

**JOB CHARACTERISTICS, BURNOUT AND NEGATIVE
WORK-HOME INTERFERENCE IN A NURSING
ENVIRONMENT**

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COMMENTS

The reader is reminded of the following:

- The editorial style as well as the references referred to in this mini-dissertation follow the format prescribed by the Publication Manual (5th edition) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology of the North-West University (Potchefstroom) to use APA style in all scientific documents as from January 1999.
- The mini-dissertation is submitted in the form of a research article. The editorial style specified by the South African Journal of Industrial Psychology (which agrees largely with the APA style) is used, but the APA guidelines were followed in constructing tables.

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ABSTRACT

Title:

Job characteristics, burnout and negative work-home interference in a nursing environment.

Key terms:

Job characteristics, job demands, job resources, burnout, negative work-home interference, nursing environment.

Within the health care sector in South Africa, the nursing profession is known as one of the four most stressful work environments, which is characterised by high workload, staff shortages and overcrowding situations. This stressful and emotionally draining environment can be the cause for large numbers of nurses experiencing symptoms of burnout and negative work-home interference. However, there seems to be a lack of research investigating specific job demands and job resources associated with burnout and negative work-home interaction in a nursing environment.

The first objective of this study was to determine the construct validity and reliability of the adapted Maslach Burnout Inventory – General Survey (MBI-GS). The second objective was to determine which job characteristics within the nursing environment predict burnout and negative work-home interference (WHI). The last objective was to determine whether negative WHI mediated between the most prominent job characteristics and burnout within the nursing environment and whether it was a partial or full mediating effect. A cross-sectional survey design was used. Random samples ($n = 300$) were taken from nurses working in the Johannesburg, Klerksdorp, Krugersdorp, Pretoria and Potchefstroom areas. A job characteristics questionnaire, the '*Survey Work-Home Interaction – Nijmegen*' (SWING) and an adapted version of the Maslach Burnout Inventory – General Survey were administered. Cronbach alpha coefficients, exploratory factor analysis, Pearson product-moment correlations, multiple regression analysis and structural equation modelling were used to analyse the data.

Regarding the first objective, it was found that burnout consists of exhaustion and mental distance, whereas cynicism and depersonalisation collapse into one dimension (e.g. mental

distance). Regarding the second objective, the results indicated that the most prominent job demands and job resources associated with exhaustion are pressure, autonomy, role clarity, colleague support and financial support. It seemed that mental distance is primarily predicted by role clarity, colleague support and financial support, while negative work-home interference is predicted by pressure, time demands, role clarity and colleague support. Results obtained for the last objective provided evidence for a partial mediating role of negative WHI in the relationship between the most prominent job characteristics (pressure, role clarity and colleague support) and burnout (consisting of exhaustion and mental distance).

Recommendations were made for the organisation and for future research.

OPSOMMING

Titel:

Werkseienskappe, uitbranding en negatiewe werk-huis-inmenging in 'n verpleegomgewing.

Sleutelterm:

Werkseienskappe, werkseise, werkshulpbronne, uitbranding, negatiewe werk-huis-inmenging, verpleegomgewing.

Binne die gesondheidsorgsektor in Suid-Afrika staan die verpleegberoep bekend as een van die vier mees stresvolle werksomgewings, wat gekenmerk word deur hoë werkladings, personeeltekorte en oorvol fasiliteite. Hierdie stresvolle en emosioneel dreinerende omgewing kan die oorsaak wees waarom groot getalle verpleegsters simptome van uitbranding en negatiewe werk-huis-inmenging ervaar. Dit blyk egter dat daar nog weinig navorsing gedoen is oor spesifieke werkseise en werkshulpbronne wat geassosieer word met uitbranding en negatiewe werk-huis-interaksie in 'n verpleegomgewing.

Die eerste doelstelling van hierdie studie was om die konstruk geldigheid en betroubaarheid van die aangepaste Maslach-Uitbrandingsvraelys – Algemene Opname (MBI-GS) te bepaal. Die tweede doelstelling was om te bepaal watter werkseienskappe binne die verpleegomgewing voorspellers is van uitbranding en negatiewe werk-huis-inmenging (WHI). Die laaste doelstelling was om vas te stel of negatiewe WHI in die verpleegomgewing tussen die mees prominente werkseienskappe en uitbranding medieer en om voorts te bepaal of dit 'n gedeeltelik of volle mediërende effek is. 'n Dwarssnee-opnameontwerp is gebruik. Ewekansige steekproewe ($n = 300$) is geneem van verpleegsters wat in die Johannesburg-, Klerksdorp-, Krugersdorp-, Pretoria- en Potchefstroom-areas werksaam is. 'n Werkseienskappe-vraelys, die sogenaamde '*Survey Work-Home Interaction – Nijmegen*' (SWING) en 'n aangepaste weergawe van die Maslach-Uitbrandingsvraelys – Algemene Opname is afgeneem. Daar is gebruik gemaak van Cronbach-alfakoëffisiënte, verkennende faktoranalise, Pearson-produktmomentkorrelasies, meervoudige regressieanalise en strukturele vergelyking-modellering om die data te analiseer.

Wat die eerste doelstelling betref, is bevind dat uitbranding uit uitputting en geestelike distansiëring bestaan, terwyl sinisme en depersonalisasie in een dimensie saamtrek (bv. geestelike distansiëring). In die geval van die tweede doelstelling het die resultate daarop gedui dat druk, selfstandigheid, rolduidelikheid, ondersteuning van kollegas en finansiële ondersteuning die mees prominente werkseise en werkhulpbronne is wat met uitputting geassosieer word. Dit het geblyk dat geestelike distansiëring primêr voorspel word deur rolduidelikheid, ondersteuning van kollegas en finansiële ondersteuning, terwyl negatiewe werk-huis-inmenging voorspel word deur druk, tydseise, rolduidelikheid en ondersteuning van kollegas. Resultate vir die laaste doelstelling het gedui op 'n gedeeltelik mediërende rol van negatiewe WHI in die verhouding tussen die mees prominente werkseienskappe (druk, rolduidelikheid en ondersteuning van kollegas) en uitbranding (wat bestaan uit uitputting en geestelike distansiëring).

Aanbevelings is gemaak vir die organisasie en vir verdere navorsing.

CHAPTER 1

INTRODUCTION

This mini-dissertation focuses on job characteristics (including job demands and job resources), burnout and negative work-home interference within a nursing environment. This chapter contains the problem statement and a discussion of the research objectives, in which the general objective and specific objectives are set out. The research method is explained and an overview of chapters is given.

1.1 PROBLEM STATEMENT

It is important to have a healthy, productive and stable health service that serves as an important contributor to the stability and economic growth of South Africa. This would include the nursing profession, which comprises the greatest component of the health care services section. However, various researchers see the nursing profession as a stressful and emotionally demanding profession (Carson, Bartlett & Croucher, 1991; Coffey & Coleman, 2001; Dolan, 1987; Fagin, Brown, Bartlett, Leary & Carson, 1995; Hodson, 2001; Moores & Grant, 1977; Snellgrove, 1998; Sullivan, 1993). Nurses have to face various stressors, such as demanding patient contacts, shift-work, excessive working hours, time pressure, work overload, high work demands with relatively low job control and low supportive work relationships (Daraiseh, Genaidy, Karwowski, Davis, Stambough & Huston, 2003; Hodson, 2001; Lamberg, 2004; Lambert, Lambert, Itano, Inouye, Kim, Kuniviktikul, Gasemgitvattana & Ito, 2004; Peter, Macfarlane & O'Brien-Pallas, 2004; Spielberg & Sarason, 1996). In South Africa, nurses are faced with additional stressors, including budget restraints, medical inflation, overcrowded hospitals, high patient loads and exposure to HIV/Aids-infected patients. Furthermore, nurses tend to perceive their work environment as physically and interpersonally violent. With the huge staff shortages, they barely find time to attend to the physical needs of their patients, let alone provide quality health care (Hall, 2004).

Overall, nursing is considered as being inherently stressful with more stress-related illnesses than most other occupational groups (Surmann, 1999). This makes nurses also an above-average risk group for burnout. In fact, burnout has long been proven a reality within the

nursing profession (Demir, Ulusoy & Ulusoy, 2003; Glass, McKnight & Valdimarsdottir, 1993; Lewis, 1988; McKnight & Glass, 1995; Schaufeli & Janczur, 1994; Tarolli-Jager, 1994; Levert, Lucas & Ortlepp, 2000). According to Lang (2000), many nurses begin their career with a sense of enthusiasm, sound intrinsic motivation, a desire to help others, and a sense that they are making a meaningful contribution. However, after a while, they begin to experience symptoms associated with burnout, including low energy levels, feelings of lack of control, helplessness, low motivational levels, negative attitudes towards the work, self and others, emotional exhaustion, absenteeism and turnover, performance deficits and substance abuse (Glass et al., 1993).

Maslach (1982) first defined burnout in a health care setting as a work-related outcome that is characterised by three dimensions, namely emotional exhaustion (a reduction in the emotional resources of an individual), depersonalisation (an increase in negative, cynical and insensitive attitudes towards patients or clients) and low levels of personal accomplishment (being unable to meet clients' needs and to satisfy essential elements of job performance). Although burnout has been frequently studied in various occupational groups such as teachers, nurses, physicians and social workers, it became clear that burnout also exists outside the human services (Maslach & Leiter, 1997). Consequently, a new burnout measure was developed, namely the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli, Leiter, Maslach & Jackson, 1996). The MBI-GS assesses parallel dimensions to those contained in the original MBI, except that the items do not explicitly refer to working with people. The MBI-GS comprises three subscales: Exhaustion (referring to fatigue, but without direct reference to people as the source of those feelings), Cynicism (reflects indifference or a distant attitude towards one's work in general), and Professional Efficacy (encompasses both social and non-social accomplishments at work).

Since the introduction of the MBI-GS, many variations have been introduced for measuring burnout. For example, many studies use only the exhaustion and cynicism subscales when they measure burnout (e.g. Peeters, Montgomery, Bakker & Schaufeli, 2005; Montgomery, Peeters, Schaufeli & Den Ouden, 2003). This is mainly because of the fact that many empirical findings point to the central role of exhaustion and cynicism as opposed to the third component – lack of professional efficacy. Several arguments can be raised to support this assumption. Firstly, Lee and Ashforth (1996) point to the relatively low correlations of professional efficacy that are observed with exhaustion and cynicism, whereas these two

burnout dimensions are correlated relatively strongly. Green, Walkey and Taylor (1991) also point to the fact that exhaustion and cynicism sometimes collapse into one factor. Furthermore, it seems that cynicism develops in response to exhaustion, whereas professional efficacy seems to develop independently, and in parallel (Leiter, 1993). Lastly, Lee and Ashforth (1996) see professional efficacy as the weakest burnout dimension in terms of significant relationships with other variables. Several researchers have also argued that professional efficacy reflects a personality characteristic rather than a genuine component of burnout (Cordes & Dougherty, 1993; Shirom, 1989).

Originally, the depersonalisation dimension of burnout was defined by Maslach (1982) as an impersonal and dehumanised perception of recipients, characterised by a callous, negative and detached attitude. Although burnout was initially restricted to the helping professions, it was later broadened to outside the human services and came to be defined as a crisis in one's relationship with work in general and not necessarily a crisis in one's relationship with people at work. This implied that the depersonalisation dimension of burnout was redefined. Where depersonalisation first involved an increase in negative, cynical and insensitive attitudes towards patients or clients, it could now also be considered as a distant and indifferent attitude towards work instead of people (Salanova, Llorens, Garcia-Renedoo, Bresó, & Schaufeli, 2005). Thus, it became clear that people working in the human services might not only develop cynical negative thoughts towards their patients, but also towards their work. As a result, the need to include both cynicism and depersonalisation in the burnout definition became apparent.

