

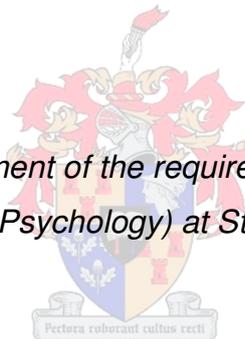
JOB DEMANDS AND RESOURCES AS ANTECEDENTS OF WORK ENGAGEMENT:

A Diagnostic Survey of Nursing Practitioners

By

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ABSTRACT

Health care is a key factor in the general health and wellbeing of any society. At the centre of any well-functioning healthcare system is sufficient, engaged and competent nursing staff. Access to proper health care is reliant on sufficient nursing staff levels, but unfortunately the global scarcity of nursing staff is proving to be a big challenge to the quality and service delivery that public and private healthcare organisations are providing. One of the many contributing factors to the shortage of nursing staff is the global challenge of an aging nursing staff population. At a time of widespread concern about nursing shortages and an ageing nursing workforce globally, human resources functions should pay increasing attention to addressing the shortage of nursing staff. Although attracting individuals to the nursing profession will increase the nursing pool, the engagement (and consequently retention) of current nursing staff is crucial to ensure a sustainable nursing workforce, and as a result, a sustainable healthcare system. The purpose of this study therefore included a diagnosis of the current state of work engagement of nursing practitioners, with the Job Demands and Resources model as diagnostic model, in an attempt to identify the antecedents that significantly contribute to the engagement of nursing practitioners.

The data analysis techniques that were applied in this study included item analysis, correlation analysis, hierarchical multiple regression analysis, PLS analysis and ANOVA. While the overall level of work engagement of nursing practitioners in the sample might not have been as low as had been envisioned, there are clearly deficiencies that need to be addressed. In terms of job resources, the factors that were found to be below optimum levels, and warrants intervention, included remuneration, participation, career possibilities, variety at work, independence at work, opportunities to learn, and information. The job resources communication, contact possibilities, relationships with colleagues and relationship with supervisor yielded acceptable mean scores and as a result no particular interventions were proposed for these variables. In terms of job demands, all job demands were reported to be at unacceptably high levels; however, no correlation between pace and amount of work and work engagement was confirmed. As a result, practical recommendations were built around these job demands and resources which anticipate increasing the work engagement of nursing practitioners and thereby partially addressing the greater problem of nursing shortages.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Health care is a key factor in the general health and wellbeing of any society. At the centre of any well-functioning healthcare system is sufficient, engaged and competent nursing staff. In collaboration with other healthcare professionals, nursing practitioners are responsible for the treatment, recovery and safety of patients in a variety of healthcare situations. Access to proper health care is reliant on sufficient nursing staff levels, but unfortunately the global scarcity of nursing staff is proving to be a big challenge to the quality and service delivery that public and private healthcare organisations are providing. Attracting and retaining competent nursing staff has been a global challenge threatening the healthcare systems of many countries for many years, also in South Africa (Kingma, 2006).

Various studies confirm the shortage of nursing staff and claim that the acute global shortage of nursing staff has a negative impact on healthcare institutions, states, societies and patients. Buerhaus, Auerback and Staiger (2009, p. 663) predicted that the U.S. nursing shortage will grow to 260 000 registered nurses by 2025. This projected shortage is twice as large as any nursing shortage experienced in the United States since the 1960's. In similar vein, North (2010) reported that the difficulties in retaining nurses in the New Zealand workforce have contributed to nursing shortages to such an extent that in 2004, there were nearly 55 000 active nurses reported in New Zealand, a number that declined to only 40 616 in 2009. This challenge is not restricted to developed countries as developing countries, like Malaysia, are also affected. According to Barnett, Namasivayam and Narudin (2010), although Malaysia has seen increases in nursing numbers, a decrease in the nurse-to-population ratio is evident. They argue that unless sufficient and systematic attention is paid to this nursing crisis it will pose a threat to the long-term stability of the healthcare workforce.

In South Africa (SA) two distinct healthcare systems are in operation; namely the private and public healthcare systems. However, no centralised healthcare information system exists, posing difficulty to present a clear picture based on integrated data of the nursing shortage in South Africa. The former SA Minister of Health, Dr Manto Tshabalala-Msimang provided some insight into the nursing shortage in the public sector. She reported that in 2008, there were approximately 8 419 vacancies in the nursing public sector in the Gauteng province alone. In KwaZulu-Natal, there were more than 11 000 vacancies for professional nurses

and nursing assistants (Kassiem, 2008). The statistics are just as alarming in the private healthcare sector as Mediclinic, one of the biggest private hospital groups in South Africa indicated that they have approximately 2 494 nursing vacancies nationally (in 2013). This number represents a staggering 22% vacancy rate in the nursing function of the company (C. Davis, personal communication, July 2013). Nursing shortage statistics, for both the public and private sectors, confirm the dire need in both the public and private healthcare systems of South Africa.

One of the many contributing factors to the shortage of nursing staff is the global problem of an aging nursing staff population. Various worldwide studies have indicated a decline in the percentage of nursing staff below the age of 30. In one study Auerbach, Staiger, Muench and Buerhaus (2012, p. 257) reported that the percentage of the nursing workforce below the age of thirty in the United States have declined significantly over the last few years, from just over 30% in 1980 to below 15% in 2008. According to Practice Nurse (2012, p. 7) only 2% of practicing nurses in England are under the age of 40, 42% are aged between 40 and 49, 48% are aged between 50 and 59, and 8% are between 60 and 69. Similarly, the South African nursing staff is also aging (South African Nursing Council Age Distribution Table, 2013) with only 9.5% below the age of 30, 27% between the ages of 30 and 39, 27.6% between the ages of 40 and 49, 23.8% between the ages of 50 and 59 and 11.7% was older than 60 years of age (in 2012).

At a time of widespread concern about nursing shortages and an ageing nursing workforce globally, increasing attention should be paid to the role of human resources functions in addressing these challenges. Although attracting individuals to the nursing profession will increase the nursing pool, the engagement (and consequently retention) of current nursing staff, in particular the younger generation nursing staff members, is crucial to ensure a sustainable nursing workforce, and as a result a sustainable healthcare system.

De Lange, De Witte, and Notelaers (2008) and Lowe (2012) stated that work engagement is a predictor of intention to quit or stay, while Galpin, Linley, Page, and Stairs (2006) focused on the benefits of high levels of work engagement namely; reduced absenteeism, greater employee retention, increased employee effort and productivity, reduced error rates, increased sales, higher profitability, enhanced customer satisfaction and loyalty, and faster business growth. Burud and Tumolo, as cited in Attridge (2009) reported positive correlations between human capital practices that emphasises work engagement and various measures of overall financial success of the company. Commercial studies such as that of Gallup provide additional evidence that a work environment that promotes work

engagement was consistently related to positive business outcomes, including reduced employee turnover, customer satisfaction, employee productivity, and company profit. Furthermore, it is estimated that disengaged employees cost U.S. companies between \$250 and \$350 billion a year (Attridge, 2009, p. 387).

In South Africa, a large private hospital group together with IpsosMarkinor conducted an internal employee survey in 2010, aimed at measuring staff engagement. The survey revealed that 54% of administrative employees were fully engaged, 15% partially engaged and only 9% could be regarded as a high risk of seeking alternative employment (IpsosMarkinor, 2010, p. 18). In comparison, the statistics pertaining to the nursing employees were rather alarming with only 22% of nursing employees found to be fully engaged, 9% partially engaged and a staggering 26% were at high risk of seeking alternative employment. Further findings indicated that only 16% of staff members found to be fully engaged were under the age of 30, 41% of fully engaged staff were between the ages of 30 and 45, and 33% of fully engaged staff was over the age of 45. These results verified the reported challenge of engagement of especially the younger nursing staff members. Based on these results, it could be conceded that the healthcare industry will be irresponsible not to emphasise and ensure employees engagement (with specific prominence given to younger staff members).

A sustainable healthcare system plays a vital role in not only the economy of a country, but also in the health and well-being of its people and therefore a nursing staff population large enough to meet the demands of the healthcare industry is essential. With the current nursing shortage crises, as well as the unbalanced age of the nursing staff population, human resources functions will benefit greatly from focusing attention on engaging nursing staff, with special emphasis on the younger generation nursing staff members. However, work engagement interventions can only be effective if the antecedents of work engagement are accurately understood. Knowing what these antecedents are, and how they impact on work engagement can contribute towards purposeful management of work engagement which can ultimately contribute to the reduction of the scarcity of nursing practitioners. Various models in literature report on the antecedents of work engagement. These models will be elaborated on in Chapter Two of this report. One widely used model of work engagement that declares the antecedents of work engagement is the Job Demands and Resources Model (JD-R) of Bakker and Demerouti (2007). The JD-R model examines the impact of job demands and job resources on work engagement, and is regarded as theoretically sound. Due to the relevance of this model in various occupational settings (irrespective of the specific demands and resources) (Demerouti & Bakker, 2011) the JD-R

model will be used as a diagnostic model to investigate the biggest contributing factors to the hypothesised low levels of work engagement among nursing practitioners.

This study emphasises the importance of comprehending the antecedents of engagement of a nursing practitioner. The research initiating question that will therefore guide this study is: **What are the job demands and job resources that influence work engagement of nursing practitioners?**

1.2 Research objectives

It is postulated that a descriptive engagement audit will confirm the descriptive hypothesis that the work engagement of nursing practitioners (especially younger nursing practitioners) is currently not at a favourable level and that specific remedial actions would be required to remedy the situation. However, such actions will only be successful if they address the actual antecedents that produce the existing low levels of work engagement. These important antecedents should therefore be explored from a diagnostic perspective. A diagnosis of the antecedents of the current low levels of engagement would require the use of a diagnostic model (in this case the Job Demands and Resources model) that elucidates a wide spectrum of possible determinants that affect the work engagement of nursing practitioners.

Consequently, from the research initiating question: *What are the job demands and job resources that influence work engagement of nursing practitioners?* The specific primary research objectives of this study are:

- To confirm that the work engagement of nursing practitioners are currently at unfavourable low levels
- To determine and investigate the most salient eliciting job demands and job resources that influence work engagement of nursing practitioners
- To investigate potential differences in the antecedents of work engagement of nursing practitioners of different age groups and different nursing categories
- To make practical recommendations to Human Resources and Management functions to enhance the work engagement of nursing practitioners

1.3 Structure of the research report

According to Miller (2006) theorising plays an important role in determining the success with which research succeeds in answering research initiating questions. She postulates that theorising creates a series of descriptive and diagnostic research problems and consequently descriptive and diagnostic research hypotheses. The nature of the hypothesis within descriptive research differs from those encountered in explanatory hypotheses in that descriptive research is guided by theoretical hypothesis about the nature of the status quo in the form of relational statements, whereas exploratory research hypothesis tend to have an essay format.

Chapter Two presents the descriptive hypothesis on the current status quo of the work engagement of nursing practitioners. A literature review and diagnostic model (the Job Demands and Resources model) explains how the major antecedents of work engagement form the basis of a set of diagnostic (exploratory) hypotheses explaining the anticipated deviation from the ideal. Chapter Three presents the research methodology used to examine the descriptive and diagnostic hypotheses, while in Chapter Four the findings of the research are discussed in detail. An analysis of the most significant job demands and job resources that impact on levels of work engagement of nursing practitioners are presented. Chapter Five eludes to the key findings of this study, comments on some potential limitations, and presents recommendations regarding remedial actions to rectify discrepancies between the ideal scenario (high levels of work engagement) and that which appears to be the current reality (low levels of work engagement). Finally, Chapter Five will also offer suggestions for further future research pertaining to this research topic.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The South African nursing profession is suffering from substantial skills shortages compounding the need to engage and retain staff. The youngest generation currently in the workplace is becoming increasingly larger, yet, according to studies this generation seems less likely engaged (Tunc & Kutanis, 2009). Furthermore, it is apparent that the work engagement of nursing practitioners in general is currently not at optimal levels as the reality of low levels of engagement and high turnover rates indicate a dire situation that will have to be remedied to ensure a sustainable healthcare industry.

To best understand the roots of the assumed low levels of work engagement of nursing practitioners, and to successfully address the problem by proposing specific remedial actions, a thorough diagnostic evaluation of the antecedents of work engagement is required. In support of this process, Chapter Two provides a detailed overview of the literature and the diagnostic model (the Job Demands and Resources model) which will form the foundation of the diagnostic hypotheses related to work engagement of nursing practitioners.

2.2 Engagement defined

To accurately diagnose the supposed insufficient work engagement of nursing practitioners, an investigation into the construct of engagement is necessary. Although the focus of this study is on work engagement an explanation of the broader term "employee engagement" is necessary. A review of the literature clarified that the broader term employee engagement can be viewed as any form of engagement of an individual within the work context. Harter, Schmidt and Hayes (2002) explain that employee engagement is experienced by individuals when they are emotionally connected to others and cognitively vigilant. Employee engagement can therefore be defined as "... the individual's involvement and satisfaction, as well as enthusiasm for work" (Harter et al., 2002, p. 69).

Although no single approach to the broader term employee engagement currently dominates the field in methodology or definition (Christian & Slaughter, 2007), a review of the literature yielded three prominent approaches that focus on engagement of individuals within the work context (employee engagement) namely;

- personal engagement and disengagement,
- engagement as burnout-antithesis, and
- work engagement (the focus area of this study)

Even though each of these approaches offer a unique contribution and perspective on employee engagement, they share the conviction that employee engagement can greatly influence organisational outcomes (Harter et al., 2002; Luthans & Peterson, 2002; Macey & Schneider, 2008; Schaufeli, Salanova, González-Romá & Bakker, 2002). Each of these approaches will be briefly discussed in the following sections.

