping members with financial skills), God's Answer to Aids (addressing HIV/Aids on a spiritual level), Stress Management, etc. These programmes are usually only presented to the members themselves, and it is recommended that members' spouses and other important people in their lives should also be included when these programmes are presented (Alkus & Padesky, 1983; Regehr, 2005). This could potentially enhance the balance between a person's work and home life, seeing that the person's home life would then be included in the process (cf. Roberts & Levenson, 2001).

5.3.2 Recommendations for future research

This study only looked at the population of the SAPS in the North West Province; therefore, it is recommended that additional studies with the original, as well as the translated instruments are carried out in the other eight provinces of South Africa. Those results can then be compared with the results obtained in the current study. Furthermore, this study translated the measuring instruments into only two of the 11 official languages of South

Africa. It is therefore recommended that the measuring instruments be translated into the other eight official languages. This will promote the in-depth investigation of work-home interaction, wellness and job characteristics across cultures in South Africa.

It is suggested that instead of using self-report questionnaires, a more objective and detailed analysis of a person's activities during non-working hours be obtained, as well as what consequences this might have in terms of energy consumption, recovery and accumulation of load effects (Geurts et al., 2003). One example of this is Sonnentag's (2001) diary study, where leisure time activities were measured with a diary method. Thus, the problems associated with the use of retrospective data for assessing activities over long periods of time were avoided. Data was assessed over a period of five (5) days, taking into account variations in activities and well-being across the days (Sonnentag, 2001). Sonnentag also controlled for demographic variables, work situation variables and situational well-being at the end of the work day, making it possible to focus specifically on the effects of the work situation or the effects of the leisure time situation. Therefore, using this method to obtain data from participants regarding work-home interaction and well-being, a more detailed analysis of the effects between the two spheres could be formulated.

Future longitudinal studies on WHI will allow stronger inferences concerning the relationships between job characteristics, work-home interference and wellness. In order to solve cause-and-effect issues and to disentangle the complex interplay between past experiences and psychological functioning, longitudinal research is needed (Montgomery et al., 2003). Previous studies confirmed the mediating role of work-home interaction, especially between job characteristics and well-being. Geurts et al. (2003) found that WHI fully mediated the relationship of workload with depressive mood and health complaints, and partially mediated the relationship with work related negative affect, whereas Montgomery et al. (2003) also found that negative interference mediated between demands and outcomes, and positive interference mediated between resources and outcomes. However, Bakker and Geurts (2004) revealed a partially mediating role of well-being between job characteristics and work-home interaction. The use of longitudinal research will therefore clarify these findings regarding the mediating role of work-home interaction.

It is also recommended that further studies investigate the prevalence of work-home interaction, as well as differences between demographic groups. Research consistently shows that negative work-home interaction is more prevalent than negative home-work interaction (Bond et al., 1998; Burke & Greenglass, 1999; Demerouti et al., 2004; Frone, Russel, & Cooper, 1992), and that positive home-work interaction is more prevalent than positive work-home interaction (Demerouti et al., 2004). An investigation of the prevalence of work-home interaction will not only broaden and strengthen the current findings, but will also provide valuable information for the development of interventions that would help in the quest to achieve balance between work and home.

The final recommendation concerns the need for the investigation of various occupations and their job characteristics and family situations. Since working conditions are unique within the different occupations – but are still related to work-non-work interface and health – the investigations of heterogeneous populations are important. Future research should also be directed to cross-national comparative studies.

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