Recently, Jackson and Rothmann (in press), and Salanova et al. (2005) investigated the possibility of cynicism and depersonalisation forming one factor instead of two separate factors. Jackson and Rothmann (in press) found that a three-factor model (consisting of exhaustion, mental distance and professional efficacy) fitted the data significantly better than a four-factor model (consisting of exhaustion, cynicism, depersonalisation and professional efficacy). The internal consistencies of the cynicism and depersonalisation subscales were also found to be questionable if they were treated as two independent factors. Therefore, depersonalisation and cynicism collapsed into one factor labelled "mental distance". However, Salanova et al. (2005) found that instead of one mental distance construct, cynicism and depersonalisation are separated constructs, each contributing in a distinct way to burnout. Based on these contradictory findings, one of the objectives of this study is to

determine the construct validity of the adapted version of the MBI-GS (e.g. to determine if burnout comprises a three-dimensional construct consisting of exhaustion, cynicism and depersonalisation, or if cynicism and depersonalisation collapse into one factor, creating a two-dimensional construct, consisting of exhaustion and mental distance).

The experience of burnout has serious consequences – not only for the individual, but also for the organisation. Behavioural symptoms include headaches, nausea, restlessness, muscle pain, poor concentration, forgetfulness, accident proneness, low spirits and excessive consumption of stimulants such as coffee, tobacco, alcohol, drugs (Maslach, Jackson & Leiter, 1996; Schaufeli & Enzmann, 1998). Negative outcomes for the organisation include absenteeism, turnover rates and lowered productivity (Schaufeli & Enzmann, 1998). According to Cilliers (2002), high levels of burnout may result in reduced work performance and in job dissatisfaction among nurses, which could ultimately cause irreparable harm to patients – or even death. When nurses are burned out, they show a lack of commitment, and are less capable of providing adequate services. Not only do their patients suffer as a result, but the organisation also suffers considerable financial losses and turnover problems (Fryer, Poland, Bross & Krugman, 1988; Folkman, Lazarus, Gruen & De Longis, 1986; Hall, 2004).

Although a large number of studies have investigated stress-related outcomes associated with the environment in which nurses work, most studies do not consider a factor that has become increasingly important over the last couple of years, namely the work/non-work interface (Geurts & Demerouti, 2003). This concept became of growing importance for various reasons. Firstly, various demographic and structural changes in the workforce and family structure have affected both work and family roles and their interrelation with each other (e.g. Bonde, Galinsky & Swanberg, 1998; Ferber, O'Farrell & Allen, 1991). This is mainly due to the global workforce that has changed significantly during the last couple of years, especially with the increase of women in the workplace. The global workforce also includes a greater proportion of dual-earner couples with the responsibility of taking care of children or elderly dependants (Hill & Henderson, 2004).

The work/non-work interface is not only an issue of global interest, but also an issue of growing importance in South Africa, where there are various demographic and societal influences that have an impact on the work/non-work interface. This includes the large number of women entering the labour force. According to Budlender (2002), the percentage

of South African women (across all population groups) employed in 2001 was larger than the percentage of women employed in 1995. Of the total number of employed women, 52% were employed in the formal sector, compared to three quarters (74%) of employed men working in the formal sector. Politically changes that have taken place since the election in 1994 have also had major implications for work-home interaction. Examples include the restructuring of organisations and their workforce, the process of employment equity (where previously disadvantaged groups have become more representative in the workforce) and the high unemployment rates that force men and women to take jobs – even if it entails working far from home.

Although it seems that work-home interference (WHI) is an important concept to study, it has not frequently been explored in the nursing literature. Most researchers study healthy families (LaRossa & Reitzes, 1993) or focus on women's efforts to manage the dual-earner lifestyle (Bernal & Meleis, 1995; Douglas, Meleis, Eribes & Kim, 1996; Hall, 1987; Meleis, Douglas, Eribes, Shih & Messias, 1996; Walker & Best, 1991). Although international studies could be found that investigate work-home interference of employees working in the health care sector (e.g. Janssen, Peeters, De Jonge, Houkes & Tummers, 2004, in a sample of nurses and nurse assistants; and Geurts, Kompier, Roxburgh & Houtman, 2003; Geurts, Rutte & Peeters, 1999 in samples of medical residents of an academic hospital), no studies could be found that investigate WHI of nurses in South Africa. It therefore seems an important initiative to investigate WHI in a South African sample of nurses.

Since nurses are known to work in very demanding environments, and are not always given sufficient time to recover from their high workload, they are prone to experience some symptoms of negative WHI. Previous studies have shown that individuals suffer considerable physical, psychological and/or behavioural consequences (Allen, Herst, Bruck & Sutton, 2000; Burke, 1988), including symptoms such as headaches, fatigue, negative feelings, depression, anger and irritation, and reduced satisfaction in marriage and leisure (Geurts & Demerouti, 2003). The experience of WHI can also have a negative impact on organisations. When individuals experience pain or psychological distress, it tends to influence their ability to work and they tend to stay away from work, ultimately leading to turnover problems (Greenhaus, Collins, Singh & Parasuraman, 1997). Other consequences include reduced job and life satisfaction, low organisational commitment, stress and burnout,

low levels of job performance, and the prevalence of accidents (Allen et al., 2000; Jamal, 1981; Kandonlin, 1993; Kossek & Ozeki, 1998; Monk & Folkard, 1985).

Several antecedents exist for burnout and WHI (see Schaufeli & Enzmann, 1998, for a review on burnout and Geurts & Demerouti, 2003, for a review on WHI). However, a number of studies have indicated that job characteristics, consisting of job demands and job resources, have a major impact on both burnout (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Janssen et al., 2004; Peeters et al., 2005) and WHI (Bakker & Geurts, 2004; Janssen et al., 2004; Montgomery et al., 2003). Although studies investigating burnout among nurses do exist in South Africa (Levert et al., 2000; Munnik, 2001; Peltzer, Mashego & Mabeba, 2003), only one study investigated work environment variables (Nixon, 1996). Although the work environment variables studied by Nixon (1996) can be described as demands and resources (pressure, autonomy, supervisor support, peer cohesion and physical comfort), it is not specifically associated with the nursing environment. No other studies have investigated *specific* job demands and job resources associated with burnout of nurses. Also, no South African studies have yet investigated job demands and job resources associated with WHI in the nursing environment.

Several theoretical models can be used to improve our insights into job stress and the negative implications thereof. Well-known examples of such models are the “Demand-Control Model” (Karasek, 1979; Karasek & Theorell, 1990), the “Michigan Model” (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964) and the Job Demands-Resources (JD-R) model (Bakker, Demerouti, De Boer & Schaufeli, 2003; Demerouti et al., 2001). Because the JD-R model is a parsimonious model that is capable of integrating a wide range of potential job demands and resources (see Demerouti et al., 2001), it seems that this model is the most appropriate one to use in this study.

A central assumption of the JD-R model is that every occupation has its own specific job characteristics, but it is still possible to model these characteristics in two broad categories, namely job demands and job resources. Job demands refer to those physical, psychosocial or organisational aspects of the job that require sustained physical and/or mental effort and are associated with certain physiological and or psychological costs. Job resources refer to those physical, psychosocial or organisational aspects of the job that may be functional in meeting task requirements (job demands), and may thus reduce the associated physiological and or

psychological costs, and at the same time stimulate personal growth and development. These resources can be located in the tasks itself (e.g. performance feedback, autonomy, skill variety), as well as in the context (e.g. organisational resources such as career opportunities and job insecurity) and in social resources (e.g. supervisor support) (Demerouti et al., 2001).

Within the nursing environment, typical job demands include pressure as a result of heavy workloads and excessive administrative duties, time-related demands (e.g. working long hours, shift-work), emotionally demanding aspects (e.g. nurses being repeatedly confronted with people's needs, problems, and especially suffering) and demands that are typical of the nursing environment (e.g. dealing with an increasing amount of patients infected with HIV/Aids) (Hall, 2004; Hodson, 2001; Lee, 2002; Peter et al., 2004). According to Rothmann, Van der Colff, Van Rensburg and Rothmann (2003), South African nurses experience a severe lack of resources such as inadequate salaries, shortage of staff as well as a lack of organisational and colleague support when their co-workers are poorly motivated and are not doing their jobs.

In addition, the JD-R model proposes that the well-being of a person is the result of two relatively independent processes (Bakker et al., 2003). During the first process in particular, the demanding aspects of work lead to constant overtaxing, and in the long run to health problems (e.g. burnout, fatigue). In the second process, the availability of job resources may help employees to cope with the demanding aspects of their work. At the same time, it may stimulate them to learn from and grow in their jobs. Within the nursing environment, sufficient job resources may therefore help nurses to cope with their demanding job, ultimately leading to better quality of care for patients.

In order for South African nursing organisations to implement preventive organisation-based strategies to tackle high job demands and increase important resources, it is necessary for these organisations to know which specific job characteristics are associated with burnout and WHI. Another objective of this study is therefore to determine which *specific* job demands and job resources predict burnout and WHI.

It is clear that certain job demands and lack of resources inherent to the stressful and demanding work environment of nurses may not only lead to burnout but also to negative WHI. However, the role that negative WHI plays in the relationship between job

characteristics and burnout has become of renewed interest for many researchers. Several authors have suggested that negative WHI acts as a mediator between job characteristics and various psychological outcomes, such as burnout (Frone, Russel & Cooper, 1992). According to Baron and Kenny (1986), a variable functions as a mediator to the extent that it accounts for the relation between the predictor and the criterion. In other words, the impact of the independent variable on the dependent variable is manifested through the mediating variable (e.g., it explains how or why such effects occur). When a mediator mediates between two variables, it can have either a partial or a full mediating effect. Barron and Kenny (1986) suggest that in a full mediational model, the relationship between the independent variable and the dependent variable is completely explained by the mediator. However, if the size of the effect of the independent on the dependent variable after the entering of the mediating variable is smaller than the size of the effect of the independent on the dependent variable in the first regression, the mediating effect would be partial. Since most studies indicated a partial mediating effect of WHI between job characteristics and burnout (Janssen et al., 2004; Montgomery et al., 2003; Peeters et al., 2005), it will mean that WHI would account for additional variation in burnout levels beyond job characteristics. Thus, certain job characteristics within the nursing environment, together with WHI may lead to nurses experiencing symptoms of burnout.

Most studies that investigate the mediating role of WHI use the Effort-Recovery (E-R) model of Meijman and Mulder (1998) to illustrate the underlying mechanisms in the relationship between job characteristics, WHI and burnout. According to the E-R model, effort expenditure (task performance at work) is associated with specific load reactions (physiological, behavioural and subjective responses) that develop within the individual. According to Bakker and Geurts (2004), these load reactions are normally reversible: after the work demands are taken away, psychobiological systems will re-stabilise to a baseline level and recovery occurs. It suggests that if opportunities for recovery after being exposed to a high workload are insufficient, the psychobiological systems are activated again before they had a chance to stabilise at a baseline level. This means that the individual will have to make additional (compensatory) effort, which will result in an increased intensity of load reactions, and will make higher demands on the recovery process. When this process goes on over time, it may lead to the draining of one's energy. The recovery after being exposed to a high workload is therefore very important.