2.2.1 Personal engagement and disengagement

Kahn (1990) introduced the concepts of personal engagement and personal disengagement. He defined these concepts as “behaviours by which people bring in or leave out the personal selves during work role performances” (Kahn, 1990, p. 694). In his study of personal engagement and disengagement at work Kahn (1990) interviewed 16 summer camp counsellors and 16 employees of an architecture firm to determine the psychological conditions associated with work engagement and disengagement at work. Data was collected using an assortment of qualitative methods which included observation, document analysis, self-reflection, and in-depth interviewing. A process of transcription and induction was then used to identify and categorise examples of descriptions of moments of personal engagement and disengagement. These propositions were subsequently utilised to develop a model of personal engagement and disengagement (note: the model was not presented graphically in the reference article). Kahn determined that there were three psychological conditions associated with work engagement and disengagement at work namely: meaningfulness, safety, and availability. Kahn defines *meaningfulness* as “... a feeling that one is receiving a return on investments of one's self in a currency of physical, cognitive, or emotional energy (p. 703). The concept of *safety* is viewed as “... feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career” (p. 708). And finally, *availability* is viewed as “... the sense of having the physical, emotional, or psychological resources to personally engage at a particular moment” (p. 714). Kahn

argued that if these three conditions (meaningfulness, safety, and availability) are present and fulfilled in the work environment, the employee would be more likely to be engaged.

Building on Kahn's work, May, Gilson and Harter (2004) undertook a field study in a US Midwestern insurance company to explore the determinants and mediating effects of three psychological conditions (meaningfulness, safety and availability) on employees' engagement in their work. Their results supported Kahn's (1990) model by confirming that all three psychological conditions displayed significant positive relations with engagement, with meaningfulness as the strongest. Providing further support for Kahn's model, Oliver and Rothman (2007) investigated the antecedents of work engagement of employees in a multinational oil company (n=171). The results confirmed that meaningfulness and availability were significant predictors of work engagement. Meaningfulness again displayed the strongest positive relationship with engagement.

2.2.2 Engagement as burnout-antithesis

To define engagement, Maslach, Schaufeli and Leiter (2001) contrast engagement to burnout and argue that engagement is characterised by energy, involvement, and efficacy; the direct opposites of the three burnout dimensions of exhaustion, cynicism, and inefficacy. Burnout is characterised by high levels of exhaustion (the stress dimension of burnout) and cynicism (also termed depersonalisation, which refers to the tendency of humans to distance themselves both cognitively and emotionally), and low levels of professional efficacy (reduced personal accomplishment). Hence, employee engagement is characterised by energy, involvement, and efficacy, being the antithesis of burnout (Maslach et al., 2001).

2.2.3 Work engagement

Building on the work of Maslach et al. (2001), Schaufeli, Martinez, Marques Pinto, Salanova and Bakker (2002) argue that work engagement is an independent, distinct concept that is negatively related to burnout. They define engagement as "a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption" (p. 74). Vigour is defined by Schaufeli et al. (2002, p. 74) as "high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties". Dedication is characterised by "sense of significance, enthusiasm, inspiration, pride, and challenge" (p. 74). In the work context dedication will therefore refer to being involved and devoted to your work. Absorption is defined as "being fully concentrated and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with

detaching oneself from work" (Schaufeli et al., 2002, p. 74). In short, engaged employees have higher levels of energy and are enthusiastic about their work. Moreover, they are often fully immersed in their work to such a degree that time seems to pass quickly (May et al., 2004).

From an organisational perspective it could be argued that it is more plausible for organisations to influence the work-based antecedents of engagement; as opposed to personal antecedents of engagement. As such, this diagnostic study will focus on the theoretical underpinnings of the work-based antecedents of engagement. The Job Demands – Resources Model (JD-R) of work engagement by Bakker and Demerouti (2007) provides a comprehensive view of the work-based antecedents of work engagement and has consequently been selected as foundation of this study. As such, this model is discussed in more detail in the following section.

2.3 Job Demands and Resources model of work engagement

The JD-R model of Bakker and Demerouti (2007) examines the impact of job demands and job resources on work engagement. The Job Demands and Resources model (JD-R model) assumes that two underlying psychological processes play a role in the wellbeing of individuals: an effort-driven process in which excessive job demands and a lack of job resources lead to distress, and a motivation-driven process in which job resources lead to work engagement (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Schaufeli & Bakker, 2004). According to the JD-R model, job demands are initiators of a health impairment process and job resources facilitate work engagement while buffering any potential negative effects that job demands may have on employee wellbeing (Demerouti & Bakker, 2011).

The JD–R model explains that every occupation has its own specific factors associated with stress and/or engagement and these factors can be classified into job demands and job resources. Demerouti and Bakker (2011) explain that the JD-R model can be applied to various occupational settings, irrespective of the specific demands and resources involved. In other words, the specific job resources or demands will differ between different occupational settings, but the outcomes thereof will remain the same (either burnout or engagement). This view is supported by Rothmann, Mostert and Strydom (2006). They emphasise that the environments in which employees in different organisations find themselves vary, therefore it could be expected that the job demands and resources as perceived by staff members of different industries and companies will also vary.

To further clarify the components of the JD-R model a clearer understanding of the constructs job demands and job resources are required and these are explained in more detail in the following sections.

2.3.1 Job resources

Deci and Ryan (1985) proposed that job resources can play an intrinsic and extrinsic motivational role in the work place. Intrinsically, job resources foster an employee's growth, learning and development, and fulfil basic human needs such as need for autonomy, relatedness and competence (Deci & Ryan, 1985; Ryan & Frederick, 1997). This intrinsic motivational potential of job resources is also recognised by the Job Characteristics Theory (Hackman & Oldham, 1980). Extrinsically, job resources are instrumental in achieving work goals. Resourceful work environments create a willingness to dedicate efforts and abilities to the work and thereby increase the likelihood of tasks being completed successfully (Meijman & Mulder, 1998).

According to Bakker and Demerouti (2007); Schaufeli and Bakker, (2004) and Schaufeli and Salanova (2007) job resources refer to physical, social, or organisational aspects of the job that may:

- reduce job demands and the associated physiological and psychological costs;
- be functional in achieving work goals; and
- stimulate personal growth, learning, and development.

Therefore resources are not only necessary to deal with job demands, but they also are important in their own right.

Demerouti and Bakker (2011) as well as Schaufeli and Bakker (2004) argue that job resources may be located at the organisational level (e.g. remuneration, career opportunities, job security), the interpersonal level (e.g. relationships with colleagues and supervisors), the specific job role (e.g. role clarity, participation), and at the task level (e.g. skill variety, task significance, autonomy, and performance feedback). Bakker and Demerouti (2007) as well as Schaufeli and Salanova (2007) have demonstrated consistently in various studies that job resources (regardless of the specific resource) are positively associated with work engagement.

Schaufeli and Bakker (2004) verified a positive relationship between three job resources (performance feedback, social support, and supervisory coaching) and work engagement

among four different samples of Dutch employees. In a study that replicated their work, Hakanen, Bakker and Schaufeli (2006) report that job control, information, supervisory support, innovative climate and social climate were all positively related to work engagement while Roberts and Davenport (2002) state that career development, identification with the organisation and a rewarding work environment increased the work engagement levels of employees. It could be surmised from these studies that employees will be more engaged if the organisation provides them with opportunities to enhance their skills and abilities, and to manage their careers.

Longitudinal research also confirmed the positive relationship between job resources and work engagement. Mauno, Kinnunen and Ruokolainen (2007) utilised a two-year longitudinal design to investigate work engagement and its antecedents among Finnish healthcare personnel. Their results indicated that job resources predicted work engagement even better than job demands did. In another longitudinal study Barbier, Hansez, Chmiel, and Demerouti (2013) investigated the impact of performance expectations, personal resources and job resources on work engagement in a sample drawn from a Belgian public institution (n=473). Research results indicated that an increase in job and personal resources predicts higher future work engagement. Furthermore, although both types of resources were predictive of work engagement, job resources had a more consistent impact on work engagement over time than personal resources. Within the South African academic context, Barkhuizen and Rothmann (2006) verified that the increased availability of job resources lead to higher levels of work engagement among South African academics over time.

In a related job resources model, the Conservation of Resources Theory (COR), originally developed by Stevan Hobfoll in 1989, explains the coping process involved during the loss of resources. In the COR theory resources are seen as any object, personal attribute, condition or energy that is valued in its own right (e.g. self-esteem, close-attachments and health) or that are valued because they facilitate the attainment or protection of other resources (e.g. money, social support and credit) (Diener & Fujita, 1995). The COR theory then assert that individuals endeavour to obtain, retain, and protect resources, and that individuals with more resources are less vulnerable to loss of resources and more capable of facilitating resource gain (Hobfoll, 2001). When an individual's resources are lost (or even threatened with loss), or resource gain is not sufficient, the individual will experience stress (Hobfoll, 1988). Resources are consequently seen as positive because they contribute to success and protect against stress (Hobfoll, 2002).

From the results of the abovementioned studies on job resources it is surmised that job resources have an important impact on work engagement, regardless of what the specific job resources are (Bakker & Demerouti, 2007; Schaufeli & Salanova, 2007); and companies can make use of a variety of possible job resources to attempt to enhance work engagement.

2.3.2 Job demands

Bakker and Demerouti (2007) explain that job demands represent characteristics of the job that could lead to strain when they exceed the employee's adaptive capability. Job demands refer to aspects of a job that require continuous physical and/or psychological effort and are associated with certain physiological and/or psychological costs, such as strain and burnout. Meijman and Mulder (1998) explain that job demands turn into job stressors when they require continuous levels of high effort from which the employee struggles to recover. Consequently, excessive job demands deplete employees' mental and physical resources (Schaufeli, Bakker & Van Rhenen, 2009), and may lead to the exhaustion of energy and to health problems (Demerouti, Bakker, De Jonge, Janssen & Schaufeli, 2001). Examples include high work pressure, mental and emotional load, uncertainty, an unfavourable physical environment and irregular working hours (Bakker & Demerouti, 2007).

Literature provides evidence that job demands have a negative impact on work engagement. Schaufeli and Bakker (2004) report that job demands such as work overload drain the employee's energy and, in an attempt to cope with the resulting exhaustion, the employee withdraws mentally. When employees withdraw mentally, their work engagement levels decrease. Schaufel and Bakker further indicate that job demands can lead to burnout, which in turn impacts on the work engagement of employees. Van den Broeck, De Cuyper and De Witte (2010) concur that some job demands are considered to be obstacles that deplete employees' energy. When confronted with such job demands employees feel a lack of control, experience negative emotions, and as a result tend to adopt an emotion-focused coping style. Schaufeli and Bakker (2004) suggest that the effects of high job demands may be reduced by job resources, such as providing feedback, social support and leader/manager guidance and support.

It should be noted that job demands are not necessarily always negative. Although job demands require energy, they also contain potential gains. Cavanaugh, Boswell, Roehling and Boudreau (2000) posit that certain job demands can in fact appeal to employees' curiosity, competence, and thoroughness. These job demands also induce a problem-

focused coping style that will consequently contribute to the achievement of work goals. Therefore, job demands can potentially contribute to the growth and development of employees and subsequently have been labelled “job challenges”. These job challenges include job characteristics such as workload, time pressure, and cognitive demands (Cavanaugh et al., 2000). Further evidence of the potential positive outcomes of job demands indicated that emotional overload is to some extent positively related to vigour and dedication (Llorens, Bakker, Salanova & Schaufeli, 2006) as well as dedication and absorption (Schaufeli & Bakker, 2004). Further to this, Mauno et al. (2007) report that time demands predicted high absorption and that positive relations can exist between certain job demands and work engagement.

From the results of the abovementioned studies on job demands it is deduced that despite some potential positive consequences of job demands (when those job demands are experienced on reasonable levels) job demands mostly do have a negative impact on work engagement (Schaufeli and Bakker, 2004), and therefore are likely to have a negative impact on the work engagement of nursing practitioners.

The conclusion that both job resources and job demands influence work engagement support the intended contribution of this study. Identifying those specific job resources and demands that influence work engagement of nursing practitioners can support the development and implementation of dedicated action plans and solutions which can in turn help alleviate the nursing shortage. Further empirical evidence of the Job Demands and Resources model is provided in the following section.

2.3.3 Empirical evidence related to the Job Demands and Resources model of work engagement

A number of studies have reported on the relationship between job demands, job resources, and work engagement as proposed by Demerouti and Bakker (2011). A selection of these studies and their findings are presented in the following paragraphs as an illustration of the wide application of the JD-R model in various industries and methodologies as well as the use of the JD-R model as a point of departure in work engagement and related studies.

Rothmann and Joubert (2007) empirically investigated the relationship between job demands, job resources, burnout and engagement of employees at a platinum mine in the North West Province of South Africa. The cross-sectional study included a sample population of managers (n=310) employed at the time. Results indicated that wellness,

vigour and dedication were positively related to job resources (a result of organisational support and advancement opportunities) and confirmed that the lack of job resources were related to disengagement.

The generational perspective on job demands and job resources in the nursing profession was the focus of Lavoie-Tremblay, Trépanier, Fernet and Bonneville-Roussy (2013). They suggested that nursing management can enhance the health and well-being of nursing staff by firstly, providing a wide variety of resources to counteract demands and secondly, by matching these resources to the different needs and expectations of different generations of nurses. These results highlighted the importance of resources variety, irrespective of the nature of the resources. Further to this, emotional resources and demands seemed to be particularly prominent as it was found to buffer the effects of strain and promote well-being (Lavoie-Tremblay et al., 2013). Although this study used the Demand-Induced Compensation (DISC) model of De Jonge and Dormann (as cited in Lavoie-Tremblay et al., 2013) as point of departure, specific reference is made to the fact that the results are in line with the Job-Demands and Resources Model in that the results provide supportive evidence that job demands buffers job resources in the experience of work engagement.