When nurses are exposed to high workloads and pressure and are not given enough time to recover after a day of work (due to long working hours), it means that they will have to make additional effort to do their work the next day. When nurses are exposed to this kind of additional effort and work pressure, they will eventually not have enough energy, and this process of high work demands and insufficient recovery will start to influence their work and non-work relationship. This inability to recover from a day's work may, in the end, make them more susceptible to health problems such as burnout. Therefore, within the nursing environment, which is known for its demanding aspects, certain job demands and the lack of important resources may lead to burnout. This relationship may be (partially) mediated by WHI if no opportunities for recovery exist. The last objective of this study is therefore to determine whether negative WHI plays a partial or a full mediating role between the most prominent job characteristics and burnout within the nursing environment.

The following research questions emerge from the above-mentioned problem statement:

- What is the construct validity and reliability of the adapted MBI-GS?
- Which job characteristics within the nursing environment predict burnout?
- Which job characteristics within the nursing environment predict negative WHI?
- Does negative WHI play a partial or a full mediating role between the most prominent job characteristics and burnout within the nursing environment?
- What future recommendations can be made regarding the relationship between job characteristics, burnout and negative WHI?

1.2 RESEARCH OBJECTIVES

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

1.2.1 General objective

The general objective of this study is to study job characteristics, negative WHI and burnout within the nursing environment.

1.2.2 Specific objectives

The specific objectives of the research are the following:

- To determine the construct validity and reliability of the adapted MBI-GS.
- To determine which job characteristics within the nursing environment predict burnout.
- To determine which job characteristics within the nursing environment predict negative WHI.
- To determine whether negative WHI plays a partial or a full mediating role between the most prominent job characteristics and burnout within the nursing environment.
- To make recommendations for future research regarding the relationship between job characteristics, burnout and negative WHI.

1.3 RESEARCH METHOD

The research method consists of a literature review and empirical study. The results obtained are presented in the form of a research article. The reader should note that a brief literature review is compiled for the purpose of the article. This paragraph focuses on aspects relevant to the empirical study that is conducted.

1.3.1 Research design

A cross-sectional survey design was used to collect the data and to attain the research objectives. Cross-sectional designs are used to observe a group of people at a particular point in time – for a short period, such as a day or a few weeks (Du Plooy, 2002). The design is also used to assess interrelationships among variables within a population and will thus help to achieve the various specific objectives of this research (Struwig & Stead, 2001).

1.3.2 Participants and procedure

Random samples ($n = 300$) were taken from nurses working in hospitals in the Johannesburg, Klerksdorp, Krugersdorp, Pretoria and Potchefstroom areas. After permission was obtained from the specific hospitals, the first phase of the research started. First, focus groups were

held with registered nurses in the selected hospitals in order to gather information regarding their work environment – and specifically the factors that help or hinder them in doing their job. After the information from the focus groups was analysed, the questionnaire was developed and distributed among the selected nurses in the hospitals. A letter was included in the questionnaire, which explained the goal and importance of the study. The participants were also assured of the anonymity and confidentiality with which the information would be handled. The participants were given two to three weeks to complete the questionnaires, after which they were personally collected from the participating hospitals.

1.3.3 Measuring instruments

The following questionnaires were utilised in the empirical study:

Job characteristics. To determine the specific demands and resources that affect the work of nurses, focus groups were held. Within the focus groups, specific factors that hinder or help nurses in the execution of their work were identified. After the responses were analysed, the major demands that nurses experienced could be classified as emotional demands, pressure, time-related demands and nurse-specific demands. Resources were identified as autonomy, role clarity and support (including support from colleagues and supervisors as well as financial support from the organisation). The items for pressure, autonomy and support were derived from existing questionnaires and measured on a four-item scale ranging from (1) “almost never” to (4) “always”. The rest of the items were self-developed. Items for *Pressure* were derived from the Job Content Questionnaire (JCQ, Karasek, 1985) (seven items, e.g. “Do you have enough time to get the job done?”). *Autonomy* was measured by seven items from the validated questionnaire on experience and evaluation of work (Van Veldhoven, Meijman, Broersen & Fortuin, 1997) (e.g. “Can you take a short break if you feel that it is necessary?”), with higher scores denoting a higher level of autonomy. *Colleague and supervisory support* was measured with items addressing support from the JCQ (e.g. “Can you count on your colleague when you come across difficulties in your work?”, “My supervisor is helpful in getting the job done”), and financial support from the self-developed items (e.g. “Does your job offer you the possibility to progress financially?”). The other demands and resources were measured using self-developed items: emotional demands (nine items, e.g. “Are you confronted in your work with things that affect you emotionally?”), time-related demands (five items, e.g. “Do you have to work irregular hours?”), nurse-

specific demands (six items, e.g. “Do you experience insults from patients or their family?”) and role clarity (nine items, e.g. “Do you know exactly what patients expect of you in your work?”). All items were scaled on a four-point scale, ranging from 1 (*never*) to 4 (*always*).

Burnout. An adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli et al., 1996) was used to measure burnout, and consisted of Exhaustion, Mental Distance (which comprises Cynicism and Depersonalisation) and Professional Efficacy. Recently, Jackson and Rothmann (in press) confirmed a three-factor model of burnout for educators, consisting of exhaustion, mental distance (cynicism and depersonalisation collapsed into one factor) and professional efficacy. The Exhaustion subscales of the MBI-GS (e.g. “I feel used up at the end of the workday”), as well as the Mental Distance subscale (e.g. “I have become less enthusiastic about my work”; “I feel I treat some recipients as if they were impersonal objects”) were used in this study. All items were scored on a seven-point scale, ranging from 0 (*never*) to 6 (*every day*). Cronbach alpha coefficients for the MBI-GS reported by Schaufeli et al. (1996) varied from 0,87 to 0,89 for Exhaustion, and from 0,73 to 0,84 for Cynicism. Jackson and Rothmann (in press) confirmed the following Cronbach alpha coefficients for the adapted MBI-GS: Exhaustion = 0,79; Cynicism = 0,64; Depersonalisation = 0,60; Mental Distance = 0,74; and Professional Efficacy = 0,73.

Negative Work-Home Interaction. Negative WHI was measured using the Negative WHI scale of the ‘*Survey Work-Home Interaction – Nijmegen*’ (SWING) (Geurts et al., in press). Negative WHI refers to a negative impact of the work situation on one’s functioning at home (e.g. “Your work schedule makes it difficult to fulfil domestic obligations”). All items were scored on a four-point frequency rating scale, ranging from 0 (*never*) to 3 (*always*). Pieterse and Mostert (2005) noted a coefficient α reliability of 0,87 in their psychometric analysis of the SWING in the earthmoving equipment industry.

1.3.4 Statistical analysis

The statistical analysis was carried out with the SPSS program (SPSS Inc., 2003) and the AMOS program (Arbuckle, 1999). Cronbach alpha coefficients were used to assess the reliability of the constructs that were measured in this study. Descriptive statistics (e.g.

means, standard deviations, skewness and kurtosis) and inferential statistics were used to analyse the data.

Exploratory factor analyses were carried out to determine the validity of the job characteristics questionnaire. 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). Confirmatory factor analysis, using the AMOS program (Arbuckle, 1999), was used to confirm the factor structure of the adapted MBI-GS. The χ^2 and several other goodness-of-fit indices were used, including the Goodness-of-Fit Index (GFI), the Parsimony Goodness-of-Fit Index (PGFI), the Incremental Fit Index (IFI); the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA).

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 (Steyn, 1999) were used to decide on the practical significance of the findings. Cut-off points of 0,30 (medium effect, Cohen, 1988) and 0,50 (large effect) were set for the practical significance of correlation coefficients. Multiple regression analyses were carried out to determine the percentage variance in the dependent variable that was predicted by the independent variables and to determine mediation.

1.4 OVERVIEW OF CHAPTERS

In Chapter 2, the relationship between job characteristics, burnout and negative WHI is discussed in the form of a research article. Chapter 3 deals with the conclusions, limitations and recommendations of this research.

1.5 CHAPTER SUMMARY

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

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CHAPTER 2

RESEARCH ARTICLE

JOB CHARACTERISTICS, BURNOUT AND NEGATIVE WORK-HOME INTERFERENCE IN A NURSING ENVIRONMENT

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ABSTRACT

The general objective of this study was to study job characteristics, burnout and negative work-home interference (WHI) within a nursing environment. A random sample of 300 nurses was taken from the Johannesburg, Klerksdorp, Krugersdorp, Pretoria and Potchefstroom areas. A job characteristics questionnaire, an adapted Maslach Burnout Inventory – General Survey (MBI-GS) and the Negative WHI scale of the ‘Survey Work-Home Interaction – Nijmegen’ (SWING) were used as measuring instruments. Descriptive statistics, Cronbach alpha coefficients, Pearson product-moment correlation, exploratory and confirmatory factor analyses as well as multiple regression analyses were used to analyse the data. The results indicated that burnout consists of two dimensions, namely exhaustion and mental distance (cynicism and depersonalisation). Within the nursing environment, it seemed that negative WHI is best predicted by pressure, time demands and a lack of role clarity and colleague support. Burnout (consisting of exhaustion and mental distance) is best predicted by pressure and a lack of autonomy, role clarity, colleague support and financial support. Finally, it was confirmed that negative WHI partially mediates between the most prominent job characteristics (pressure, role clarity and colleague support) and the two dimensions of burnout (exhaustion and mental distance).

OPSOMMING

Die algemene doelstelling van hierdie studie was om ondersoek in te stel na werkseienskappe, uitbranding en negatiewe werk-huis-inmenging (WHI) in 'n verpleegomgewing. 'n Ewekansige steekproef is geneem van 300 verpleegsters werksaam in die Johannesburg-, Klerksdorp-, Krugersdorp-, Pretoria- en Potchefstroom-areas. 'n Werkseienskappe-vraelys, 'n aangepaste Maslach-Uitbrandingsvraelys – Algemene Opname (MBI-GS) en die Negatiewe WHI-skaal van die ‘Survey Work-Home Interaction – Nijmegen’ (SWING) is as meetinstrumente gebruik. Beskrywende statistiek, Cronbach-alfakoëffisiënte, Pearson-produktmomentkorrelasie, verkennende en bevestigende faktoranalises sowel as meervoudige regressieanalises is gebruik om die data te analiseer. Die resultate het aangetoon dat uitbranding uit twee dimensies bestaan, t.w. uitputting en geestelike distansiering (sinisme en depersonalisering). Binne die verpleegomgewing blyk dit dat negatiewe WHI die beste voorspel word deur druk, tydseise en 'n gebrek aan rolduidelikheid en die ondersteuning van kollegas. Uitbranding (bestaande uit uitputting en geestelike distansiering) word die beste voorspel deur druk en 'n gebrek aan selfstandigheid, rolduidelikheid, ondersteuning van kollegas en finansiële ondersteuning. Laastens is bevestig dat negatiewe WHI gedeeltelik tussen die mees prominente werkseienskappe (druk, rolduidelikheid en ondersteuning van kollegas) en die twee dimensies van uitbranding (uitputting en geestelike distansiering) medieer.

In the stress literature, it is widely acknowledged that the nursing profession is a very stressful and emotionally demanding profession (Carson, Bartlett & Croucher, 1991; Coffey & Coleman, 2001; Dolan, 1987; Fagin, Brown, Bartlett, Leary & Carson, 1995; Moores & Grant, 1977; Snellgrove, 1998; Sullivan, 1993). This is particularly true for South Africa. In addition to the general stressors nurses have to face, South African nurses have to deal with insufficient, outdated equipment, poor maintenance of hospital buildings, as well as a physically and interpersonally violent work environment where many patients become angry, verbally abusive and, on occasion, physically violent (Hall, 2004; Hodson, 2001; Peter, Macfarlane & O'Brien-Pallas, 2004). Furthermore, nurses have to care for an increasing number of patients infected with HIV/Aids, leading to fear and anxiety of infecting their partners or children as a result of their exposure to HIV-infected patients. South African nurses are also confronted with constant staff shortages, which contribute to higher patient load and influence the quality of care that patients receive (Hall, 2004). With this increase in the number of patients and the provision of free health care services, nurses are often forced to work longer hours and overtime – for which they do not necessarily receive additional remuneration. This kind of stressful and emotionally draining work environment makes nurses particularly susceptible to burnout, which has long been a proven reality within the nursing profession (Demir, Ulusoy & Ulusoy, 2003; Glass, McKnight & Valdimarsdottir, 1993; Levert, Lucas & Ortlepp, 2000; Lewis, 1988; McKnight & Glass, 1995; Schaufeli & Janczur, 1994; Tarolli-Jager, 1994).

Although much research has been done on burnout, there is still disagreement on the core dimensions thereof. Burnout was initially restricted to the human services, but with the broadening to occupations outside the human services, the development of the Maslach Burnout Inventory – General Survey redefined the dimensions (Schaufeli, Leiter, Maslach & Jackson, 1996). First of all, it became clear that people working in the human services might not only develop cynical negative thoughts towards their patients, but also towards their work. As a result, the need to include both the cynicism and depersonalisation scales in the measurement of burnout became apparent. However, it is not clear if the cynicism and depersonalisation dimensions should form one “mental distance” factor (Jackson & Rothmann, in press) or if they should be measured separately (Salanova et al., 2005). Researchers also do not agree about whether professional efficacy forms part of the burnout construct or develops independently and in parallel (Cordes & Dougherty, 1993; Green, Walkey & Taylor, 1991; Lee & Ashforth, 1996; Leiter, 1993). It therefore seems to be

important to determine the construct validity and reliability of the adapted Maslach Burnout Inventory – General Survey within the nursing environment.

Although several antecedents for burnout exist (see Schaufeli & Enzmann, 1998 for a review), many researchers argue that one of the major antecedents of burnout is certain characteristics of the job (Bakker, Demerouti, De Boer & Schaufeli, 2003; Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Schaufeli & Enzmann, 1998). According to Demir et al. (2003), possible factors within the nursing environment that may contribute to burnout include the dangerous work that nurses are doing, a lack of support from supervisors and colleagues, small salaries, long working hours, shift-work, reduced patient contact, a lack of opportunities for learning, an increasing workload and a lack of respectful relations with co-workers. These demanding aspects in the nursing environment do not only have negative consequences such as burnout, but could also influence other aspects in their lives. According to Geurts and Dikkers (2002), particularly demanding aspects in the work environment, such as work overload and long working hours, may also influence an individual's home domain or time spent away from work. This negative influence is commonly known as negative work-home interference (WHI).

Nowadays, a large proportion of employed workers – employed parents in particular – have difficulty combining obligations in the work domain and the domain away from work (also known as the domestic or home domain). Within South Africa, negative WHI has become of growing importance as various demographic, structural and political changes in the workforce are forcing more and more women into the workplace and are forcing individuals to take jobs away from their families and homes (see Budlender, 2002). The negative interaction between work and home has also become of great importance within the nursing environment (Bernal & Meleis, 1995; Douglas, Meleis, Eribes & Kim, 1996; Hall, 1987; Meleis, Douglas, Eribes, Shih & Messias, 1996; Walker & Best, 1991). Empirical evidence regarding WHI show that negative influences initiating in the work domain have certain consequences that go far beyond stress-related and organisational outcomes – which is why it is so important to study negative WHI among employees working in the nursing environment (Frone, Russel & Cooper, 1992; Geurts & Demerouti, 2003).

Many studies have indicated that specific job characteristics also have a major impact on negative WHI (Bakker & Geurts, 2004; Demerouti et al., 2001; Janssen, Peeters, De Jonge,

Houkes & Tummers, 2004; Montgomery, Peeters, Schaufeli & Den Ouden, 2003; Peeters, Montgomery, Bakker & Schaufeli, 2005). Several authors have suggested that negative WHI plays an important role in the pattern of associations between job characteristics (job demands and job resources) and psychological outcomes (e.g. burnout) (Frone et al., 1992; Janssen et al., 2004; Montgomery et al., 2003; Stephens, Franks & Atienza, 1997). According to Janssen et al. (2004), the experience of high job demands and a lack of resources endanger the balance between the work and home (e.g. negative WHI), and the risk to feel emotionally exhausted increases when the recovery time is insufficient. In addition, the risk to feel emotionally exhausted as a result of high job demands and a lack of job resources also exists apart from negative WHI. Since negative WHI cannot emerge if the work situation does not contain stressful job characteristics (e.g. high job demands and low resources), the possibility of negative WHI mediating between certain job characteristics and burnout warrants investigation.

Based on the above discussion, it is clear that not only burnout, but also negative WHI has become a problem within the nursing environment. In South Africa, several studies have been done on burnout among nurses (Levert et al., 2000; Munnik, 2001; Peltzer, Mashego & Mabeba, 2003), but only one study specifically researched the influence of work environment variables (see Nixon, 1996). Although several international studies have investigated negative WHI within the nursing environment (see Geurts, Kompier, Roxburgh & Houtman, 2003; Geurts, Rutte & Peeters, 1999; Janssen et al., 2004), no studies could be found that investigated this topic in South Africa. The objectives of this study were therefore 1) to determine the construct validity and reliability of the adapted MBI-GS; 2) to determine which specific job characteristics (job demands and resources) within the nursing environment may lead to burnout and negative WHI; 3) to determine if negative WHI plays a full or partially mediating role in the relationship between the most prominent job characteristics and burnout within the nursing environment.

Job characteristics, burnout and negative WHI

Bakker et al. (2003) propose the Job Demands-Resources (JD-R) model for exploring the work environment of employees. According to the JD-R model, job characteristics can be categorised into certain job demands and job resources, which could influence the well-being of workers (Demerouti et al., 2001). A general definition of job demands is the degree to

which the working environment contains stimuli that require some effort, and the idea that job demands lead to negative consequences if they require additional effort beyond the usual way of achieving goals (Demerouti et al., 2001; Jones & Fletcher, 1996). In contrast, job resources refer to the degree to which the working environment contains physical, psychosocial or organisational aspects that may be functional in meeting task requirements (Bakker et al., 2003). Several studies have found that the presence of certain job demands (e.g. work overload, pressure and personal conflicts) and the lack of sufficient job resources (e.g. social support, autonomy and role clarity) could lead to burnout (Bakker & Geurts, 2004; Montgomery et al., 2003; Peeters et al., 2005; Schaufeli & Bakker, 2004; Schaufeli & Enzmann, 1998).

In occupations directly servicing people (such as the nursing environment), burnout has very serious consequences. Not only do organisations suffer considerable financial losses and turnover problems (Folkman, Lazarus, Gruen & De Longis, 1986; Hall, 2004), but burnout also has an adverse impact on the quality of service offered to the patient, the health caregivers, job performance and satisfaction. Severe burnout can also give rise to problems such as job dissatisfaction, lack of marital and family harmony, social isolation, poor self-esteem, sleep disorders and gastrointestinal problems. When nurses encounter difficulties in childcare and doing house chores or when they suffer from health problems their burnout levels were also found to be high (Demir et al., 2003). In addition, it could result in negative outcomes, such as physical illness, turnover problems, absenteeism or may even diminish organisational commitment (Maslach & Jackson, 1986).

Burnout was initially conceptualised within the human services occupations, with the components as emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Jackson, 1986). Later, Schaufeli et al. (1996) broadened the definition of burnout to occupations outside the human services, with their development of the MBI-GS. With this instrument, burnout was measured in non-contactual professions where the subscales were exhaustion, cynicism and professional efficacy. The exhaustion items of the MBI-GS are generic and refer to fatigue without direct reference to people as the source of those feelings. Cynicism reflects indifference or a distant attitude towards one's work in general. Professional efficacy encompasses both social and non-social accomplishments at work.

Recent developments in the measurement of burnout involved, among others, the issue of professional efficacy as one of the burnout dimensions and the concept of “mental distance”. Various researchers question the professional efficacy dimension, seeing exhaustion and cynicism as the core of burnout. Several arguments seem to support this contention, including the relatively low correlations of professional efficacy with exhaustion and cynicism, the seemingly independent and parallel development of professional efficacy and the weak relationship with other variables (for overviews, see Cordes & Dougherty, 1993; Green et al., 1991; Lee & Ashforth, 1996; Leiter, 1993). It also seems that professional efficacy reflects a personality characteristic rather than a genuine component of burnout (Cordes & Dougherty, 1993; Shirom, 1989).

The concept of mental distance developed when scholars reasoned that it is necessary to measure both depersonalisation (developing a psychological distance towards their recipients) and cynicism (a distant and indifferent attitude towards work). However, the question remains whether it should be measured as a single “mental distance” factor or as two separate factors. Salanova et al. (2005) found that instead of one mental distance construct, cynicism and depersonalisation are separated constructs, each contributing in a distinct way to burnout. Jackson and Rothmann (in press) found that a three-factor model (consisting of exhaustion, mental distance and professional efficacy) fitted the data significantly better than a four-factor model (consisting of exhaustion, cynicism, depersonalisation and professional efficacy). The internal consistencies of the cynicism and depersonalisation subscales were also found to be questionable if they were treated as two independent factors. Therefore, depersonalisation and cynicism collapsed into one factor labelled “mental distance”. Based on these findings, Jackson and Rothmann (in press) see exhaustion as the fact that the employee is *incapable* of performing because all energy has been drained; whereas mental distance indicates that the employee is no longer *willing* to perform because of an increased intolerance of any effort.

The central idea of job demands requiring too much effort, the lack of enough resources, and the “spillover” of negative load effects that have build up during the day, not only lead to burnout but also make the study of negative WHI relevant (Bakker & Geurts, 2004). When Demerouti, Geurts and Kompier (2001) first defined the relationship between work and non-work as an interactive process whereby one’s functioning in one situation is influenced by the demands from the other situation, the existence of negative WHI came to light. According to

Geurts et al. (in press), negative WHI more specifically suggests that negative load reactions that build up during the day hamper the functioning at home. Major consequences that the individual may suffer due to negative WHI are physical, behavioural, attitudinal or psychological and could include symptoms such as headaches, fatigue, negative feelings, depression, anger, irritation and reduced satisfaction in marriage and leisure time (Geurts & Demerouti, 2003). Not only do individual suffers from negative WHI, but the organisation also suffers considerable financial and turnover problems (Greenhaus, Collins, Singh & Parasuraman, 1997). Other consequences include reduced job and life satisfaction, low organisational commitment, stress and burnout, low levels of job performance, and the prevalence of accidents (Allen, Herst, Bruck & Sutton, 2000; Jamal, 1981; Kandonlin, 1993; Kossek & Ozeki, 1998; Monk & Folkard, 1985).