Brauchli, Schaufeli, Jenny, Füllemann and Bauer (2013) used the Dynamic Equilibrium model first proposed by Heady and Wearing (1989) to extend the Job Demands and -Resources model. The Dynamic Equilibrium model proposes that each individual has a personal “normal” pattern of life events and a “regular” psychological symptom level, based on the assumption of stable person characteristics and stable environmental conditions. External forces (such as a supervisor's critique or risk of retrenchment) cause temporary changes in these normal life patterns and regular psychological symptoms. These disruptions are only temporary because internal adaptive processes will help the individual to return to his/her normal patterns and regular characteristics. The stronger these individual adaptive processes that maintain the equilibrium, the less impact external forces have and therefore the larger the stable component is (Heady & Wearing, 1989). In accordance with the Stability and Change model Brauchli, et al. (2013) assert that the core factors of the JD-R model (job demands, job resources, and work engagement) have a stable (i.e., trait-like, time-invariant) component as well as a changing (i.e., state-like) component that fluctuates across time. The Stability and Change model consequently allowed a framework for the examination of the stable and changing components of the JD-R model by studying the relationships between job demands and resources and work engagement when controlling for the time-invariant stability of all measures involved. The results of Brauchli, et al.'s longitudinal study (n=1038) indicated that the stable component accounts for 48 – 69% of

the total variance in job resources, and 30 – 35% of the total variance in job demands. They also noted that 54 – 66% of the variance in work engagement is accounted for by a stable component. Hence, compared to the job demands, job resources and work engagement seemed to be more stable. They also detected significant relationships between the changing components of job resources and job demands on the one hand and work engagement on the other. These findings strengthen the validity of the assumptions of the Job Demands- and Resources Model.

Further support for the JD-R model is found in the results of Van den Broeck, De Cuyper, Luyckx and De Witte (2011) who conducted a study aimed at validating the Job Demands and Resources model by using a person-centred approach. According to Laursen and Hoff (2006) a person-centred approach to research is used to identify groups of individuals who share particular attributes or relations among attributes and it is well suited to address questions that concern group differences. Van den Broeck et al. (2011) conducted a two-step cluster analysis in a sample of 307 Flemish community employees for four types of employee profiles: demanding (high demands, low resources), resourceful (low demands, high resources), poor (low demands and low resources) and rich (high demands and high resources). The results indicated that employees in demanding type jobs had low work engagement. Employees in both resourceful and rich type jobs had the highest levels of work engagement. These findings are consistent with the JD-R model.

Because the JD-R model has been tested primarily with small, cross-sectional, European samples, Brough et al. (2013) extended available research by evaluating the JD-R model for the prediction of psychological strain and work engagement, within a longitudinal research design with samples of Australian and Chinese employees (n=9404). Their results confirmed that job resources accounted for substantial variance in work engagement. However, the results indicated that only 13% of the significant interactions between job demands and job resources tested within the cross-sectional analyses were statistically significant. The research, therefore, produced minimal support for the moderating effect of job demands in the relationship between job resources and engagement as proposed by the Job Demands and Resources model.

From the preceding discussion it is evident that the Job Demands and Resources model (JD-R) of work engagement of Bakker and Demerouti (2007) provide a comprehensive view of the antecedents of work engagement and that it will therefore provide a solid foundation for a diagnostic evaluation of nursing practitioners work engagement. The use of the Job Demands and Resources model (JD-R) for this research study is therefore justified.

2.4 Outcomes of work engagement

As mentioned earlier, the engagement of current nursing staff, in particular the younger generation nursing staff members, is crucial to ensure a sustainable nursing workforce, and as a result a sustainable healthcare system. To clarify how the healthcare system can benefit from an engaged workforce a brief overview of some the outcomes of work engagement is discussed in the following paragraphs.

Various studies have described an array of positive influences of work engagement on organisational outcomes. Demerouti et al. (2001) explain that engagement holds numerous benefits for the organisation and creates a sense of wellbeing for the employee. Galpin et al. (2006) specifically identified reduced absenteeism, greater employee retention, increased employee effort and productivity, reduced error rates, increased sales, higher profitability, enhanced customer satisfaction and loyalty, and faster business growth as outcomes of work engagement. Schaufeli et al. (2002) posited that engaged employees have high levels of energy and self-efficacy. They explain that engaged employees can feel tired after a long day at work but they would describe their tiredness as satisfying because it is associated with a sense of accomplishment. They further proposed that engaged employees tend to work harder than non-engaged employees because they are immersed in their work, enjoy their work and experience their work as fulfilling. Lowe (2012) and De Lange et al. (2008) reported that work engagement is a predictor of intention to quit or stay. Schaufeli and Bakker (2004) hold a similar view in that engaged employees are likely to have a greater attachment to their organisation and consequently are less likely to leave their organisation. Bakker, Demerouti and Brummelhuis (2012) concur; employees who are engaged are more likely to stay with their current organisation and stay committed to their organisation.

In terms of business outcomes, Cook and Green (2011) found that work engagement positively affect operating income, operating margin, net profit margin, employee retention, absenteeism and quality errors, providing evidence that engaged employees can have a significant positive effect on the organisation's success. Burud and Tumolo (as cited in Attridge, 2009) also indicated positive correlations among the implementation of more human capital practices that specifically emphasise work engagement and various measures of overall financial success of the company.

The impact and outcomes of work engagement have also been studied in the healthcare industry. Freeney and Tiernan (2009) stated that companies that have a policy of building engagement experience a decrease in the levels of burnout and a reduction in absenteeism

(and therefore also a reduction in health services costs). Further to this, they observed that engagement is linked to superior performance, which will improve the efficiency and quality of care within the healthcare service. A qualitative investigation among Danish midwives (Engelbrecht, 2006, p. 153) alluded to how engagement translated into positive work behaviour. Participants were interviewed and asked to describe a highly engaged colleague. Descriptors included "... radiates energy and keeps up the spirit at the ward, especially in situations where work morale is low and frustration spreads", "... willing to do whatever needs to be done", "... a source of inspiration for herself and her colleagues"; and "... she has a positive attitude towards her work and is happy for the things she is doing. The love for her job is expressed through the passion with which she fulfils her daily tasks". Similar emotional and behavioural attachments to their job and the organisation were reported by Lowe (2012) in that healthcare workers experienced pride, valued congruence and experienced job satisfaction and enthusiasm. He elaborates by explaining that engaged employees have a positive impact on patient experience and workforce costs associated with turnover.

Given the positive impact that engaged employees have on companies, colleagues and clients, an in-depth understanding the antecedents of engagement within the nursing industry can assist and support human resources functions to tailor employee practices and processes to enhance work engagement. Increasing the overall engagement of nursing practitioners can potentially influence the ultimate objective of addressing the nursing shortages that is currently curbing the healthcare industry in South Africa.

2.5 Work engagement within the nursing profession

According to Freeney and Tiernan (2009) work engagement in nursing is still inadequately understood. They suggested that further studies into the work engagement of nursing practitioners is necessary to gain an understanding of which engagement antecedents can be capitalised on to positively influence healthcare industries, providing further support for this study.

Work engagement in nursing is becoming strategically important due to three fundamental factors currently at play in the healthcare industry namely; the global shortage of nurse practitioners, the continuous focus on reducing the growth of healthcare cost in industrialised nations and high medical error rates currently threatening the quality of nursing care (Bargagliotti, 2011).

Freeny and Tiernan (2009) argue that the most prominent barriers to engagement in the nursing profession are a heavy workload, lack of control, insufficient rewards, unfair treatment, lack of community and support, and incongruent values. The perceptions of heavy workload are partially due to nursing shortages and the large amount of administrative paperwork that nursing staff have to complete on a daily basis. A lack of control is experienced when nursing staff is held accountable for patient health and safety without any real decision-making power or authority. Insufficient reward and perceived poor salaries lead to the perception that there is no incentive to invest time and energy in work or further training and development. Freeny and Tiernan further explain that nursing practitioners feel unfairly treated and undervalued (compared to other staff in the hospital), mostly due to a lack of facilities made available to nursing staff within the hospital. The perceived general absence of community and related lack of social support is reportedly due to managerial conflict and poor communication systems. Finally, incongruent values are experienced when nursing staff feel that the hospital is only run as a business, to the detriment of the patient. Running a hospital purely as a business conflicts with the nursing practitioners' desire to emphasise patient care (rather than cost saving for example).

The relationship between nursing practitioners' individual characteristics, job features and work engagement was the focus of Jenaro, Flores, Orgaz and Cruz (2010). Their results indicated that nursing managers experience significantly higher job stressors in comparison with non-managerial nursing staff members. Furthermore, they found evidence that satisfaction with job position, higher quality of working life, lower social dysfunction and lower stress associated with patient care were significant predictors of work engagement (specifically vigour and dedication). Surprisingly, they did not find supportive evidence of relationships between length of service or professional nursing categories and work engagement. The current study could add additional value by clarifying these relationships by investigating the potential impact of nursing categories on the antecedents of work engagement of nursing practitioners.

The literature described above (specifically related to nursing practitioners and work engagement) provide support for the proposition that work engagement of nursing practitioners are currently below optimal levels. Furthermore, nursing categorising could possibly play a significant role in these low levels of work engagement.

2.6 Work engagement and age

Gilbert (2011) states that when it comes to work engagement, age differences do exist and it is important that employers adopt the belief that, in order to sustain prolonged engagement and decrease the intention to quit among their employees, they must understand and carefully manage the engagement drivers and threats. This viewpoint is supported by Pitt-Catsouphes and Matx-Costa (2008) who suggests that age may be an important factor for employers to consider when they assess different options for increasing engagement of employees. According to Gilbert (2011) organisations typically manage work engagement with policies and initiatives that do not differentiate between different age groups of employees. This could possibly be an outdated approach that will have to evolve as the younger employees enter the workforce and the older generations retire. Human resources functions will need to develop or update work engagement policies and practices that are more suitable for various age groups in order to engage their entire workforce (Gilbert, 2011).

When it comes to engagement and age, companies need to consider that engagement is a measure where inputs vary in the overall engagement equation across organisations (Gilbert, 2011). Therefore, one company cannot imitate the engagement practices of another company and expect similar results. Consequently, it is the responsibility of human resources functions to know and understand what the specific antecedents to work engagement within their company and industry are for each age cohort. The purpose of the following sections is to build an understanding of the differences in engagement of nursing practitioners of various ages as depicted in literature.

2.6.1 The current work force

The workforce has evolved significantly in terms of age, gender, ethnical and racial compositions over time. These changes had a dramatic impact on the nature and operations of organisations, especially in terms of human resources management practices (e.g. recruitment and selection, and training and development) (Murphy, Gibson & Greenwood, 2010; Myers & Sadaghiani, 2010).

A brief glance at the vast array of available research that focus specifically on the impact of different age cohorts currently in the workplace make is clear that this field of research is popular. A 'generational cohort' is a group of people who have similar birth years, history and shared life experiences who consequently also share similar attitudes, emotions, beliefs, values and preferences towards work and career (Arsenault 2004). The three major

generations in today's workforce include Baby Boomers, Generation X and Generation Y (Duchscher & Cowin, 2004). A fourth generation, called the 'matures' or 'veterans' was born before the year 1945 (Alsop, 2008) and is consequently mostly retired and therefore not viewed part of the active workforce for the purpose of this study.

Baby Boomers are individuals born between 1945 and 1964. They typically value promotion, status and personal growth (Bell & Narz, 2007; Kupperschmidt, 2000,) and are known for their loyalty to their employer and strong work ethic (Alsop, 2008; Sherman, 2006).

Individuals that form part of the Generation X cohort were born between 1965 and 1980 (Alsop, 2008). Generation X is known to be self-reliant, adaptable, entrepreneurial and resourceful (Alsop, 2008). They prefer work environments that are less hierarchical which provide more autonomy (Bell & Narz, 2007; Kupperschmidt, 2000). Furthermore, they tend to place lower value on work itself and are unwilling to sacrifice their personal lives for a career (Krug, 1998).

Generation Y, born between 1980 and 2000, generally dislike hierarchy and therefore has difficulty relating to superiors and are less likely to accept the leadership of a supervisor purely based on positional power. They have also been reported to be overly entitled and impatient (Alsop, 2008). However, they are more confident, achievement-oriented, technology-savvy, career-oriented and optimistic in their outlook about life than Generation X and Baby Boomers (Hart, 2006).

Weston (2001) explained that the differences in the values and attitudes of employees of different age cohorts could be due to the impact of the transformation of typical workplace structures on employees. He argues that traditionally, different age groups were separated by a distinct chain of command with the more experienced workers as supervisors and managers and the younger workers as juniors. More recently organisations are characterised by flatter structures where age-diverse teams work together and younger employees are more inclined to argue their point, make demands and voice their opinions (Weston, 2001).

Spiro (2006) predicted that Generation Y will most likely be one of the greatest assets of organisations today. However, many organisations are failing to formulate strategies to recruit and especially to retain this talent. According to Carlsson (2010), while in the past organisations had to design human resources processes to accommodate older generations

in order to remain successful and sustainable, it is suggested that a bigger emphasis on the needs and expectations of young employees should be the current focus.

Given the unique characteristics, values and expectations of employees of different age groups it is hypothesised that nursing practitioners of different ages will likely not experience the same level of engagement, and that their perceptions of the job demands and resources pertaining to their job and profession will vary.

2.6.2 The impact of age on the engagement of the nursing workforce

Research on the impact of different generations at work has grown, including within the nursing literature (Apostolidis & Polifroni, 2006; Wieck, Dols, & Northam, 2009). Although the generic characteristics of the young workforce are well documented, specific characteristics of young nurses have not been clearly defined. There is limited empirical information regarding what attracts young people to the nursing profession and what retains them (Hutchinson, Brown & Longworth, 2012). Lower (2008) concurs that there is still uncertainty in terms of what will retain young nurses and whether nursing managers are capable of achieving the adjustments necessary to engage and retain them.

A few studies did provide some evidence of workplace expectations of young nursing practitioners. Walker (2006) posits that young nursing staff members seek fair remuneration and opportunities for ongoing professional development which support their career aspirations. Because they are used to technology and adept at using it, they also seek a workplace that is technologically advanced. Furthermore, they want to utilise the communication tools that they are familiar with socially in the workplace to fulfil job-related duties where applicable. Steward (2006) reported that creating a positive public image, improving financial and non-financial rewards, increasing job satisfaction, and providing appropriate role models and mentors are strategies that nursing managers are implementing to retain the younger nursing staff members. Unfortunately the success of these strategies was not reported on.

Because workplace expectations seem to be different for nursing practitioners of various ages it seems plausible that they will experience their work and work environment differently. In a study by Tunc and Kutanis (2009) that focused on the burnout of nursing staff of various ages (n=251) it was established that the younger participants had higher levels of burnout compared to the older healthcare professionals. They explain that older age is usually associated with more experience to handle organisational stress factors and exhibit adaptive

strategies. Additional insight is provided by Lavoie-Tremblay et al. (2008) in that young nursing practitioners feel that they are marginalised based on perceptions that older generations reject their ideas, suggestions and unique characteristics. This leads to increased levels of stress and burnout in the younger generation nursing practitioners.

As mentioned earlier, the IpsosMarkinor (2010) study in a private healthcare organisation in South Africa revealed that a mere 16% of staff members found to be fully engaged was under the age of 30. This figure supports the premise that young employees tend to be less engaged than older generations within the nursing environment. Although evidence of the specific engagement drivers of nurses of different ages is scarce Pellico, Brewer and Kovner (2009) report distinct differences in how young nurses and older nurses perceive their work environment. They posit that younger nurses perceive job demands and job resources differently and experience strain differently than older generation nurses. In comparison with older nursing staff the younger nurses find their workplace too demanding in terms of patient-nurse ratios and mandatory overtime.

Given their characteristics it could be postulated that young employees tend to be less engaged than their older counterparts in organisations. Young employees have very unique expectations from employers, and will therefore also react differently to job demands and job resources than older generations (Tunc & Kutanis, 2009). Further research regarding the young nursing workforce is vital given the current nursing shortage and the threat of further workforce reduction as the older generations prepare to retire (Hutchinson et al., 2012). The lack of empirical literature demonstrates the need for more detailed research regarding the young nursing workforce and what is likely to engage them at work. Because an engaged workforce is one of the key drivers to organisational success it is in the organisation's interest to develop an understanding of the variables that will impact work engagement, especially those of younger employees. It is therefore a further objective of this study to firstly confirm or reject the hypothesis that the work engagement of younger nursing practitioners will be lower than that of older nursing practitioners, and secondly to determine which specific job demands and job resources best explains this difference. In other words, are there significant differences in how nursing practitioners of different age groups experience specified job demands and job resources?

2.7 Diagnostic model for this study

Because the objective of this study is to identify and diagnose the discrepancy between high and low levels of work engagement of nursing practitioners, the use of a comprehensive diagnostic model that elucidates a wide spectrum of the potential antecedents that affect work engagement is needed. Thus, the specific job demands and job resources as antecedents to work engagement proposed by Rothmann and Jordaan (2006) (based on the model by Bakker & Demerouti, 2008) have been selected as theoretical foundation for this study. This model has been selected firstly, because it is regarded as theoretically sound; and secondly, because the variety of job resources and job demands included in this particular model covers a very comprehensive spectrum of antecedents that is highly likely to influence work engagement of nursing practitioners. This model will therefore sufficiently support a detailed diagnostic investigation.

Figure 1 depicts the JD-R model of work engagement proposed by Rothmann and Jordaan (2006) that has been adapted from the model proposed by Bakker and Demerouti (2008, p. 218). Note that the JD-R model was not illustrated graphically in Rothmann and Jordaan (2006). As illustrated in Figure 1, it is proposed that eleven specific job resources initiate a motivational process that leads to work engagement. Furthermore, these eleven job resources buffer any potential negative effect that five identified job demands may have on work engagement. The construct of work engagement as viewed by Schaufeli et al., (2002), is included in the model as outcome, where work engagement is characterised by vigour, dedication, and absorption.

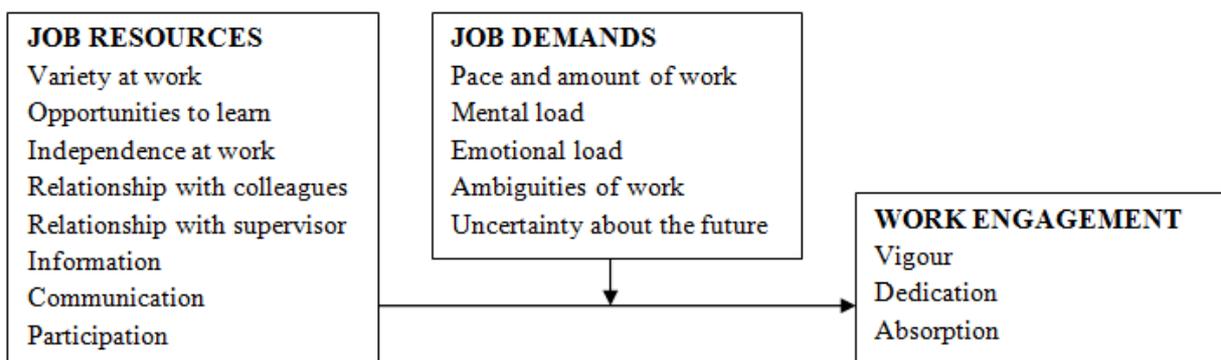


Figure 2.1. The Job Demands and Resources Model

(Adapted from Rothmann & Jordaan, 2006)

In the following sections, each of the identified job demands and resources within this model will be discussed and applied to build the diagnostic hypotheses that support the objectives of this study.

2.7.1 Variety at work

Lambert, Hogan, Dial, Jiang, and Khondaker (2012) explain that variety at work gives employees an opportunity to use new skills, have new and different experiences, and grow and develop in their jobs. Broadening the scope of experiences at work can be a very/an extremely positive experience for employees, which in turn have positive outcomes for the employer. Monotonous and repetitive job responsibilities can potentially have a negative impact on the psychological conditions of employees, leading to frustration and job dissatisfaction over time (Lambert et al., 2012).

Although literature that specifically addresses the relationship between variety at work and work engagement seem to be limited, the positive outcomes of work variety have been reported (Schaufeli & Bakker, 2004). In a study on burnout among Finnish employees (n=511) conducted by Hakonen, Bakker and Jokisaari (2011) it was established that skill variety as a job resource is negatively associated with burnout (with burnout considered as the antithesis of engagement by some researchers, e.g. Maslach et al., 2001). Hakonen et al. (2011) proposes that the results of their study indicate that employees who are provided with an opportunity to use different skills at work experience higher levels of meaningfulness, which in turn increase motivation and satisfaction and decrease the probability of negative outcomes such as burnout. Mayfield (2013) believes that when employees apply a variety of skills in diverse situations they become more competent at identifying the required skills that are appropriate in specific situations. The ability to apply different skills in diverse situations will most likely not be limited to the job context, but could extend to situations that fall outside of the role prescription which is advantageous to both the individual and the company. Advantages pertaining to the individual include increased meaningfulness in work and higher-order need satisfaction (Mayfield, 2013).

At first glance, the presence of variety in the nursing environment seems evident due to the different nursing disciplines (oncology, obstetrics, paediatrics, surgical, critical care, to name but a few) and the variety of diverse people a nursing practitioner will come into contact with on a daily basis. However, one needs to keep in mind that most often a nursing practitioner is likely to function within one discipline (a specific unit in the hospital) on a more permanent basis. Although nursing staff are generally not prevented from functioning in different units or areas of specialty there is a perception that it is better for relationship building (within teams), more convenient (in terms of staff scheduling), and possibly more efficient (building experience and expertise within one discipline) to ensure that nursing staff members remain within one discipline of expertise for an extended period of time. Furthermore, senior

nursing staff members often formally specialise in specific disciplines and would therefore remain within a specific nursing discipline for the duration of their career at the hospital. These realities could limit the perceived variety of work that nursing practitioners experience, which is further compounded by the strict scope-of-practice, policies and procedures, which not only limit the type of tasks performed, but also prevent staff members from finding variety in the application of specific tasks. Although crucial for patient safety purposes, these work parameters are likely to limit a nursing practitioner's experience of variety at work. It is therefore postulated that the perceived lack of variety of work could potentially have a negative impact on the work engagement of nursing practitioners.

The possible impact of age on the experience of work variety of nursing practitioners is difficult to postulate, because it is less likely (based on their age) that young nursing practitioners have specialised or advanced to more senior nursing categories. In general nursing practitioners enter the work place before specialising in a specific discipline (those who do decide to specialise). It is not uncommon for younger nursing practitioners to request rotation between units or disciplines in order to gain variety in experience and decide on their area of preference (that could lead to higher levels of perceived work variety). When this request is granted by management the nursing practitioners might report favourably on their perceptions of variety within in the nursing profession. In contrast, because they are young, less experienced and unlikely to be specialised, the younger nursing practitioners could potentially be more restricted in terms of the scope-of-practice that applies to them which will limit variety at work. The consequence of this contradictory impact of age is the inability to predict the perceptions of young nursing practitioners on the variety that they are likely to experience at work.

2.7.2 Opportunities to learn

According to Holman and Wall (2002) learning opportunities at work advances the development of knowledge and skills, which in turn enable the employee to function more effectively at work and cope better with work demands. Learning opportunities stimulate the use of existing skills and the development of new skills. Ruysseveldt, Verboon and Smulders (2011) posit that the more opportunities employees have to learn the greater the likelihood of finding solutions to job-related problems at lower psychological costs. Morrison, Cordery, Girardi and Payne (2005) support this view. They elaborate by explaining that stimulating learning opportunities at work may be an important mechanism by which the adaptive skills of employees to cope with stressful work situations are developed. Rau (2006) concurs that that learning opportunities may reduce stress.

Literature corroborates the correlation between opportunities to learn and work engagement. In a South African study on the job demands and job resources as antecedents of work engagement of school educators (n=157), Main (2011) observed that growth opportunities display statistically and practically significant relationships with vigour, dedication and work engagement. Barbier et al. (2013) report similar results in a three-wave longitudinal study in a Belgian public institution (n=473). They established that opportunities for learning and development (as job resource in the JD-R model), predict higher work engagement (also future work engagement). In similar vein Xanthopoulou, Bakker, Demerouti and Schaufeli (2009) investigated the reciprocal relationships between job resources, personal resources, and work engagement and reported evidence that opportunities for development predicted future work engagement of employees working at an electrical engineering and electronics company in the Netherlands (n=163). Bakker and Demerouti (2008) argued one potential reason for the relationship between opportunities for learning and work engagement; they explain that opportunities for development stimulate work engagement due to the intrinsic motivation and need for competence.

Some opportunities to learn do exist in the nursing environment, although these opportunities are often limited to development in the nursing profession (for example, internal courses in specific nursing disciplines, on-the-job training, or short information sessions aimed at remaining up to date in their profession). Scope-of-practice restrictions can also again limit certain nursing categories from higher level learning opportunities, for example where a certain level of formal education is required in order to specialise in a specific nursing function. Furthermore, due to the current nursing shortage, which has been elaborated on earlier in this paper, it is often not possible to allow nursing staff members the time away from the patients' beds to attend longer, more comprehensive learning opportunities. Consequently nursing staff members of all ages frequently complain about the lack of opportunities to develop other skills, for example general managerial training. It is therefore postulated that the limited opportunities to learn could have a negative impact on the work engagement of nursing practitioners of all ages.

2.7.3 Independence at work

In literature independence at work is often referred to as job autonomy. Keenan (1999, p. 556) define autonomy as "... the exercise of considered, independent judgement to effect a desirable outcome". He argues that autonomy consist of five attributes, namely: independence, capacity for decision making, judgment, knowledge, and self-determination.

Various empirical studies have been conducted to assess the impact of independence at work on work outcomes. Mayfield (2013) argues that increased autonomy at work leads to increased enjoyment of work and consequently leads to favourable experiences and positive outcomes for the employee. Lambert (2004) concurs that autonomy has positive outcomes for the individual; he argues that when employees experience independence at work they are more likely to consider themselves in control of their work, and feel that their work output reflect their input. The consequences of these feelings include a sense of pride and accomplishment (Lambert, 2004). Further evidence of positive outcomes of independence at work was provided by Lambert et al. (2012). They state that when more autonomy is provided at work, employees are likely to experience a sense of empowerment and responsibility which in turn could motivate the employee to work harder and achieve more. In contrast a lack of independence can lead to feelings of not being in control and not being valued at work, which in turn lead to resentment, frustration and increased chances of suffering from burnout (Lambert et al., 2012). In the nursing context Iliopoulou and While (2010) studied the relationship between autonomy and job satisfaction of critical care nurses (n=431) in mainland Greece and established a positive moderate association between reported autonomy and job satisfaction.

In terms of the impact of independence at work on work engagement Lambert et al. (2012) reported that job autonomy had a significant negative relationship with burnout (viewed as the antithesis of work engagement) among prison staff (n=272). In similar vein, Bakken and Torp (2012) conducted a study on work engagement among industrial workers (n=121) and confirmed that control (in this study, control was closely related to “decision authority”) represented one of the most important job resources which can enhance work engagement. Further support of these findings is provided by Llorens, Schaufeli, Bakker and Salanova (2007). Their longitudinal study on work engagement also revealed a positive reciprocal relationship between job autonomy and work engagement. More specifically they found that job autonomy had a positive lagged effect on work engagement and work engagement had a positive lagged relationship with job autonomy. Additional evidence of the longitudinal relationship between autonomy of work engagement was provided by Xanthopoulou et al. (2009). Their results indicated that autonomy at work predicted future work engagement of employees working at an electrical engineering and electronics company in The Netherlands (n=163). The wide array of confirming studies thus provides convincing evidence of a positive relationship between independence at work and work engagement.

To ensure the safety of patients, the work that nursing practitioners do is mostly highly regulated. The clinical tasks that a nursing practitioner is allowed to execute are guided by a

strict scope-of-practice. General rules, policies and procedures also limit the decisions that nursing staff can make independently. In most cases the doctor will diagnose and prescribe treatment of patients, which the nursing staff is expected to execute, almost without question. Bauer (2010) posits that the autonomy of nursing practitioner practices is threatened by medical practitioner dominance and state practice regulation. Younger nurses report statistically significant lower levels of autonomy compared to their older counterparts (Iliopoulou & While, 2010). If one considers that younger employees are more often the juniors in a unit who are less likely to have completed specialised studies (based on their age), and is therefore more likely to be registered in a lower nursing category, it can be anticipated that they would report less autonomy at work.

Consequently, the evident lack of control that nursing practitioners has over job-related duties and the level of freedom that they have in making job-related decisions is likely to be low. It can therefore be hypothesised that the low levels of independence at work will have a negative impact on work engagement and that younger nurses will report lower levels of autonomy.