Recently the relationship between job characteristics and burnout and the possible mediating effect of negative WHI became a new interest for researchers (Frone et al., 1992; Janssen et al., 2004; Peeters et al., 2005). According to Barron and Kenny (1986), the impact of the independent variable on the dependent variable is manifested through the mediating variable, which can have a partial, or full mediating effect (e.g. it explains how or why such effects occur). This suggests that for full mediation, the relationship between the independent variable and the dependent variable must be completely explained by the mediator. For partial mediation, however, the size of the effect of the independent on the dependent variable after the entering of the mediating variable must be smaller than the size of the effect of the independent on the dependent variable in the first regression. Furthermore, Barron and Kenny (1986) suggest that the mediating effect can best be described as the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest, or specifies how a given effect occurs. Since most studies indicate a partial mediating effect of WHI between job characteristics and burnout (Janssen et al., 2004; Montgomery et al., 2003; Peeters et al., 2005), WHI would account for additional variation in burnout levels beyond job characteristics.

To illustrate the underlying mechanism of the process between job demands and job resources and the mediating effect of negative WHI, a useful model that can be used as theoretical framework is the Effort-Recovery (E-R) model (Meijman & Mulder, 1998). According to this model, recovery is crucial after being exposed to high work demands. When individuals are given enough recovery time to recover from the load effects that have

built up during the workday, their psychobiological system will stabilise at a baseline level. The individual will start the next working day in an optimal condition, because of the mobilisation of energy. However, if opportunities for recovery are insufficient, the psychobiological systems will be activated before stabilising at a baseline level, and the extra effort may yield in the draining of the individual's energy. This means that when nurses are exposed to high workloads and pressure and are not allowed sufficient time to recover after a hard day's work (e.g. due to long working hours), they have to make an extra effort to do their work the next day. This extra effort will eventually influence their work and non-work relationship, which will make them more susceptible to negative outcomes such as burnout.

Therefore, within the nursing environment, known for its demanding aspects, certain job demands and the lack of resources may lead to burnout, which may be mediated (either partially or fully) by WHI if no opportunities for recovery exist. The general aim of this study is therefore to determine which specific job characteristics within the nursing environment lead to burnout and negative WHI and whether negative WHI has a partial or a full mediating effect on this relationship.

METHOD

Research design

A cross-sectional survey design was used to collect the data and to attain the research objectives. Cross-sectional designs are used to observe a group of people at a particular point in time – for a short period, such as a day or a few weeks (Du Plooy, 2002). The design is also used to assess interrelationships among variables within a population and will thus help to achieve the various specific objectives of this research (Struwig & Stead, 2001).

Participants and procedure

Nurses working in hospitals in the Johannesburg, Klerksdorp, Krugersdorp, Potchefstroom, and Pretoria areas were randomly selected to participate in this study ($n = 300$). After permission was obtained from the specific hospitals, the first phase of the research started. First, focus groups were held with registered nurses in the selected hospitals in order to gather information regarding their work environment – and specifically the factors that help or

hinder them in doing their job. After the information from the focus groups was analysed, the questionnaire was developed and distributed among the selected nurses in the hospitals. A letter was included in the questionnaire explaining the goal and importance of the study. The participants were also assured of the anonymity and confidentiality with which the information would be handled. The participants were given two to three weeks to complete the questionnaires, after which they were personally collected from the participating hospitals. Table 1 shows the characteristics of the participants.

Table 1
Characteristics of Participants (n = 300)

Item	Category	Frequency	Percentage (%)
Gender	Male	6	2,00
	Female	293	97,70
	Missing values	1	0,30
Age	23-35 years	82	27,30
	36-45 years	109	36,30
	46-55 years	76	25,30
	56-65 years	20	6,70
	Missing values	13	4,30
	Race	White	249
African		33	11,00
Coloured		13	4,30
Indian		1	0,30
Other		1	0,30
Missing values		3	1,00
Position		Registered nurse	247
	Unit manager	39	13,00
	Process manager	3	1,00
	Nursing services specialist	11	3,70
	Missing values	0	0
	Educational level	Less than grade 10	3
Grade 10		6	2,00
Grade 11		1	0,30
Grade 12		35	11,70
Technical college diploma		64	21,30
Technical diploma		27	9,00
University degree		57	19,00
Postgraduate degree		40	13,30
Other		59	19,70
Missing values		8	2,70
Overtime compensation		No compensation	30
	Compensation in time	70	23,30
	Compensation in money	123	41,00
	Compensation in time and money	66	22,00
	Missing values	11	3,60
	Contract	Full-time job	284
Part-time job		6	2,00
Missing values		10	3,30

According to Table 1, the majority of the participants were female (97,70%), white (83%) and between the ages of 36 and 45 years. Regarding education, 82,30% of the participants

were registered nurses, and most indicated an educational level higher than grade 12. The majority of participants (94,70%) worked on a full-time basis, and 41% of the participants received monetary compensation for working overtime.

Measuring instruments

The following measurement instruments were used in the empirical study:

Job characteristics. To determine the specific demands and resources that affect the work of nurses, focus groups were held. Within the focus groups, specific factors that hinder or help nurses in the execution of their work were identified. After the responses were analysed, the major demands that nurses experienced could be classified as emotional demands, pressure, time-related demands and nurse-specific demands. Resources were identified as autonomy, role clarity and support (including support from colleagues and supervisors as well as financial support from the organisation). The items for pressure, autonomy and support were derived from existing questionnaires and measured on a four-item scale ranging from (1) “almost never” to (4) “always”. The rest of the items were self-developed. Items for *Pressure* were derived from the Job Content Questionnaire (JCQ, Karasek, 1985) (seven items; e.g. “Do you have enough time to get the job done?”). *Autonomy* was measured by seven items from the validated questionnaire on experience and evaluation of work (Van Veldhoven, Meijman, Broersen & Fortuin, 1997) (e.g. “Can you take a short break if you feel that it is necessary?”), with higher scores denoting a higher level of autonomy. *Colleague and supervisory support* were measured with items addressing support from the JCQ (e.g. “Can you count on your colleague when you come across difficulties in your work?”; “My supervisor is helpful in getting the job done”), and financial support from the self-developed items (e.g. “Does your job offer you the possibility to progress financially?”). The other demands and resources were measured using self-developed items: emotional demands (nine items; e.g. “Are you confronted in your work with things that affect you emotionally?”), time-related demands (five items; e.g. “Do you have to work irregular hours?”), nurse-specific demands (six items; e.g. “Do you experience insults from patients or their family?”) and role clarity (nine items; e.g. “Do you know exactly what patients expect of you in your work”). All items were scaled on a four-point scale, ranging from 1 (*never*) to 4 (*always*).

Burnout. An adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli, Leiter, Maslach & Jackson, 1996) was used to measure burnout, and consisted of exhaustion, mental distance (which comprises cynicism and depersonalisation) and professional efficacy. Recently, Jackson and Rothmann (in press) confirmed a three-factor model of burnout for educators, consisting of exhaustion, mental distance (cynicism and depersonalisation collapsed into one factor) and professional efficacy. The Exhaustion subscales of the MBI-GS (e.g. “I feel used up at the end of the workday”), as well as the Mental Distance subscale (e.g. “I have become less enthusiastic about my work”; “I feel I treat some recipients as if they were impersonal objects”) were used in this study. All items were scored on a seven-point scale, ranging from 0 (*never*) to 6 (*every day*). Cronbach alpha coefficients for the MBI-GS reported by Schaufeli et al. (1996) varied from 0,87 to 0,89 for Exhaustion, and from 0,73 to 0,84 for Cynicism. Jackson and Rothmann (in press) confirmed the following Cronbach alpha coefficients for the adapted MBI-GS: Exhaustion = 0,79; Cynicism = 0,64; Depersonalisation = 0,60; Mental Distance = 0,74; and Professional Efficacy = 0,73.

Negative Work-Home Interaction. Negative WHI was measured using the Negative WHI scale of the ‘*Survey Work-Home Interaction – Nijmegen*’ (SWING) (Geurts et al., in press). Negative WHI refers to a negative impact of the work situation on one’s functioning at home (e.g. “Your work schedule makes it difficult to fulfil domestic obligations”). All items were scored on a four-point frequency rating scale, ranging from 0 (*never*) to 3 (*always*). Pieterse and Mostert (2005) noted a coefficient α reliability of 0,87 in their psychometric analysis of the SWING in the earthmoving equipment industry.

Statistical analysis

The statistical analysis was carried out with the SPSS program (SPSS Inc., 2003) and the AMOS program (Arbuckle, 1999). Cronbach alpha coefficients were used to assess the reliability of the constructs that were measured in this study. Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) and inferential statistics were used to analyse the data.

Exploratory factor analyses were carried out to determine the validity of the job characteristics questionnaire. 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). Confirmatory factor analysis, using the AMOS program (Arbuckle, 1999), was used to confirm the factor structure of the adapted MBI-GS. The χ^2 and several other goodness-of-fit indices were used, including the Goodness-of-Fit Index (GFI), the Parsimony Goodness-of-Fit Index (PGFI), the Incremental Fit Index (IFI); the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA).

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, Cohen, 1988) and 0,50 (large effect) were set for the practical significance of correlation coefficients. Multiple regression analyses were carried out to determine the percentage variance in the dependent variable that was predicted by the independent variables.

With the mediation analysis, multiple regression analysis was used as outlined in the four steps for mediation by Barron and Kenny (1986). The four steps were carried out with the most prominent job characteristic (as independent variable A), negative WHI (as hypothesised mediator B) and exhaustion or mental distance (as dependent variable C). In the first step, the effect of the independent variable (A) on the dependent variable (C) was determined. In the second step, the effects of the independent variable (A) on variable B (the hypothesised mediator) were determined. In step three, it was determined how variable B affected the dependant variable C, whilst controlling for the independent variable (A). In the last step, the mediational relationship between the independent variable (A) and outcomes was established.

RESULTS

Construct validity of the measuring instruments

Before analysing the data, the construct validity of the job characteristics inventory was determined. In order to reach the first objective, SEM was used to determine the construct validity of the adapted MBI-GS.

Job characteristics. A simple principal component analysis was conducted on the items of the job characteristics inventory. The scree plot and eigenvalues provided evidence for a nine-factor solution, which explained 50,28% of the total variance. The nine factors were labelled as follows: Emotional Demands (e.g. “Are you confronted in your work with things that affect you emotionally?”), Pressure (e.g. “Do you have to work very hard?”), Time-Related Demands (e.g. “Do you have to work overtime?”), Nurse-Specific Demands (e.g. “Do you experience insults from your patients or their families?”), Autonomy (e.g. “Can you take a short break if you feel it is necessary?”), Role Clarity (e.g. “Do you receive assignments without adequate resources and materials to execute them?”), Colleague Support (e.g. “Do your colleagues help you to get the job done?”), Supervisory Support (e.g. “Does your supervisor help you to get the job done?”) and Financial Support (e.g. “Do you feel that your organisation pays good salaries?”).

Burnout. Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 1999), were used to test two factorial models for the adapted MBI-GS. The first model consisted of three factors, namely Exhaustion, Cynicism and Depersonalisation. With the second model, it was assumed that Cynicism and Depersonalisation collapsed into one factor, namely Mental Distance. Before performing SEM, the frequency distribution of the items of the MBI-GS was checked in order to assess deviations from normality, and multivariate outliers were removed. It was assumed that the χ^2 goodness-of-fit statistics were not likely to be inflated if the skewness and kurtosis for individual items did not exceed the critical values of 2,00 and 7,00 respectively (West, Finch & Curran, 1995).

Data analyses proceeded as follows: First, a quick overview of model fit was done by looking at the overall χ^2 value together with its degrees of freedom and probability value. Global

assessments of model fit were based on several goodness-of-fit statistics. Secondly, given findings of an ill-fitting initially hypothesised model, analyses proceeded in an exploratory mode. Possible misspecifications as suggested by the so-called modification indices were looked for, and eventually a revised, re-specified model was fitted to the data. The goodness-of-fit statistics of the two models are presented in Table 2.