2.7.4 Relationships with colleagues

In literature, colleagues are mostly regarded as those employees who are at a similar level of hierarchy in an organisation. Collegial support is therefore likely to be perceived as informal because there is no formal authority relationship (Chiaburu & Harrison, 2008). Colleagues perform the same kind of work or complementary tasks and may provide situation-related support (Rousseau & Aubé, 2010).

Various researchers have empirically assessed the relationship between peer relationships at work and individual and organisational outcomes. Employees who are in effective collegial relationships have been reported to be more likely to give feedback, provide emotional support, assist each other and share information (Liden, Wayne & Sparrowe, 2000; Sherony & Green, 2002). These forms of collegial support are in turn related to affective commitment to the organisation (Liao, Joshi & Chuang, 2004), job satisfaction, job involvement, and job performance (Liden et al., 2000). When these behaviours occur the additional positive consequences include the reduction of employee stress, job dissatisfaction, and turnover (Sias, Smith & Avdeyeva, 2003). Furthermore, Wang and Walumbwa (2007) posit that supportive colleagues are more willing to assist their colleagues in personal affairs and to absorb extra work.

In the nursing context, Duddle and Boughton (2007) reported that effective professional relationships lead to job satisfaction and reduced staff turnover, which, according to Jackson, Mannix and Daly (2001) benefits workforce recruitment and retention. In contrast, ineffective professional relationships results in bullying or physical and psychological conflict (Farrell, 2001).

Turning to the effect of positive relationships with colleagues on work engagement specifically, Main (2011) reported that relationships with colleagues (between school educators) indicated a practically and statistically significant relationship with vigour, dedication and absorption as separate dependent variables, but also to the total engagement (as dependent variable). Support for this finding is found in the work of Bakken and Torp (2012). Their study on work engagement among industrial workers (n=121) revealed that collegial support represented one of the most important job resources for work engagement and wellbeing at work. Ducharme and Martin (2000) as well as Parris (2003) concur that the support from colleagues, which includes the provision of tangible aid and information, leads to emotionally satisfying work experiences which facilitates the development of an emotional attachment to the employer. This emotional attachment can influence work engagement over time. It can thus be argued that relationships with colleagues influence work engagement both directly and indirectly.

As in any other industry the experience in terms of relationships with colleagues will likely be very different from team to team and individual to individual. People have different value systems, experiences, personalities etc. that will impact on how they interact with colleagues and influence the way that people experience colleagues. Consequently it is not possible to make an accurate forecast of the quality of relationships in the nursing industry. It is noteworthy however, that the nursing shortage could potentially impact the availability of time to interact with colleagues as it is well-known that nursing practitioners occasionally sacrifice break times in order to attend to patients. Interestingly, it is possible that age and rank could play a significant role in the lack of meaningful relationship building in the nursing environment. One contributing factor could be the somewhat "militaristic" environment due to the prevalence of formal and informal rank (based on nursing category and in some cases age). Younger nursing staff members in particular will more likely experience it challenging to build professional, supportive relationships with peers who are their seniors in terms of age and rank. It is thus hypothesised that where relationships with colleagues are not positive, work engagement is likely to be lower for nursing practitioners of all ages.

2.7.5 Relationships with supervisor

Frank, Finnegan and Taylor (2004) suggest that first-line supervisors are particularly important for building engagement and poor relationships are often at the root of employee disengagement. According to Lambert (2004) supervisors should be supportive of employees, help them achieve higher levels of success and create a positive job experience. Rousseau and Aubé (2010) concur and elaborate; they explain that because supervisors are in a position of authority the type of support provided by supervisors is usually formal interventions aimed at sustaining employees' functioning in the organisation. Further support of this viewpoint is provided by Rafferty and Griffin (2004). They elaborate that supervisor support entails caring about employees, valuing their contributions, helping them on work-related issues, and facilitating their skill development, which will create positive work experiences.

Leader-member exchange theory (Cropanzano & Mitchell, 2005) argues a unique point of view in terms of supervisor-employee relations. According to leader-member exchange theory, supervisors often manage employees differently which over time leads to different outcomes for each employee, depending on the quality of the interactions or 'social exchanges' (Farr-Wharton, Brunetto & Shacklock, 2011). The outcome of managing employees differently is the development of 'in-groups' and 'out-groups'. The 'in group' experiences higher quality social exchanges which leads to mutual trust, respect and support, better access to information and shared decision-making (Gerstner & Day 1997, Mueller & Lee, 2002), regardless of their performance (Graen & Uhl-Bien, 1995). The possible tangible benefits that the in-group gains as a result of the positive relationship includes promotions and bonuses; whereas potential intangible benefits include interesting work assignments, coaching and mentoring from the supervisor and greater control over workloads. When employees receive these benefits from a supervisor they are more likely to reciprocate by showing higher levels of work engagement (Xanthopoulou et al., 2009). Consequently the supervisor also benefits through higher levels of engagement, esteem and loyalty (Basu & Green 1995). In contrast, the 'out-group' will participate in less social exchanges with the manager, which is likely to be of lower quality, resulting in decreased levels of support, empowerment, and consequently engagement (Farr-Wharton et al., 2011).

Although literature that specifically address the correlation between relationships with supervisors and work engagement seems to be rather limited, the positive organisational and individual outcomes of an effective professional relationship with the direct supervisor

have been reported. Kuvaas and Dysvik (2010) explored the alternative relationships between perceived investment in employee development, perceived supervisor support and employee outcomes in a cross-sectional survey among employees from a Norwegian telecommunications organisation (n=331). Their results indicated that the relationship between perceived supervisor support and employee attitudes was partially mediated by perceived investment in employee development. Furthermore, perceived supervisor support moderated the relationship between perceived investment in employee development and work performance. Rousseau and Aubé (2010) turned the focus to how relationships with supervisors influence affective commitment, as another possible positive organisational outcome. They investigated the effect of colleague and supervisory support on affective commitment (Canadian health care workers; n=215). Results specified that supervisor support is not only directly related to affective commitment, but it appears that supervisors' support contributes even more (than support from colleagues) to the strengthening of employees' emotional attachment toward the organisation.

In a work engagement related study Xanthopoulou et al. (2009) investigated the reciprocal relationships between job resources, personal resources and work engagement. The results indicated that employees, who experience high-quality feedback from supervisors (one example of supervisory support) as a form of job resource, are intrinsically motivated to achieve their work goals. Consequently they show higher levels of work engagement and are likely to be vigorous, dedicated, and absorbed in their work tasks over the course of time.

A typical unit structure in a hospital consists of a team of nursing practitioners from a variety of nursing categories reporting directly to a unit manager. The staff compliment within one unit can vary from as little as two or three staff members to over 30 staff members, depending on the discipline of the unit and general size of the hospital. Where a unit has a very large staff compliment, one could presume that giving individual attention to each staff member could be a real challenge for the manager. This very limited opportunity for meaningful personal interaction, feedback, and recognition will likely influence the quality of relationships with management, which will in turn impact the work engagement of nursing practitioners. It can thus be hypothesised that where relationships with supervisors are not positive, work engagement is likely to be lower for nursing practitioners of all ages.

2.7.6 Information

Providing information is a key factor in ensuring that employees are clear and certain about job-related expectations. According to Rigopoulou, Theodosiou, Katsikea and Perdakis (2012) the typical information employees require at work include information on job-related objectives, performance standards, and supervisor's expectations.

To provide some more background regarding the positive outcomes of receiving information at work, Challagalla and Shervani (1996) suggest that employees need to experience a sense of control in order to be engaged and satisfied at work. They propose that three types of information provided to employees can facilitate a sense of control namely; activity information, capability information, and output information. *Activity information* involves stipulating routine activity goals, monitoring employees, and providing feedback on activity performance. By stipulating performance expectations and monitoring employees accordingly, communication between employees and their supervisor are likely to increase which will result in greater collaboration, knowledge and understanding. *Capability information* includes setting individual goals aimed at developing the desired level of skills and capabilities. This type of information requires monitoring and the providing of guidance for improvement. Direct interaction between the employee and supervisor is required for this to be achieved. Lastly, *output information* involves the provision of information regarding progress on performance objectives (e.g. patient satisfaction and positive clinical outcomes).

Lambert et al. (2012) holds a similar view regarding the provision of appropriate feedback related to job performance and elaborates on the proposition of Challagalla and Shervani (1996) with regard to activity information (as explained in the previous paragraph). They argue that the provision of appropriate feedback in a timely manner increases the probability of better staff attitudes. Not only does feedback lead to perceptions and feelings of being valued, this type of information also allows employees to understand what they are doing correctly and incorrectly. Furthermore a lack of feedback can lead to frustration which in the long run increases the probability of job burnout and emotional exhaustion. In order to empirically evaluate their hypothesis Lambert et al. (2012) conducted a study among prison staff

(n=272). Their results present evidence that job feedback had a significant negative relationship on burnout and elucidate that job feedback may result in clarity of performance expectations (which reduces the amount of strain that employees experience). When meaningful feedback is not provided employees are more likely to experience a sense of being lost and unsure of what is expected. A lack of feedback, therefore, makes the job more

difficult which in turn increases the chances of negative feelings and emotional exhaustion (Lambert et al., 2012). Focusing on the impact of information specifically on work engagement, Gruman and Saks (2011) proposed that engagement starts with the employee being informed. When employees are well-informed and are provided with a clear set of goals, they will be more likely to use their time, assets and resources effectively, and remain on track in decision making processes and prioritising.

Although scope-of-practice and work outcomes are generally very clear in the nursing environment it has been mentioned earlier that due to large staff compliments and a general shortage of staff, information in terms of performance feedback and recognition is generally assumed to be limited. Consequently, although nursing staff members might be well aware of the outcomes and standards expected of them, how they fare against these expected performance outcomes and standards will possibly be less clear. This could lead to uncertainty, a lack of performance improvement, and lower levels of work engagement. It can thus be hypothesised that where more information is provided, work engagement is likely to be higher for nursing practitioners of all ages.

2.7.7 Communication

Clear and consistent communication paves the way for an engaged workforce. Yates (2008) state that effective companies focus on strengthening the communication skills of supervisors in order to improve the commitment of employees. According to Mayfield and Mayfield (2002) the supervisor is core to the communication experiences of employees. When effective supervisor-subordinate communication is established trust and harmony are built in the working relationship. The quality of this communication is embedded in the frequency, mode, content and flow of communication. The more frequent supervisors and employees communicate with each other the stronger the working relationship is likely to be (Kacmar, Witt, Zivnuska, & Gully, 2003). Various modes of communication can influence supervisor-employee relationships; formal communication (e.g. memos, documents and manuals) build slowly on social capital, whereas informal communications (such as ad hoc face-to-face conversations) will greatly enhance working relations (Johlke & Duhan, 2000). In terms of content; when indirect communication strategies are used (e.g. supervisors give frequent feedback, are open to ideas and are prepared to listen to subordinates' concerns) the relationship will prosper. In contrast, when supervisors rely on their hierarchical position to dictate and enforce power the impact of such a direct communication strategy is a stifled supervisor-employee relationship (Fisher, Maltz, & Jaworski, 1997). Finally, when the communication between supervisors and employees flow, it means that employees are able

to ask for clarification or assistance in solving workplace problems (Gray & Laidlaw, 2002). Returning to the impact of communication on work engagement, Sarangi and Srivastava (2012) inferred that organisational communication was a significant predictor of employee engagement. Nordin, Habib and Ghazali (2011) concur that organisational communication plays a profound role in the shaping of engagement levels of employees.

Electronic communication via email has become one of the most frequently used methods to communicate to employees in large corporate organisations. Unfortunately, due to the nature of work that nursing staff do, access to computers are often deemed unnecessary and subsequently very limited. Where access is provided to computers and email, it is often on shared computers and only allowed during break times. Communication via email is therefore generally not effective in the nursing environment (excluding management, who usually do have access to personal computers at work). Consequently, communication from managers to staff, and from corporate offices to nursing staff, are mostly done via message boards, posters, hard-copy memo's, communication books, and short meetings (such as brief hand-over meetings between shifts). One could therefore predict that communication received is likely to be infrequent, insufficient, and potentially incomplete and inaccurate. Thus, it is hypothesised that dissatisfaction with communication received will reduce the work engagement of nursing practitioners of all ages.

2.7.8 Participation

Employees want to participate at work, more specifically; employees want to be involved in the decision-making processes that affect their work (Gruss, McCann, Edelman, & Farran, 2004; Schaufeli & Bakker, 2004). Consequently, participatory management styles will lead to positive outcomes for both the individual and the organisation, such as enhanced engagement (Schaufeli & Bakker, 2004) and the reduction of stress, strain and dissatisfaction especially among lower status workers (Gruss et al., 2004). A study by Cready, Yeatts, Gosdin, and Potts (2008) yielded a similar conclusion in the nursing context; namely that participation strategies such as empowered work teams led to improved work performance and attitudes toward work of specifically lower category nursing staff members. These findings were confirmed by Torsney (2011) in his study on the impact of participation in team meetings on the stress and coping of nursing practitioners in long-term care. Torsney's findings indicated that the effect of being included in a treatment team meeting is greater for the lower status nursing practitioner than for the staff member who had more status.

Marchington and Kynighou (2012) argue that three forms of employee participation can be found at work; direct, indirect and informal. *Direct participation* entails the personal involvement of employees in formal practices, such as upward problem solving, employee surveys, and suggestion schemes. *Indirect participation* is where employees are represented by co-workers or trade union representatives on formal committees, such as for joint consultation processes, workplace committees, company boards or as part of partnership agreements. *Informal participation* entails the involvement of employees in decision-making processes outside of formal structures and processes, such as face-to-face discussions. Informal participation fits best with the concept of employee engagement and the idea that processes are more important than formal structures.

Marchington and Kynighou (2012) goes further to state that the degree of employee participation (all three forms) can range from very little (information distribution by supervisors), intermediate levels (two-way communication and consultation) to high levels of participation (complete collaboration and co-determination between employees and supervisors). More often the degree of participation have been found to be at the lower end of the scale (supervisors mostly just provide information) although participation at a higher level usually have better workplace outcomes, such as employee engagement.