Table 2

Goodness-of-Fit Statistics of the MBI Models

Model	χ^2	χ^2/df	GFI	PGFI	IFI	TLI	CFI	RMSEA
3-factor model	211,17	2,85	0,91	0,64	0,92	0,89	0,91	0,08
2-factor model	212,86	2,80	0,91	0,66	0,92	0,90	0,91	0,08

As can be seen in Table 2, there are no statistically significant difference between the three-factor and two-factor models ($\Delta \chi^2 = 1,69$ ($N = 300$), $df = 76,00$, $p < 0,001$). However, the internal consistency of the depersonalisation subscale was found to be questionable if treated as an independent factor ($\alpha = 0,64$). Since all the goodness-of-fit statistics met the criteria ($\chi^2/df < 5,00$; GFI, IFI, TLI and CFI $> 0,90$; and RMSEA = 0,08), it was therefore decided to use the two-factor model (the Exhaustion and Mental Distance factors) in further analyses

Descriptive statistics

The descriptive statistics and alpha coefficients of the measuring instruments are shown in Table 3.

Table 3

Descriptive Statistics and Alpha Coefficients of Job Characteristics, Negative WHI and Burnout (n=300)

Item	Mean	SD	Skewness	Kurtosis	α
Emotional Demands	21,67	4,89	0,22	-0,23	0,85
Pressure	20,01	3,77	-0,05	-0,24	0,82
Time-Related Demands	11,63	3,44	0,33	-0,27	0,76
Nurse-Specific Demands	12,82	2,90	0,70	1,12*	0,71
Autonomy	21,02	4,69	0,15	-0,50	0,82
Role Clarity	15,02	3,96	0,53	-0,11	0,81
Colleague Support	8,10	2,42	0,26	0,14	0,79
Supervisory Support	8,11	3,38	1,04*	1,18*	0,88
Financial Support	15,07	3,77	-0,57	-0,18	0,88
Negative WHI	11,79	5,05	0,34	-0,31	0,87
Exhaustion	15,46	7,00	0,02	-0,73	0,86
Mental Distance	14,45	9,66	0,60	0,04	0,82

* High skewness and kurtosis

As indicated in Table 3, all the scores of the measuring instruments were normally distributed, except for the scores of Nurse-Specific Demands and Supervisory Support. The alpha coefficients of all the measuring instruments were considered acceptable compared to the guideline of $\alpha > 0,70$ (Nunnally & Bernstein, 1994).

Product-moment correlations

The results of the product-moment correlation coefficients between the constructs are reported in Table 4. As indicated in Table 3, Nurse-Specific Demands and Supervisory Support were not normally distributed. It was therefore decided to use Spearman product-moment correlations for these two scales. Eighty Pearson product-moment correlations were used for all the other scales.

Table 4

Correlation Coefficients between Job Characteristics, Negative WHI and Burnout (n=300)

Item	1	2	3	4	5	6	7	8	9	10	11
1. Emotional Demands	-	-	-	-	-	-	-	-	-	-	-
2. Pressure	0,34 ⁺ *	-	-	-	-	-	-	-	-	-	-
3. Time-Related Demands	0,25 ⁺	0,32 ⁺ *	-	-	-	-	-	-	-	-	-
4. Nurse-Specific Demands	0,39 ⁺ *	0,37 ⁺ *	0,30 ⁺ *	-	-	-	-	-	-	-	-
5. Autonomy	0,04	-0,03	-0,09	-0,12 ⁺	-	-	-	-	-	-	-
6. Role Clarity	-0,17 ⁺	-0,25 ⁺	-0,21 ⁺	-0,28 ⁺	0,21 ⁺	-	-	-	-	-	-
7. Colleague Support	-0,12 ⁺	-0,15 ⁺	-0,18 ⁺	-0,28 ⁺	0,11	-0,32 ⁺ *	-	-	-	-	-
8. Supervisory Support	-0,04	-0,11	-0,15 ⁺	-0,10	0,09	-0,24 ⁺	-0,54 ⁺ **	-	-	-	-
9. Financial Support	-0,10	-0,29 ⁺	-0,25 ⁺	-0,30 ⁺ *	0,14 ⁺	-0,11	-0,27 ⁺	-0,19 ⁺	-	-	-
10. Negative WHI	0,24 ⁺	0,43 ⁺ *	0,42 ⁺ *	0,34 ⁺ *	-0,09	-0,40 ⁺ *	-0,32 ⁺ *	-0,23 ⁺	-0,29 ⁺	-	-
11. Exhaustion	0,20 ⁺	0,40 ⁺ *	0,29 ⁺	0,35 ⁺ *	-0,24 ⁺	-0,34 ⁺ *	-0,34 ⁺ *	-0,24 ⁺	-0,40 ⁺ *	0,53 ⁺ **	-
12. Mental Distance	0,24 ⁺	0,26 ⁺	0,26 ⁺	0,30 ⁺ *	-0,18 ⁺	-0,43 ⁺ *	-0,31 ⁺ *	-0,20 ⁺	-0,26 ⁺	0,44 ⁺ *	0,59 ⁺ **

⁺ Statistically significant ($p < 0,05$)

^{*} Correlation is practically significant $r > 0,30$ (medium effect)

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

Table 4 indicates that Exhaustion is statistically and practically significantly related (with a medium effect) to Pressure, Nurse-Specific Demands, Role Clarity, Colleague Support and Financial Support, and statistically and practically significantly related (with a large effect) to Negative WHI. Mental Distance is statistically and practically significantly related (with a medium effect) to Nurse-Specific Demands, Role Clarity, Colleague support and Negative WHI. The results show that Negative WHI is statistically and practically significantly related (with a medium effect) to Pressure, Time-Related Demands, Nurse-Specific Demands, Role Clarity and Colleague Support.

Multiple regression analysis

To determine which job characteristics predict Negative Work-Home Interference, Exhaustion and Mental Distance, three standard multiple regression analysis, using the enter method, were performed. The first assessed the contribution that job characteristics (job demands and job resources) had upon Negative WHI; the second assessed the contribution that job characteristics had on Exhaustion; the third assessed the contribution that job characteristics had upon Mental Distance. The results are reported in Tables 5, 6 and 7.

Table 5

Multiple Regression Analysis with Negative WHI as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-4,13	1,58		-2,61	0,00	30,98	0,54	0,30	0,30
	Emotional Demands	-0,00	0,06	-0,00	-0,02	0,98				
	Pressure	0,37	0,07	0,28	5,07	0,00				
	Time-Related Demands	0,42	0,08	0,28	5,33	0,00				
	Nurse Demands	0,28	0,10	0,16	2,85	0,01				
2	(Constant)	-8,59	2,12		-4,05	0,00	19,34	0,61	0,38	0,08
	Emotional Demands	0,01	0,06	0,01	0,20	0,84				
	Pressure	0,31	0,07	0,23	4,29	0,00				
	Time Demands	0,34	0,08	0,23	4,55	0,00				
	Nurse Demands	0,11	0,10	0,06	1,11	0,27				
	Autonomy	-0,02	0,05	-0,02	-0,31	0,76				
	Role Clarity	-0,28	0,07	-0,22	-4,23	0,00				
	Colleague Support	-0,23	0,12	-0,11	-2,00	0,05				
	Supervisory Support	-0,04	0,08	-0,03	-0,54	0,59				
	Financial Support	-0,12	0,07	-0,09	-1,65	0,10				

As can be seen in Table 5, the entry of both job demands and resources at the second step of the regression analysis produced a statistically significant model ($F_{(9,290)} = 19,34; p < 0,05$), accounting for approximately 38% of the variance in Negative WHI. It seems that Pressure ($\beta = 0,23; t = 4,29; p < 0,05$), Time-Related Demands ($\beta = 0,23; t = 4,55; p < 0,05$), Role Clarity ($\beta = -0,22; t = -4,23; p < 0,05$) and Colleague Support ($\beta = -0,11; t = -2,00; p < 0,05$) predict Negative WHI.

Next, Exhaustion was regressed upon the job characteristics. The results are reported in Table 6.

Table 6

Multiple Regression Analysis with Exhaustion as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-4,25	2,30		-1,84	0,00	21,49	0,48	0,23	0,23
	Emotional Demands	-0,05	0,08	-0,03	-0,53	0,60				
	Pressure	0,54	0,11	0,29	5,03	0,00				
	Time-Related Demands	0,28	0,11	0,14	2,46	0,02				
	Nurse Demands	0,52	0,15	0,22	3,59	0,00				
2	(Constant)	-6,07	2,98		-2,04	0,00	18,12	0,60	0,36	0,13
	Emotional Demands	0,02	0,08	0,01	0,24	0,81				
	Pressure	0,43	0,10	0,23	4,20	0,00				
	Time Demands	0,13	0,11	0,06	1,22	0,22				
	Nurse Demands	0,17	0,14	0,07	1,19	0,23				
	Autonomy	-0,21	0,07	-0,14	-2,94	0,00				
	Role Clarity	-0,25	0,09	-0,14	-2,61	0,01				
	Colleague Support	-0,45	0,16	-0,16	-2,78	0,01				
	Supervisory Support	-0,00	0,11	-0,00	-0,03	0,97				
	Financial Support	-0,41	0,10	-0,22	-4,17	0,00				

In Table 6, the entry of job demands and job resources in the second step of the regression analysis produced a statistically significant model ($F = 18,12_{(9,290)}$; $p < 0,05$), accounting for approximately 36% of the variance in Exhaustion. It seems that Pressure ($\beta = 0,23$; $t = 4,20$; $p < 0,05$), Autonomy ($\beta = -0,14$; $t = -2,94$; $p < 0,05$), Role Clarity ($\beta = -0,14$; $t = -2,61$; $p < 0,05$), Colleague Support ($\beta = -0,16$; $t = -2,78$; $p < 0,05$) and Financial Support ($\beta = -0,22$; $t = -4,17$; $p < 0,05$) predict Exhaustion.

Next, Mental Distance was regressed upon the job characteristics. The results are reported in Table 7.

Table 7

Multiple Regression Analysis with Mental Distance as Dependent Variable

Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-6,88	3,93		-1,75	0,00	19,70	0,50	0,25	0,25
	Autonomy	-0,13	0,11	-0,06	-1,19	0,23				
	Role Clarity	-0,87	0,13	-0,36	-6,54	0,00				
	Colleague Support	-0,60	0,24	-0,15	-2,53	0,01				
	Supervisory Support	-0,10	0,16	-0,04	-0,63	0,53				
	Financial Support	-0,46	0,14	-0,18	-3,37	0,00				
2	(Constant)	-13,88	4,34		-3,20	0,00	12,95	0,54	0,29	0,04
	Autonomy	-0,15	0,11	-0,07	-1,42	0,16				
	Role Clarity	-0,74	0,14	-0,30	-5,41	0,00				
	Colleague Support	-0,48	0,24	-0,12	-2,03	0,04				
	Supervisory Support	-0,05	0,16	-0,02	-0,32	0,75				
	Financial Support	-0,32	0,14	-0,13	-2,27	0,02				
	Emotional Demands	0,21	0,11	0,11	1,89	0,06				
	Pressure	0,12	0,15	0,05	0,84	0,40				
	Time-Related Demands	0,22	0,15	0,08	1,46	0,15				
	Nurse Demands	0,18	-0,20	0,05	0,88	0,38				

As can be seen in Table 7, the entry of job resources and job demands in the second step of the regression analysis produced a statistically significant model ($F= 12,95_{(9,290)}$; $p < 0,05$), accounting for approximately 29% of the variance in Mental Distance. It seems that Role Clarity ($\beta = -0,30$; $t = -5,41$; $p < 0,05$), Colleague Support ($\beta = -0,12$; $t = -2,03$; $p < 0,05$) and Financial Support ($\beta = -0,13$; $t = -2,27$; $p < 0,05$) predict Mental Distance.

In summary, it seems that the most prominent job characteristics to predict Negative WHI, Exhaustion and Mental Distance are: Pressure, Role Clarity, and Colleague Support. It was decided to include only these job characteristics in the mediation analysis.

Mediation Analysis

In order to test for mediation, it was first important to assess the relationships between the variables. Barron and Kenny (1986) suggests that four steps be followed, with job characteristics as independent variable A, Negative WHI as independent variable B and Exhaustion or Mental Distance as dependent variable C.

During the first two steps it was necessary to assess the (expected) relationships between A and C, and A and B, because without these conditions mediation is not possible. Therefore, step 1 determined whether the independent variables (job characteristics) had a significant effect upon the dependent variable (Exhaustion or Mental Distance). In step 1, all the prominent job characteristics seemed to significantly predict Exhaustion (Pressure: $\beta = 0,40$; $t = 7,62$; $p = 0,00$; Role Clarity: $\beta = -0,34$; $t = -6,15$; $p = 0,00$; Colleague Support: $\beta = -0,35$; $t = -0,34$; $p = 0,00$) and Mental Distance (Role Clarity: $\beta = -0,43$; $t = -8,22$; $p = 0,00$; Colleague Support: $\beta = -0,31$; $t = -5,52$; $p = 0,00$). Step 2 examined the impact of the independent variable (A) upon the hypothesised mediator (Negative WHI as independent variable B). In step 2, all the prominent job characteristics seemed to significantly predict Negative WHI (Pressure: $\beta = 0,31$; $t = 4,29$; $p = 0,00$; Role Clarity: $\beta = -0,40$; $t = -7,49$; $p = 0,00$; Colleague Support: $\beta = -0,32$; $t = -5,73$; $p = 0,00$). In order to provide evidence for the third step, it was determined how the hypothesised mediator B (Negative WHI) affected the dependent variable C (Exhaustion/Mental distance). The results showed a statistically significant model for the relationship between Negative WHI and Exhaustion ($F = 189,50_{(1,505)}$; $\beta = 0,52$; $t = 13,77$; $p < 0,00$), as well as the relationship between Negative WHI and Mental distance ($F = 97,54_{(1,505)}$; $\beta = 0,40$; $t = 9,88$; $p < 0,00$).

The last step, as outlined by Barron and Kenny (1986), were to assess the proposed complete model with both direct (A-C), and indirect paths (via B). This suggested that the dependent variable should be regressed on the independent variable, controlling for the mediator. The next series of multiple regression analyses showed the possible mediation with the most prominent job characteristics (e.g. Pressure, Role Clarity and Colleague Support) and Negative WHI as independent variables and Exhaustion or Mental Distance as dependent variables. If, each time upon the inclusion of Negative WHI, the regression coefficients remained statistically significant, it would be indicative of partial mediation. However, if the

regression coefficient did not remain statistically significant upon the inclusion of Negative WHI, it would be proof of a full mediation. The results are reported in Table 8.

Table 8

Multiple Regression Analysis with the most prominent Job Characteristics (as Independent Variable A), Negative WHI (as Independent Variable B) and Exhaustion or Mental Distance (as Dependent Variable C)

Multiple Regression Analysis with Exhaustion as Dependent Variable										
Independent variables: Pressure and Negative WHI										
Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE							
1	(Constant)	0,46	2,00		0,23	0,00	58,07	0,40	0,16	0,16
	Pressure	0,75	0,10	0,40	7,62	0,00				
2	(Constant)	0,30	1,81		0,17	0,00	70,58	0,57	0,32	0,16
	Pressure	0,40	0,10	0,21	4,04	0,00				
	Negative WHI	0,61	0,07	0,44	8,35	0,00				
Independent variables: Role Clarity and Negative WHI										
Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE							
1	(Constant)	-6,56	1,50		-4,38	0,00	37,76	0,34	0,11	0,11
	Role Clarity	-0,59	0,10	-0,34	-6,15	0,00				
2	(Constant)	-3,81	1,36		-2,80	0,00	64,51	0,55	0,30	0,19
	Role Clarity	-0,26	0,09	-0,15	-2,76	0,00				
	Negative WHI	0,66	0,07	0,48	9,00	0,00				

Table 8 (continued)

Independent variables: Colleague Support and Negative WHI										
Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-7,40	1,33		-5,56	0,00	40,02	0,34	0,12	0,12
	Colleague Support	-1,00	0,16	0,34	-6,33	0,00				
2	(Constant)	-3,16	1,26		-2,52	0,01	69,67	0,57	0,32	0,20
	Colleague Support	-0,57	0,15	0,20	-3,88	0,00				
	Negative WHI	0,66	0,07	0,47	9,36	0,00				

Multiple Regression Analysis with Mental Distance as Dependent Variable										
Independent variables: Role Clarity and Negative WHI										
Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-1,29	1,98		-0,65	0,00	67,56	0,43	0,19	0,19
	Role Clarity	-1,05	0,13	-0,43	-8,22	0,00				
2	(Constant)	-3,82	1,93		-1,98	0,00	54,86	0,52	0,27	0,09
	Role Clarity	-0,74	0,13	-0,30	-5,61	0,00				
	Negative WHI	0,61	0,10	0,32	5,88	0,00				

Independent variables: Colleague Support and Negative WHI										
Model		Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
		B	SE	BETA						
1	(Constant)	-4,60	1,86		-2,47	0,00	30,48	0,31	0,09	0,09
	Colleague Support	-1,22	0,22	-0,31	-5,52	0,00				
2	(Constant)	-0,10	1,85		-0,06	0,00	42,65	0,47	0,22	0,13
	Colleague Support	-0,74	0,22	-0,19	-3,43	0,00				
	Negative WHI	0,73	0,10	0,38	7,06	0,00				

Table 8 indicates that each time upon the inclusion of Negative WHI, the regression coefficient remained statistically significant, indicating a partial mediating effect. Therefore Negative WHI seems to partially mediate between Exhaustion and Pressure ($\beta = 0,44$; $F = 70,58$; $p < 0,00$), Role Clarity ($\beta = 0,48$; $F = 64,51$; $p < 0,00$) and Colleague Support ($\beta = 0,47$; $F = 69,67$; $p < 0,00$). Negative WHI also seems to partially mediate between Mental Distance and Role Clarity ($\beta = 0,32$; $F = 54,86$; $p < 0,00$) and Colleague Support ($\beta = 0,38$; $F = 42,65$; $p < 0,00$).

DISCUSSION

The general objective of this study was to investigate job characteristics (job demands and job resources), burnout and negative WHI within the nursing environment. To attain the general objective, more specific objectives were developed, namely 1) to determine the construct validity and reliability of the adapted MBI-GS; 2) to determine which job characteristics within the nursing environment predict burnout; 3) to determine which job characteristics predict negative WHI; and 4) to determine if negative WHI plays a partial or a full mediating role between the most prominent job characteristics and burnout.

To answer the first objective, two competing models were tested. Taking previous research findings regarding the role of professional efficacy into account (e.g. Cordes & Dougherty, 1993; Green et al., 1991; Lee & Ashforth, 1996; Leiter, 1993; Shirom, 1989), only exhaustion, cynicism and depersonalisation were included as burnout dimensions. The first model assumed that burnout consists of three dimensions, namely exhaustion, cynicism and depersonalisation (implying that cynicism and depersonalisation each contributes to burnout in a distinct way). The second model assumed that cynicism and depersonalisation collapse into one factor, forming a two-factor model of burnout that consists of exhaustion and mental distance. Structural equation modelling showed that there was no statistically significant difference between the two- and three-factor models. However, the Cronbach alpha coefficient of the depersonalisation subscale was found to be questionable if treated as an independent factor. It therefore seems that these results (although not very strong) support the findings of Jackson and Rothmann (in press) in that cynicism and depersonalisation could form one “mental distance” factor. However, since there was not a statistically significant difference between the two models, further research is needed to investigate this question.

With regard to job characteristics, it was argued that employees are not only exposed to job demands, but also to job resources – which is in line with the Job Demands-Resources (JD-R) model. Regarding job characteristics and burnout within the nursing environment, the results obtained indicated that burnout (consisting of exhaustion and mental distance) is best predicted by pressure and the lack of autonomy, role clarity, colleague support and financial support. This implies that when nurses are working very hard and fast, do not have a say in the planning of their work activities, are unclear about their expectations and do not receive sufficient support from their colleagues, they tend to become emotionally drained and less enthusiastic about their work (feeling exhausted and developing symptoms of mental distance). These findings are in accordance with previous research by Janssen et al. (2004), Montgomery et al. (2003) and Peeters et al. (2005) who found that emotional exhaustion was best predicted by quantitative demands (work pressure) and the lack of social support at work.

With regard to job characteristics and negative WHI within the nursing environment, the results confirmed that negative WHI was best predicted by pressure, time demands and the lack of role clarity and colleague support. When nurses work under pressure, under high time constraints, are unclear of their expectations and do not receive support from their colleagues, they tend to take their frustrations and feelings of exhaustion home and are therefore more susceptible to experience negative WHI. Similar to these results, Grzywacz and Marks (2000) and Geurts, Rutte and Peeters (1999) indicated work overload and troublesome relationships with one's supervisor to be the best predictors of negative WHI. These findings support the E-R model (Meijman & Mulder, 1998), which suggests that job demands that require too much effort are associated with the building up of negative load effects, which spill over to the nonwork domain (negative WHI). From the results obtained with the second and third objective regarding job demands and job resources associated with both burnout and negative WHI, it seems that the most prominent job characteristics to predict burnout and negative WHI in the nursing environment are pressure, the lack of role clarity and colleague support.

The last objective of this study was to determine whether negative WHI mediates between these most prominent job characteristics (e.g. pressure, role clarity and colleague support) and the two dimensions of burnout (e.g. exhaustion and mental distance). The results revealed evidence for a partial mediating role of negative WHI in this respect. Therefore,

when nurses are working under pressure, are unclear about the expectations of others and do not receive sufficient support from their colleagues at work, it may influence their relations at home and ultimately increase the risk to experience feelings of exhaustion and mental distance. These results support the findings of Peeters et al. (2005), who found that WHI partially mediate between job demands, home demands and burnout. Janssen et al. (2004) also found that negative WHI partially mediate the relationship between psychological job demands and emotional exhaustion.

Although the research showed promising results, the current research is not without its limitations. The first and obvious limitation of this study was the use of a cross-sectional design, which means that no hard conclusions could be drawn with regard to causation. The second limitation was the exclusive use of self-report measures, which could increase the problem of common method variance. Also, since many multiple regression analyses were used to analyse the data, the possibility of chance capitalisation cannot completely be ruled out in this study. The third limitation of this study was the use of only one occupation, namely that of nurses. This limits the study's ability to generalise the findings and to develop a comprehensive conceptual model that can be applicable to a variety of job settings and groups of workers. The last limitation was the exclusion of the concept of positive interaction between work and home. It has been previously recognised that WHI can also be positive in a way that participation and multiple roles can provide greater numbers of opportunities to the individual that can be exploited to promote growth and better functioning in the home domain (Grzywacz & Marks, 2000). However, in this study it was not accounted for.