For the purposes of this study, the variety of employee participation types and degrees will not be investigated in detail, rather it is proposed that any type and sufficient level of participation will influence work engagement positively. Nursing practitioners are seldom involved (directly or indirectly) in decision-making processes that affect their work as the profession is strongly guided by guidelines, policies and procedures, and as mentioned before there is little time for face-to-face direct interactions with management. Furthermore, organisational decisions are mostly made at corporate office levels and employees are merely informed accordingly. Nursing practitioners do not even always have control over decisions that affect them directly (such as when they take leave, which shifts they work, etc.) due to the nursing shortages. This assumed lack of involvement in decision-making processes will likely lead to feelings of lack of control, and consequently lower work engagement. It is therefore hypothesised that nursing practitioners of all ages will experience low levels of participation which could result in lower levels of work engagement.

2.7.9 Contact possibilities

In the work context, contact possibilities pertain to opportunities of employees to interact with other role players or parties. A review of the literature demonstrated that two forms of contact possibilities are notable as having the biggest reported impact on employees; namely networking and mentoring.

Ibarra (1995) categorised workplace networks into task networks, career networks, and social support networks. Task networks facilitate the exchange of information, expertise, materials, and task-related political access in order to accomplish work-related objectives. Career networks involve relationships with relevant role players who will contribute to career progress by offering advice, mentorship, sponsorship, assistance, and avocation for promotion. Social support networks are based on friendship, closeness and trust rather than on task-related needs. According to Ibarra these social support networks tend to be informal and usually evolve from common backgrounds or interests.

In organisational settings, a network usually involves contact with a variety of colleagues for the purpose of mutual work benefits (Linehan & Scullion, 2008; Tourigny & Pulich, 2005). It includes informal interactions such as favours, persuasion, and connections to people who already have influence. Networking can afford various advantages to employees. According to Bartol and Zhang (2007) networks are important in the accomplishment of tasks, gaining upward mobility, and personal and professional growth and development. Linehan and Scullion (2008) corroborate and suggest that networking has a direct positive impact on career outcomes, because the purpose of networking is the facilitation of the development of social capital. Furthermore, employees within efficient networking programmes gain information exchange, collaboration, alliance development, acquisition of tacit knowledge, visibility, and support (Linehan & Scullion, 2008).

Kram (1985) argues that mentoring relationships is a critical career resource for employees that could be both formal (develop with organisational intervention) or informal (develop spontaneously) (Ragins & Cotton, 1999). Mentors are individuals with advanced experience and knowledge who are committed to providing upward support and mobility to other's careers. Kram theorised two broad categories of mentoring namely: (1) career development functions such as sponsorship, coaching, and visibility; and (2) psychological functions such as encouragement, feedback, and advice. In the nursing context Mariani (2012) states the concept of mentoring is not new, however research that provides empirical evidence of the outcomes of mentoring in nursing is still lacking.

Although literature that specifically addresses the relationship between contact possibilities and work engagement in the nursing context could not be identified, the broad spectrum of positive organisational and individual outcomes of contact possibilities has been established in other organisational contexts. In one example, Underhill (2005) reported that positive outcomes of contact possibilities (specifically mentoring) includes organisational commitment, job satisfaction, enhanced self-esteem, reduced work stress, reduced work-family conflict, and positive perceptions of promotion or career advancement opportunities. Consequently it seems reasonable to posit that the job resource contact possibilities is likely to have a positive impact on work engagement.

As explained previously, the severe shortage of nursing leads to a situation where nursing staff members have very limited time for anything other than the work they do beside the beds of patients. They have limited opportunities to attend training outside of the unit, limited interactions with management, and even less opportunities for networking outside of their unit or hospital. It is generally agreed that nursing staff members mostly have only direct contact with the other nursing practitioners within their unit (nursing specialty) and assigned to the same shift. Further to this, nursing staff members only have direct access to a mentor when they are newly appointed and participating in formal orientation (often referred to in popular literature as on-boarding) processes. Thus, it is hypothesised that nursing practitioners of all ages have limited contact possibilities which leads to lower engagement.

2.7.10 Remuneration

Various studies have focused on the positive organisational outcomes of employee's satisfaction with remuneration. Singh and Loncar (2010) proposed that satisfaction with remuneration is of primary concern to both employers and employees. They elaborate that for employees fair remuneration is necessary to satisfy economic needs. In return, if employees are satisfied with their overall remuneration it will impact positively on their attitudes and behaviours. The study of Judge, Piccolo, Podsakoff, Shway and Rich (2010) yielded similar conclusions; they determined that level of pay bears a positive, albeit modest, relationship to job and pay satisfaction. Research conducted by Beutell and Wittig-Berman (1999) as well as Sanchez and Brock (1996) also confirmed a positive relationship between pay level and job satisfaction. Interestingly other studies have revealed a weak relationship between pay satisfaction and job satisfaction (Adams & Beehr, 1998; Dunham & Hawk, 1977).

In the nursing context, Mee (2005) points out that salary increases for nursing practitioners have gained momentum over the years largely due to the nursing shortage and high vacancy rates. However, she postulates that many nurses still consider themselves significantly underpaid in comparison to other professionals. Furthermore, Mee emphasises that a perceived good salary can still be regarded as poor compensation by nurses who are challenged on a daily basis with unsafe staffing levels, overtime and other problems pertaining to the nursing shortage. The knowledge that nursing staff tend to consider themselves underpaid corroborates the importance of understanding the potential impact of these perceptions, on organisational outcomes.

Singh and Loncar (2010) investigated the relationship between pay satisfaction, job satisfaction and turnover intent of 200 registered nurses (RNs) in a unionised hospital and reported that pay satisfaction affects turnover intent negatively. Further investigations by Currall, Towler, Judge, and Kohn (2005) established that dissatisfaction with remuneration can also have significant and undesirable influences on numerous other employee outcomes such as a decrease in commitment to the job, increase in theft, and higher turnover. Carr and Kazanowski (1994) reported a further impact on organisational outcomes; they found that remuneration negatively impact overall job satisfaction within the nursing environment. Returning to the context of work engagement, Freeny and Tiernan (2009) as well as Maslach and Leiter (1997) argue that rewards are an important antecedent of work engagement of nursing practitioners. Where rewards (not only financial rewards) are perceived to be inappropriate or insufficient it can lead to burnout; the positive antithesis of engagement (Maslach & Leiter, 1997). Consequently, it seems rational to suggest that satisfaction with remuneration could also have a positive impact on work engagement.

Experience and informal feedback indicate that nursing practitioners are more often than not unsatisfied with their remuneration. There is a general belief that salaries are not aligned with the qualifications in the nursing industry (bear in mind that certain nursing categories require at least a three year degree in nursing). It is also been ascertained that nursing salaries (excluding fringe benefits) are often higher in the public sector than the private sector. Consequently, it is hypothesised that nursing practitioners are unsatisfied with their remuneration, which negatively impacts work engagement.

2.7.11 Career possibilities

The advantages of providing employees with satisfying and rewarding career development opportunities are fairly well established. Various studies have indicated significant

relationships between perceived career development opportunities and positive work outcomes such as job satisfaction (Chen, Chang & Yeh, 2003), organisational commitment (Blau, Merriman, Tatum & Rudman, 2001) and retention of talent (Concelman, 2005). Sturges, Conway, Guest and Liefoghe (2005) argue that employers should provide employees with a variety of career development opportunities that will promote their employability. They explain that by providing valuable and marketable career development opportunities employee loyalty is built and higher performance ensured. Crawshaw, Van Dick, and Brodbeck (2012) agrees that organisations can reduce turnover, build commitment and garner the required levels of work performance by providing employees with valued and satisfying career development opportunities. However, Crawshaw et al. (2012) highlights that research have not sufficiently clarified the conditions under which employees' perceptions of career development opportunities will affect levels of organisational and individual outcomes. In terms of engagement Bakker and Demerouti (2008) explain that opportunities for development can also stimulate work engagement because it satisfies the need for competence (an intrinsic motivational role). Robinson and Murrels (1998) argue that career planning has received little attention in the nursing context because limited career options and high turnover are evident. Consequently, they recommend the implementation of support programmes to facilitate the retention of nurses and to capitalise on career potential. To better understand the influence of perceived lack of career advancement opportunities on organisational outcomes Chang, Chou and Cheng (2007) conducted an in-depth investigation of the career needs, career development programmes, organisational commitment and turnover intention of nurses in Taiwan. Their results indicated that nursing practitioners have different career needs at different career stages. Further to this, a gap exists between the career needs of nursing practitioners and career development programmes offered by employers. This gap had a negative influence on the nurses' commitment to the hospital, and consequently on turnover intention.

The most senior nursing position within a hospital is usually the nursing manager. If one considers that a unit of for example 20 nursing practitioners will have one unit manager, and in a hospital with 12 units (hence 12 unit managers) there will be one nursing manager, and on occasion one deputy nursing manager, the opportunity for regular upward career advancement is clearly limited. As a result, nursing practitioners with career aspirations often choose alternative career opportunities such as training and development roles, or administrative roles (which is not the ideal for many). It is therefore hypothesised that limited career advancement possibilities within the nursing profession will have a negative impact on work engagement.

2.7.12 Pace and amount of work

According to Maslach and Leiter (1997) workload refers to the balance between work demands and available time and resources. Various components and types of workload have been discussed in literature. Fakir (2010) posits that there are many different types of work overload, including working long hours, meeting deadlines and responding to time pressures, qualitative overload, and having many separate, essentially unrelated tasks to perform. Farmer and Brownson (2003) have a similar view and suggest that workload consists of three distinct components namely task demands, effort, and performance. Task demands refer to the outcomes and task requirements that need to be met by an employee; effort pertains to the physical and conscious mental processing required in completing the task at hand, and performance relates to the measure of workload and outcome. A simpler description is offered by Sonnentag and Bayer (2005) who differentiate between day specific workload and chronic workload. They posit that day specific workload refers to the degree of workload present on a specific day due to unique or unusual circumstances, while chronic workload refers to a more regular, permanent level of workload.

Several studies have explored nurses' workload that is known to be compounded by the multiple nursing tasks that is required to provide safe and efficient patient care (Clini, Vitacca & Ambrosino, 1999; Reis-Miranda, De Rijk & Schaufeli, 1996; Reis-Miranda, Moreno, & Iapichino 1997; Weydt, 2009; Yamase, 2003). Neil (2011) elaborates that the more quantifiable variables of workload include the number of admissions, patient satisfaction levels, number and complexity of procedures, case mix, and the average age of patients. The less quantifiable variables include the institution's philosophy on nursing, the type of staffing model (e.g. independent care or team nursing), the individual characteristics of the nursing practitioners (e.g. level of education, experience, and competence), patterns of medical treatment (Hegney, Plank & Parker, 2003; Page, 2004), and environmental factors (Neil, 2011). The workload in general has been indicated to negatively impact upon nurses' family life, as well as their ability to provide adequate patient care (Altuntas & Baykal, 2010; Bester & Engelbrecht, 2009; Lagerström, Josephson, Arsalani & Fallahi-Khoshknab, 2010). The organisational consequences of the high workload experienced by nurses have been well documented and include reduced patient satisfaction, impaired nurse-patient communication, poor nurse-physician collaboration, burnout, and job dissatisfaction (Aiken, Clarke & Sloane, 2002; Allen & Mellor, 2002; Beaudoin & Edgar, 2003; Carayon & Gurses, 2005; Jolma, 1990; Smith, 2002). Further to these outcomes, Chang, Hancock, Johnson, Daly and Jackson (2005) posit that nurse turnover intention is one of the main consequences of high workload. Workload has also been identified by high care unit nursing

practitioners as a major job stressor that contributes to burnout (Aiken et al., 2002; Carayon & Gurses, 2005). More alarmingly, high workload has been associated with sub-optimal patient care (Aiken, Clarke, Sloane, & Sochalski, 2001; Carayon & Gurses, 2005) as nursing practitioners with a high workload tend to neglect perceived non-essential patient care tasks and procedures which could have adverse outcomes to the health, safety and satisfaction of patients (Aiken et al., 2002).

Work engagement (and especially vigour) is impacted by work overload as employees that experience overload find it difficult to maintain high levels of energy, mental resilience and willingness to invest effort in their work (Main, 2011). Support for this finding is reported by Tomic and Tomic (2011) who determined that nurses' workload was indeed negatively associated with engagement; the higher the workload scores, the lower the vigour and dedication scores (n=278).

The lack of available nursing staff naturally has a direct negative impact on the pace and amount of work experienced by nursing practitioners. With less staff, each staff member is required to do more at a faster pace to ensure safe patient treatment. On occasion the workload is so high the nursing staff members have no choice but to sacrifice much needed breaks to ensure that patient treatment do not suffer. If one considers that the work that nursing practitioners do keep them on their feet for most of the day, the excessive pace and amount of work will likely lead to exhaustion and it is unlikely that high levels of work engagement will flourish in such circumstances. It is therefore hypothesised that nurses experience a high pace and amount of work that will have a negative impact on work engagement.

2.7.13 Mental load

According to Neil (2011, p. 133) mental workload can be defined as "... the amount of thinking, level of cognitive demand, or thought processing effort required by the worker to meet the physical, temporal, and environmental demands of the defined task". Mental load consists of three components that can be observed and measured; namely psycho-physiologic, performance, and subjective factors. Firstly, psycho-physiologic factors can be measured by observing changes in physical functioning as cognitive demands vary (such as change in heart rate, blood pressure, respiratory changes, and oxygen consumption) (Haga, Shinoda, & Kokubun, 2002; Veltman, 2002). Secondly, performance factors pertain to focus and attention load changes which can be measured by changes in reaction times, accuracy of task performance or job specific performance measures (such as clinical outcomes and

error rate in the nursing context) (Haga et al., 2002; Vercruyssen & Rodenburg, 2004). The final component according to Neil (2011) includes subjective factors such as the employee's personal awareness of a decline in concentration and attention capacity which are generally measured by self-report responses (Tompsonski, 2003; Veltman, 2002).