Despite these limitations, the current study has important implications for organisations and for future research. Recommendations can be made to the organisations regarding the effect of a demanding work environment on the well-being of employees. Organisations need to implement preventive organisational-based strategies to tackle high job demands and the lack of sufficient resources. Individual-based interventions to reduce burnout symptoms and work-home interference might also be an avenue to pursue. Within the nursing environment, certain programmes or interventions ought to be aimed at preventing the specific job demands and resources that predict burnout and negative WHI in order to decrease the risk for developing these negative outcomes.

The most important recommendation for future research is the use of longitudinal designs. With longitudinal designs, the hypothesised causalities of the relationships can be further validated and can report whether relationships hold true over time. Since the possibility of positive interference between work and home was not accounted for in this study, future research should include the positive interface. It is also recommended that various occupations and their job characteristics and family situations be investigated. Since working conditions are unique within the different occupations – but are still related to work-non-work interface and health – the investigation of heterogeneous populations is important.

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CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

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

3.1 CONCLUSIONS

The general objective of this study is to study job characteristics, negative WHI and burnout within the nursing environment. The first objective was to determine the construct validity and reliability of the adapted MBI-GS. To answer this objective, two competing models were tested. The first model assumed that burnout consists of three dimensions, namely exhaustion, cynicism and depersonalisation (implying that cynicism and depersonalisation each contributes to burnout in a distinct way). The second model assumed that cynicism and depersonalisation collapse into one factor, forming a two-factor model of burnout that consists of exhaustion and mental distance. Structural equation modelling showed that there was no statistically significant difference between the two- and three-factor models. However, the Cronbach alpha coefficient of the depersonalisation subscale was found to be questionable if treated as an independent factor. It therefore seems that these results (although not very strong) support the findings of Jackson and Rothmann (in press) in that cynicism and depersonalisation could form one “mental distance” factor.

The second objective of this study was to determine which job characteristics within the nursing environment predict burnout. In line with the Job Demands-Resources (JD-R) model, it was argued that employees are not only exposed to job demands, but also to job resources. The results obtained indicated that burnout (consisting of exhaustion and mental distance) was best predicted by pressure and the lack of autonomy, role clarity, colleague support and financial support. This implies that when nurses perform under pressure, are unclear about what is expected of them and do not receive sufficient support from their colleagues, they tend to experience

burnout (feeling exhausted and developing symptoms of mental distance). Similarly, Peeters, Montgomery, Bakker and Schaufeli (2005), and Janssen, Peeters, De Jonge, Houkes and Tummers (2004) found that emotional exhaustion was best predicted by quantitative demands (work pressure) and the lack of social support at work.

The third objective of this study was to determine which job characteristics within the nursing environment predict negative WHI. Negative WHI was best predicted by pressure, time demands, and the lack of role clarity and colleague support. When nurses do not know what is expected of them at work, it seems to make them more susceptible to experiencing negative interference between work and home. The results also showed that when nurses have to work under pressure, within time constraints, and do not receive support from their colleagues, they tend to take their frustrations and feelings of exhaustion home. These results were in line with previous studies, which indicated that work overload and troublesome relationships with one's supervisor were best predictors for negative WHI (Grzywacz & Marks, 2000; Geurts, Rutte & Peeters, 1999).

With the obtained results on job demands and job resources associated with burnout and negative WHI, it would seem that the most prominent predictors in the nursing environment are pressure, the lack of role clarity and colleague support. Therefore, working under pressure contributes to feelings of exhaustion and mental distance as well as work interfering with home. Furthermore, the presence of job resources such as role clarity and support from colleagues could "buffer" against burnout and negative WHI. In other words, being under pressure to perform, and experiencing a *lack* of role clarity (not knowing what is expected of you) and colleague support make the person more susceptible to experience negative interference between work and home and increase the risk to experience symptoms of burnout.

The fourth specific objective of this study was to determine whether negative WHI mediates between the most prominent job characteristics (e.g. pressure, role clarity and colleague support) and the two dimensions of burnout (e.g. exhaustion and mental distance). The results revealed evidence for a partial mediating role of negative WHI in this respect. Thus, when nurses are working under pressure, are unclear of the expectations of others and do not receive sufficient support from their colleagues at

work, these factors may influence their relations at home and ultimately increase the risk to experience feelings of exhaustion and mental distance. These results support the findings of Peeters et al. (2005), who found that WHI partially mediates between job demands, home demands and burnout. Janssen et al. (2004) also found that negative WHI partially mediates the relationship between psychological job demands and emotional exhaustion.

In addition to the JD-R model, the current study utilised the Effort-Recovery (E-R) model (Meijman & Mulder, 1998) to argue that sufficient recovery has certain implications for work-home interference and burnout. In line with the JD-R and E-R models, continued job demands with few resources to cope with these demands may cause a negative interference between work and family life. This negative interference with the individual's private life could again result in employees worrying about their work when they are at home, making it difficult for them to fulfil their domestic obligations. When these negative experiences reinforce each other, they could eventually adversely affect employees' well-being, leading to burnout. Therefore, high job demands (such as pressure) may lead to interference between work and home, and reduces sufficient opportunities for recovery. Employees then have to make compensatory effort, resulting in this process becoming accumulative, and could lead to a draining of the individuals' energy and a state of breakdown or chronic fatigue (Sluiter, 1999; Ursin, 1980). However, when the person has sufficient job resources to meet job demands, these may facilitate opportunities for recovery at work and consequently reduce the need for recovery at home, thus buffering the negative effect of job demands on burnout.

3.2 LIMITATIONS OF THIS RESEARCH

It is necessary to note some limitations of the current study. The first limitation of this study was the use of a cross-sectional design. With a cross-sectional design, the postulated relationships cannot be interpreted causally, and thus no hard conclusions can be drawn with regard to the relationship between the job characteristics, negative WHI and burnout within the nursing environment. However, even though cross-sectional designs cannot prove causation, they do offer a valuable method of sorting

out which causal hypotheses are sufficiently plausible to warrant testing through longitudinal designs (Montgomery, Peeters, Schaufeli & Den Ouden, 2003). Cross-sectional designs can also provide important initial testing for the causal hypotheses.

The second limitation was the exclusive use of self-report measures, which could increase the problem of common method variance. Although the strength of this type of variance cannot be tested, several studies have indicated that common method variance is not as troublesome as one might expect (Spector, 1992; Semmer, Zapf & Grief, 1996). Also, since many multiple regression analyses were used to analyse the data, the possibility of chance capitalisation cannot completely be ruled out in this study.

The third limitation of this study was the use of only one occupation, namely that of nurses. This limits the study's ability to generalise the findings and to develop a comprehensive conceptual model that can be applicable to a variety of job settings and groups of workers. Since the samples included employees who were generally higher educated, the generalisation of findings to employees with lower education levels can also be questioned. Yet, the consistency of the findings with theory and results of previous studies can be an indication that the findings are not specific for only one unique occupation.

The last limitation was the exclusion of the concept of positive interaction between work and home. In this study, the possible positive interaction between work and home was not accounted for. It has been previously recognised that WHI can also be positive in a way that participation and multiple roles can provide more opportunities to the individual – which can be used to promote growth and better functioning in the home domain (Grzywacz & Marks, 2000). Therefore, future studies should also investigate the role of positive work-home interaction in relation to job characteristics and outcomes such as burnout.

3.3 RECOMMENDATIONS

Notwithstanding these limitations, the current study has important implications for organisations and future research.

3.3.1. Recommendations for the organisation

Although the study enhances the understanding of a demanding work environment and its relation to the work-home domain and health problems, certain specific recommendations can be made to the organisations associated with the nursing environment that will help them to improve wellness among their employees (nurses) and patients.

Firstly, recommendations can be made regarding the effect of a demanding work environment on the well-being of employees (nurses). In order to improve wellness, organisations need to explain and advise their employees on their well-being and related concepts (such as the role of demands and resources and the importance of recovery), as well as the outcomes thereof (e.g. burnout and negative WHI). This implies that employees must be able to identify certain demands or resources within their work environment (which may either hinder or help them in their functioning at work) and should be aware of the possible outcomes of these demands and resources. Furthermore, organisations should implement preventive organisation-based strategies to tackle high job demands and the lack of sufficient resources. Individual-based interventions to reduce burnout symptoms and work-home interference might also be an avenue to pursue. The current findings show that pressure and the lack of autonomy, role clarity, colleague support and financial support are the most prominent predictors for burnout, while the best predictors for negative WHI within the nursing environment are pressure, time demands and the lack of role clarity and colleague support. Within the nursing environment, certain programmes or interventions should be aimed to prevent these specific job demands and resources in order to decrease the risk for developing negative outcomes such as burnout and negative WHI.

Negative WHI is a real problem within the nursing environment, and attention should be given to the prevention thereof. According to Bailyn and Harrington (2004), it is possible to arrange work in such a way that employees can be productive and at the same time able to deal with their families. However, this would entail the redesign of work. With the redesign of work, deeply ingrained beliefs about work, families and gender roles are challenged. Organisations should also review their beliefs of work and ensure that the organisational culture is in line with their beliefs and policies of work-family issues. From a practical point of view, targets for the prevention of negative WHI could be based on clearer expectations for nurses, informal colleague support groups, and better management of work pressure and time. If organisations within the nursing environment are focused on providing sufficient job resources and minimising the job demands, the employees as well as the organisation will benefit.

3.3.2. Recommendations for future research

To overcome the limitations in future research, certain recommendations can be made for future studies. The most important recommendation for future research is the use of longitudinal designs. These designs are used to validate the hypothesised causalities of the relationships further and to examine whether the reported relationships hold true over time. Although longitudinal designs are important, Montgomery et al. (2003) suggest that they be reserved for circumstances when their considerable research power can be used to maximum advantage instead of being wasted on exploratory investigations in new research domains. Demerouti, Geurts and Kompier (2004) suggest that, although the relationship between work and non-work can be seen as a relatively new research domain, there is a need for longitudinal studies within this research domain.

The move towards more sophisticated theoretical models and structural equation modelling that go beyond the stress-strain idea can be another important merit for future research. Within the literature, it remains unclear how negative WHI should be theoretically embedded in the stress-strain relationship. Negative WHI is often considered a source of stress, but can also be considered an outcome of stress (Bakker & Geurts, 2004; Geurts & Dijkers, 2002; Montgomery et al., 2003). Previous

research provided evidence for negative WHI mediating in the stressor-strain relationship between work-related stressors and general indicators of impaired psychological health (Geurts, Kompier, Roxburgh & Houtman, 2003). Although this mediating role of negative WHI was confirmed in this study, the debate on where it should be embedded remains, since it is difficult to demonstrate a real mediational effect in time (Peeters et al., 2005). Future research should be directed to the structural equation modelling of negative WHI with other relationships.

Although the concept of positive interference between work and home was not accounted for in this study, future research should include the positive interface. Grzywacz and Marks (2000) has recognised that WHI can be positive in the home domain and therefore future research should investigate the possibility of WHI positively influencing the home domain and the possible mediating role in that regard. Together with the use of multiple sources of information from both the work and home domain, the findings will be enhanced even more. Furthermore, when using information from partners, adolescents, children or supervisors, new insights and perspectives to the relationship between work and home will be provided. Another new focus for research within the work-home interaction domain can be the examination of the relationships between dispositional or personality variables and work-home conflict. To date, only a few studies have considered dispositional influences and personality traits (Bruck & Allen, 2003).

The last 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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