Mental workload is a factor of the individual's processing capacity in relation to the complexity and requirements of the task at hand (Neil, 2011). This processing capacity is influenced by: (1) individual characteristics (e.g. aptitude, competence, skill, energy, personal behaviours and perceptions); (2) complexity of the task (e.g. routine activity vs. unique or emergency procedure); (3) performance circumstances (e.g. the work environment, staffing levels and time demands); and (4) other indirect influences (e.g. administrative support). Neil concludes that mental workload is therefore a complex construct with multiple dimensions. Kalyuga (2011) and Sweller (1998) provide a dissimilar view on mental load in that they regard working memory as central to experiences of mental load. Kalyuga explains that the working memory has a limited capacity and duration. Consequently, employees can consciously process no more than a few items at a time for no longer than a few seconds. If these limits are exceeded, working memory becomes overloaded. When overload is reached learning is inhibited and performance affected (Kalyuga, 2011).

Various factors can contribute to mental load in the nursing context. Potter et al. (2005) posit that within the hospital environment, nursing practitioners are faced with various clinical judgments regarding the care of their patients. Because the condition of a patient can change drastically, regularly and within a short time span nursing practitioners constantly have to reprioritise and re-organise the patient care tasks that they are responsible for. These regular interruptions affect the cognitive work of nurses and can lead to medical errors. Higuchi-Smith and Donald (2002) concur; nursing practitioners require skill in complex thinking processes in order to make inferences, synthesise information, and choose an appropriate course of action for each patient. Further support of this view is provided by Simmons, Lanuza, Fonteyn, Hicks and Holm (2003) as well as Potter et al. (2005) who elucidate that clinical reasoning and decision making enable nurses to analyse information relevant to patient care. Moreover, a nurse who moves between multiple patient rooms to attend to each patient's changing clinical situations (within an environment that is fast-paced and unpredictable) engages in a recursive cognitive process that uses complex inductive and deductive cognitive skills.

An understanding of the factors that impact the mental workload of employees (in this case nursing practitioners) has the potential to improve the quality of work (e.g. safety of patient care) and reduce burnout among nurses, which could keep more nurses at the bedside providing care (Neil, 2011). Demerouti, Bakker, Nachreiner and Ebbinghaus (2002) support the notion that mental strain is closely related to burnout. They conducted a study among German employees working in human services (n=145) and determined that burnout is a long-term consequence of mental strain. Furthermore, exhaustion and disengagement were reported as short term outcomes of mental strain. A study by O'Conner, O'Conner, White and Bundred (2000) on the effect of job strain on British general practitioners' mental health and job dissatisfaction (n=422) yielded similar results. General practitioners who reported greater levels of mental strain at work exhibited significantly greater levels of job dissatisfaction and depressive symptoms. In similar vein Verbruggen (2009) conducted a study on mental overload in a large Spanish manufacturing company (n=347) to determine the impact of mental load on engagement. Interestingly, the results of a simple regression analyses indicated that mental overload was positively related to the engagement scales vigour and dedication. Verbruggen proposes that being occupied mentally and working with lots of information made the employees feel more persistent and energetic (vigour). The employees were also experiencing more enthusiasm and inspiration (dedication).

When directly responsible for the health and lives of patients, attention to detail is of the utmost importance. There is very little margin for error in the nursing environment as the consequence of error can be severe and even fatal. Nursing practitioners have to pay close attention to critical information which is mostly presented numerically (such as quantity of medication, liquid in and out-put, time aspects, etc.). Careful calculations are required in high pressures times (consider calculating the amount of adrenalin that can be administered to an infant with heart failure within a space of a few seconds as a very basic example). Furthermore, nursing practitioners are often required to make important decisions regarding the care of multiple patients, each with a unique condition and treatment plan, within a short time span. It is therefore hypothesised that nursing practitioners experience high levels of mental load which will have a negative impact on work engagement.

2.7.14 Emotional load

The terms *emotional load* and *emotional labour* are closely related and often used as synonyms in the literature – this view is supported for the purpose of this study. According to Hochschild (1983) emotional labour pertains to the costs of employees within a profession where components of job performance require the manifestations of feelings, designed to

influence clients. More recently, Brotheridge and Lee (2003, p. 365) defined emotional labour as the efforts involved when employees "... regulate their emotional display in an attempt to meet organisationally based expectations, specific to their role". Bhawe and Glomb (2009) prefer the term *emotional load*, and corroborate that emotional load involves regulating feelings and expressions in order to conform to organisational requirements. Chou, Hecker and Martin (2012) clarify that when there is disparity between the actual experienced emotions and organisational expectations the employees have to regulate the displayed emotions to conform with company expectations. The more often this occurs, the higher the emotional load experienced by the employee.

Chou et al. (2012) uses the work environment of the nursing workforce as example to clarify what high emotional load entails as they are regularly involved in intense emotional interactions with patients. Nurses are generally expected to display a caring demeanour, express empathy for patients and show an understanding for their pain (Molter, 2001; Vitello-Cicciu, 2003). Brand (2007) argues that it is evident from the nature of a nursing practitioner job that nursing involves to a large extent interpersonal contact which implies that nursing practitioners should be competent in dealing with their own and other's emotions, emotional reactions and emotional information. Nursing staff is often required to express emotions in a manner that is best suited to the situation and the care of the patient. However, it is possible that the emotions that nursing practitioners genuinely feel do not correspond with the required emotions. Mann and Cowburn (2005, p. 154) refer to this as emotional dissonance and motivate that the experience of emotional dissonance leads to emotional load. Brand (2007) agrees that the typical emotional requirements of nurses when interacting with patients might not necessarily be inherent to the nurse's personality, which could in turn lead to overwhelming emotions, which the nurses might not be able to control or manage (emotional load). The organisation also expects that nursing staff suppress any negative feelings such as anxiety when interacting with patients. When nursing staff do experience anxiety they have to regulate that emotion to ensure that the patient still perceives only the care and empathy. Chou et al. (2012) confirmed that when job demands require a higher frequency of interactions with difficult patients, nurses are more likely to experience emotional exhaustion and job dissatisfaction and as a result nurses regularly experience emotional load (registered nurses employed at a teaching hospital in Taiwan; n=240).

Extreme emotional load can lead to emotional exhaustion. Laschinger and Finegan (2008) postulate that nurses display high levels of emotional exhaustion. They argue that this situation is partially caused by excess work due to increased patient numbers; long working days, constant changes in working conditions, and the perceived conflict between nursing

care priorities and managerial or financial priorities (Lim, Bogossian & Ahern, 2010). Perrewé and Gangster (2002) further warns that emotional load and exhaustion can lead to nursing practitioners suffering from burnout, psychosomatic illnesses, increased absenteeism, drug and alcohol abuse, withdrawal and depression (Perrewé & Gangster, 2002). Kowalski, Ommen, Driller, Ernstmann, Wirtz, Kohler and Pfaff (2010) concur that nursing practitioners run the risk of burnout due to emotional load. They conducted a survey among nurses to determine the effect of extreme emotional load on burnout (n=1325). Their results indicated that the strongest predictor of burnout and emotional exhaustion is perceived emotional workload. Further evidence of workload leading to burnout is provided by Pereira, Fonseca, and Carvalho (2011). They attribute the emotional load specifically to stress related to death and dying. Their review of burnout among health professionals in palliative care reported that patients' suffering, the process of dying, and the death cases that nurses are confronted with contribute to higher levels of burnout (Pereira et al., 2011). Even more profound is the finding that stress related to death or dying related cases was one of the key motivators for leaving the nursing profession (MacKusick & Minick, 2010). Consequently, high levels of emotional load not only lead to undesirable circumstances for nursing practitioners, it also leads to adverse impact on the organisation such as a reduction in the performance of nursing practitioners, as well as deterioration in the quality of patient care (Maslach et al., 2001).

Although nursing profession specific empirical evidence that reported on the relationship between emotional load and work engagement could not be identified, it seems rational to postulate that the experience of high levels of emotional load would impact negatively on engagement. Thus, it is hypothesised that nursing practitioners experience high levels of emotional load, and consequently lower levels of engagement.

2.7.15 Ambiguities of work

Role ambiguity involves uncertainty about what should be accomplished in the job (Chang & Hancock, 2003) and uncertainty about which job behaviours are most appropriate in a given situation (Rigopoulou et al., 2012). Lambert and Lambert (2001) explain that role ambiguity and stress may be regarded as the results of disparity between an individual's perception of the characteristics of a specific role, and what is actually being achieved by the individual currently performing the specific role. In short, role ambiguity and stress occurs when there is incongruence between perceived role expectations and achievement.

Within the nursing context, increased levels of responsibility and roles, and performing duties outside their area of specialty due to low staffing levels, can create uncertainty that is linked to role ambiguity (Chang & Hancock, 2003). Jasper (1996), Kelly (1996) as well as Prebble and McDonald (1997) reported concurring evidence that young nursing practitioners (those that are new to the hospital environment) are more inclined to experience role ambiguity due to the transition from being a student nurse to being a professional nurse practicing in a hospital. They elaborate that during the first year newly recruited nurses may experience role stress as their status changes to that of a professional nurse.

Some reported outcomes of work ambiguity includes decreased motivation (Rigopoulou et al., 2012), decreased job satisfaction (Chang & Hancock, 2003), decreased professional performance, impaired organisational efficiency and work-related stress (Lambert, Lambert, Petrini, Li & Zhang, 2007). In a recent study by Karimi, Omar, Alipour and Karimi (2014) on the influence of role overload, role conflict and role ambiguity on occupational stress among nurses in selected Iranian hospitals (n=135) it was determined that there was a significant, linear and positive relationship between role overload, role conflict, role ambiguity and occupational stress. These findings confirm the research conducted by Idris (2011) who reported that role ambiguity, which he relates to uncertainty and inadequate knowledge of employees about their responsibilities, authority, objectives and goals of their organisation, increase the levels of stress of employees.

A further outcome of ambiguity in the nursing context is burnout, because role ambiguity can radically increase emotional exhaustion, depersonalisation, and experiences of low personal accomplishment (Tunc & Kutanis, 2009). In a survey study (n=900) among nurses in the private sector hospitals in Australia, Brunetto, Farr-Wharton and Shacklock (2011) verified that role ambiguity influenced affective commitment. Nurses who experience high levels of stress and burnout tend to have higher absenteeism rates, lower work satisfaction, are more likely to voluntarily leave the organisation (Callaghan & Field, 1991; Larson, 1987) and suffer psychologically with feelings of inadequacy, self-doubt, reduced self-esteem, petulance, depression and sleeping problems (Foxall, Zimmerman, Standley & Bene, 1990). Not surprisingly, these outcomes compromise the quality of patient care and results in reduced patient satisfaction (Garrett & McDaniel, 2001; Janssen, De Jonge & Bakker, 1999).

The existence of a rather strict scope of practice for each nursing category has been mentioned earlier in this paper. It would seem reasonable to argue that a scope of practice would eliminate any potential ambiguities at work. However, the shortage of nursing staff occasionally leads to staff members having to perform duties that are not within their scope

of practice. For example, certain medications can only be administered by registered nurses, but if there is no registered nurse available in the unit at a time when the medication have to be administered urgently an enrolled nurse might have to administer it to save the patient (the ethical questions arising from this scenario is a topic outside of the scope of this research study). These ambiguous scenarios can leave nursing practitioners feeling vulnerable and uncertain. It is therefore hypothesised that nursing practitioners experience high levels of ambiguity at work, which leads to lower levels of work engagement.

2.7.16 Uncertainty about the future

Uncertainty about the future could be regarded as similar to job insecurity. Laine, Van der Heijden, Wickstrom, Hasselhorn and Tackenberg (2009) explain that job insecurity signifies the threat of job loss or the endangerment of job continuity. It also refers to the discontinuity of certain aspects of the job or the potential loss of valued conditions of employment, for example opportunities for promotion, or work-related social networks. Job insecurity is subjective; it is based on the individual's perceptions and interpretations of the immediate work environment. This implies that feelings of job insecurity may differ between individuals exposed to the same objective situation (Sverke, Hellgren & Naswall, 2002). Since job insecurity involves the experience of a threat and implies a great deal of uncertainty regarding whether the individual gets to keep his/her job in the future, it has been described as a stressor (De Witte, 1999).

Job insecurity has been linked to specific negative individual and work outcomes, which is not limited to work engagement. Bernhard-Oettel, De Cuyper, Schreurs and De Witte (2011) identified two possible emotional reactions to perceptions of job insecurity namely; increased job-related stress (stress related to the knowledge that they are at risk of unemployment); and reduced affective organisational commitment (the employee is less committed to their employer when they face the risk of losing their job). Jordan, Ashkanasy and Hartel (2002) confirmed the correlation between job uncertainty, reduced commitment and job-related stress. They developed a two-stage model that illustrates the link between job insecurity and workplace behaviour and found that the cognitive evaluation of job insecurity perceptions results in two interrelated emotional reactions; namely reduced affective commitment and increased job-related tension. These two emotional reactions then lead to negative behaviours. Main (2011) concurs that job uncertainty lead to lowered commitment as the results of her study among school educators (n=157) revealed that job insecurity had a weak negative relationship with dedication, indicating that employees find it difficult to be dedicated to their work if they feel insecure about future employment. Support for these

findings is also evident within a hospital environment. Van Zyl, Van Eeden and Rothman (2013) investigated the proposed relationship between negative emotional and behavioural reactions to job insecurity of hospital employees and confirmed that job insecurity were indeed associated with job-related stress.

In terms of engagement, studies have also demonstrated a negative relationship between job insecurity and work engagement (e.g. Mauno et al., 2007). Vander Elst, Bosman, De Cuyper, Stouten and De Witte (2013) conducted a study among South African workers in a government organisation (n=296) to determine (among other objectives) the relationship between job insecurity and work engagement. Their results confirmed that job insecurity was negatively related to work engagement. De Cuyper and De Witte (2007) explain that feelings of job insecurity may be experienced by the employee as a breach of the psychological contract. Job insecurity may therefore violate employees' expectations for security in exchange for loyalty and engagement leading to less engaged employees.

To determine the occupational factors that affect nurses' decisions to leave their profession before reaching retirement age Laine et al. (2009, p. 420) conducted a large (n=32 037) epidemiological study in ten European countries among registered nursing practitioners. The results indicate that 40% of respondents reported some level of concern about becoming unemployed and difficulties to find new work if losing their job. Furthermore, more than 50% of the respondents were concerned about being transferred to another job or unwanted changes in work schedules (referred to as qualitative job security), while less than 40% worried about becoming unable to work due to illness or injury. It is therefore apparent that despite the shortage of nursing staff in general, nursing practitioners also experience job insecurity and uncertainty about the future. Laine et al. reported that these high levels of job insecurity were positively correlated with turnover intent.

The healthcare industry in South Africa is regularly scrutinised (consider the current Competition Commission investigation into the private healthcare sector, as well as the possibility of the implementation of a National Health Insurance). The healthcare industry will always rely on nursing practitioners to function effectively, and the current shortage of nursing staff worldwide will likely ensure employment for any category of nursing staff. However, private sector employment is not without some uncertainties, e.g. the changes in regulation, government interventions, and the resulting impact on funders of healthcare. How the private sector (and consequently the nursing staff members employed within this sector) will be affected by future changes within the healthcare industry is still unclear. Furthermore, job insecurity among nursing staff can possibly be augmented by concerns pertaining to

unwanted changes in unit allocation and shift allocation (working hours), and worries pertaining the injury on duty or the obtaining of illness (consider the risk of obtaining HIV when pricked with a needle). It is therefore hypothesised that these concerns and fears could lead to increased job insecurity, which in turn will lead to lower work engagement of all nursing practitioners.

2.8 Conclusion

The South African nursing profession is suffering from substantial skills shortages. In a scarce skill environment it becomes critical that companies are able to engage and retain staff, yet it seems that work engagement of nursing practitioners are at concerning low levels. To best understand the reasons of the assumed low levels of work engagement of nursing practitioners, and successfully treat the problem and propose specific remedial actions, a thorough diagnostic evaluation of the antecedents of work engagement is required. Empirical results support the relationship between job demands and job resources and work engagement. It is therefore hypothesised that the specific levels of job demands and job resources described within Chapter Two collectively impact on the lower levels of work engagement experienced by nursing practitioners. The research methodology followed to evaluate these hypotheses will subsequently be explained in Chapter Three.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Descriptive hypotheses on the work engagement of nursing practitioners were formulated in Chapter Two. In essence it anticipates that the results of this study will show that a significant proportion of the nursing practitioners in the sample group will report low levels of work engagement (comprising of the dimensions vigour, dedication and absorption). To diagnose the roots of this presumed low level of work engagement would require the explication of a comprehensive diagnostic model that elucidates a wide spectrum of determinants that affect the work engagement of nursing practitioners. Stated differently, work engagement is not a random event, but rather an expression of the interactions of a complex network of interacting latent variables. To successfully address the problem of low levels of work engagement of nursing practitioners with applicable remedial actions, a thorough investigation of all the relevant antecedents of work engagement is required. A comprehensive diagnostic model (the Job Demands and Resources model) on work engagement has been elaborated on in Chapter Two. A series of diagnostic hypotheses have been derived from this model to explain the expected work engagement of nursing practitioners, as set out in the descriptive hypothesis. It was posited that the relatively low levels of work engagement are hypothetically attributable to the relatively high levels of the job demands and low levels of job resources, and that the job demands are hypothesised to moderate the effect of job resources on work engagement.

Building on the insights gained through the diagnostic model presented in Chapter Two, this chapter will provide a discussion of the research methodology that was applied for this study. Chapter Three therefore contains a detailed description of the sample design, measurement instruments used, and data collection procedure. Finally, an overview of the methods utilised for statistical analysis is provided.

3.2 Research design

The research design can be viewed as the plan or blueprint of how the research was conducted (Babbie & Mouton, 2001). The research was aimed at evaluating the descriptive hypothesis developed in Chapter Two with regards to the work engagement of nursing practitioners, evaluating specific diagnostic hypotheses explaining the anticipated levels of work engagement. The research design essentially involved the describing of the current

state of a set of variables that has been shown (or are assumed) to determine the current level of work engagement of nursing practitioners. Hence, this study followed a quantitative, exploratory ex post facto design. Kerlinger and Rint (1986) explained that in the context of social science research, an ex post facto investigation seek to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors. It is noteworthy that the primary aim of the research was not to evaluate the relationship between work engagement and job demands and resources. Nonetheless, it would serve to enhance the credibility of the diagnostic findings of the research if it can be shown that the assumed antecedents of work engagement (the specific job demands and resources) do significantly explain variance in work engagement of nursing practitioners, and that the relationships are in the expected direction (positive or negative correlations).

Babbie (1990) suggests that survey research methodology should be used for descriptive, explanatory and exploratory purposes as it allows for generalisation from a sample to a broader population in order to make inferences about some characteristics, attitudes or behaviour of the population. Therefore, data was gathered through the use of a survey, which will be elaborated on further on in this chapter.

3.3 Sample design and research participants

Burns and Grove (2007) define the population (sometimes referred to as the target population) as the entire set of persons (or elements) who meet the sampling criteria. The aim of sampling is to obtain a representative indication of a sample's opinions and attitudes regarding the phenomenon being studied which is reflective of the total population (Kerlinger & Lee, 2000; Mouton, 2001; Newman, 1997).

The main objective of this study was to establish whether the concern that nurses suffer from relatively low levels of engagement is warranted and to diagnose the factors that contribute most to this; therefore the sample was selected from a pre-selected participating hospital group. All non-managerial nursing practitioners currently employed within this organisation were requested to participate in the study. The company gave approval for the study to be conducted among its employees and ethical clearance was obtained from the ethical committee of Stellenbosch University. This participating hospital group was selected based on the convenience of accessibility and proximity to the researcher. This type of sampling is referred to as convenience sampling, which is a non-probability sampling method. Babbie and Mouton (2001) highlights that one major disadvantage of non-probability sampling is that

the data is not necessarily representative and results should therefore be generalised with caution; furthermore the study can also be difficult to replicate. The main advantages of this type of sampling include control over the selection process and the convenience in terms of time and availability (Tansey, 2007). The specific details of the sample (e.g. sample size) within this study are provided in section 3.5.

3.4 Measuring instruments

Quantitative data was collected through the use of a survey (refer to Addendum A) which included three sections namely; Demographics; Work Engagement; and Job Demands and Resources. More information on each of these sections is provided in the following paragraphs.

3.4.1 Demographics

In a diagnostic study demographical variables are important, because response differences between groups can potentially provide more detailed insight into the identified research problem (in this case the hypothesised low engagement of nursing practitioners). Consequently, the first component of the questionnaire consisted of items pertaining to the demographic profile of the respondent. The demographic variables included: age, gender, ethnic group, highest qualification achieved, current job grade, length of service at current organisation, number of previous employment organisations, maximum tenure at an employer, and minimum tenure at an employer. The demographics of the sample size will be elaborated on in Chapter Four.

3.4.2 Measuring work engagement

Work engagement was measured by the Utrecht Work Engagement Scale (UWES), developed by Schaufeli and Bakker (2003). This instrument was selected for this study since it measures the three specific work engagement subscales that is included in the diagnostic model; namely vigour, dedication, and absorption. This direct alignment with the diagnostic model therefore makes the UWES the logical choice.

The UWES consists of 17 items that measure the three dimensions of work engagement (vigour, dedication and absorption) on a 7-point Likert frequency scale ranging from 0 (never) to 7 (always). The *vigour* dimension is measured by six items pertaining to high levels of energy and resilience, willingness to invest effort, ease of fatigue, and persistence

in the face of difficulties. *Dedication* is measured by five items that are related to deriving a sense of significance from work, feeling enthusiastic and proud about work, and feeling inspired and challenged by it. The *absorption* dimension is measured by six items that refer to being totally and happily immersed in work and having difficulties detaching from work to such an extent that time passes quickly (Schaufeli & Bakker, 2003).

In addition to being the logical choice due to the close alignment with the diagnostic model, the UWES has been confirmed to be psychometrically sound, which provides further support for the choice of this specific measuring instrument for this study. Confirmatory factor analysis confirms that the three-factor structure of the UWES (vigour, dedication and absorption as independent factors of work engagement) is superior to the one-factor model (work engagement as the single factor) and fits well to the data of samples from various countries (Schaufeli et al., 2002). Furthermore, the internal consistency of the UWES is generally considered as sufficient as all reported cases indicate the values of Cronbach's alpha at equal to or exceeding the value of .70 (Nunnally & Bernstein, 1994). In most cases the values of Cronbach's alpha range between .80 and .90 (Demerouti et al., 2001; Salanova, Grau, Llorens & Schaufeli, 2001; Schaufeli & Bakker, 2004; Schaufeli, Taris & Van Rhenen, 2008), which is an indication of high internal consistency. Finally, the UWES is also regarded as an unbiased instrument in the measurement of work engagement because of the equivalence between different racial groups. It has been validated in several countries, including China (Yi-Wen & Yi-Qun, 2005), Finland (Hakanen, 2002), Spain and the Netherlands (Schaufeli et al., 2002). Storm and Rothmann (2003) specifically validated the UWES in the South African context which corroborates that the UWES is a highly appropriate tool in the South African context, and therefore also suitable for this study.

3.4.3 Measuring job demands and resources

The Job Demands and Resources model proposed by Rothmann and Jordaan (2006) was used as theoretical framework for this study. The Job Demands-Resources Scale (JDERS), as developed by Jackson and Rothmann (2005) to measure the specific job demands and resources within the diagnostic model, has been selected as a logical and appropriate measuring instrument. The JDERS (refer to Addendum A) consists of 42 items that measure the eleven job resources and five job demands on a 4-point Likert frequency scale ranging from 1 (never) to 4 (always).

Though the JDERS has not been applied nearly as much as the UWES and empirical validation information pertaining to the instrument is consequently less common, the

reliability of the measuring instrument has been reported to be acceptable. Narainsamy and Van der Westhuizen (2013) reported that the job demands and resources scale analysis resulted in a Cronbach's alpha coefficient of .70 in a study within the medical laboratory setting. Similar results were reported by Jackson and Rothmann (2005) who grouped the 16 job demand and resources into 6 subscales and reported Cronbach's alphas between .71 and .90. The detail of the Cronbach alpha results are depicted in Table 3.1.

Table 3.1

Reliability of the Job Demands and Resources Scale as Reported by Jackson and Rothmann

Subscale	Cronbach's alpha	Job demands and resources
Organisational support	.88	Relationship with supervisors Information Communication Ambiguity of work Participation
Growth opportunities	.80	Variety at work Opportunities to learn Career possibilities Independence at work
Overload	.75	Pace and amount of work Mental load Emotional load
Job insecurity	.90	Uncertainty about the future Relationship with colleagues
Job control	.71	Contact Possibilities
Rewards	.78	Remuneration

(Compiled from Jackson & Rothmann, 2005)

In their psychometric evaluation of the Job Demands Resources Scale Rothmann et al. (2006) established that the JDERS is valid, reliable and equivalent for different organisations within South Africa. The JDERS is therefore deemed an appropriate tool for use in this study.

3.5 Data collection

A non-probability convenience sampling method was employed for this study, more specifically availability sampling (Babbie & Mouton, 2001) in which the researcher makes use of subjects that are easily available.

For validation purposes, Babbie and Mouton (2001) recommend that the survey used in a qualitative study must be administered to a reasonably large sample (approximately 100

respondents). In order to maximise the sample size this study followed an electronic and hard-copy method of distributing the questionnaires and gathering data. In terms of the electronic method an email request was sent to each non-managerial nursing practitioner employed within the participating private hospital group who has access to a computer and email address. The email included:

- a cover letter informing participants of the objective of the study and the necessity of their participation, which included a confidentiality guarantee (refer to Addendum A);
- a letter from the participating company giving assurance that the study was approved by die organisation;
- the link to the on-line questionnaire posted on the Stellenbosch University Web Server; and
- proof of ethical clearance (refer to Addendum B).

The initial request was followed-up with a reminder email within one week of the initial email. The data was gathered over a period of approximately three weeks and respondents submitted their responses electronically directly to the survey data repository.

The main advantages of using a web-based survey includes the time benefit and low costs required to reach a large population that is spread across a wide geographic area (in this case nationally) as well as the convenience for those respondents who had access to a computer. Furthermore, electronic surveys are relatively easy to follow-up (through the use of reminder emails) in order to maximise the number of responses. These aspects are much more costly and time-consuming in other forms of data collection (Van Selm & Jankowski, 2006). Further advantages of using a web-based survey data collection include the following (Schlechter, 2005):

- After the web-based survey have been set-up there is basically no further **cost** involved
- The **reaction times** of web-based surveys are typically faster than traditional paper-pencil methods. Most responses will occur within a couple of days after receiving the email invitation
- Respondents are more likely to answer questions **honestly** with computer-based surveys than with face-to-face interviews. Also, the software package handles the data capturing which decrease capture **errors**
- Web-based surveys can provide the data in a **format** that is easy to use for analysis purposes (e.g. Microsoft Excel)

However, nursing practitioners seldom have personal access to computers during working hours and a low response rate in terms of the electronic survey was anticipated. As a result it was imperative to also make hard-copy surveys available to secure a sufficient sample size (refer to Addendum A). A further 650 surveys were consequently made available country wide to 30 hospitals that belong to the participating private hospital group. Each survey package included the same material as the web based version (all in hard copy for paper and pencil completion). Human resources managers deployed at each of the 30 hospitals were briefed both telephonically and via email on the intention of the study, the research methodology, and instructions on how participants should complete the survey. The human resources managers distributed and administered the completion of the surveys within their respective hospitals. Completed surveys were collated and securely sent back to the researcher via the company internal postal system. The data gathered in this manner was captured electronically by the researcher and collated with the electronic responses.

The data gathering process yielded a total of 151 (8% response rate) electronic and 302 (46% response rate) hard copy surveys, totalling 453 completed surveys. This number of responses was regarded as sufficient to arrive at credible results (Jöreskog & Sörbom, 1999). Due to the lack of access to computers among most non-managerial nursing practitioners, the low response rate to the electronic survey, and the higher response to the hard-copy surveys, was anticipated. A breakdown of the sample population demographics is provided in Chapter Four.

3.6 Missing values

A common problem that occurs during quantitative data gathering is missing values. Missing values is the result of a respondent or respondents being unwilling or unable (they do not know the answer to a question, or do not understand the item) to respond to particular items in the questionnaire. Before data analysis can commence the problem of missing values need to be resolved. Various methods of dealing with missing values exist; some of these include:

- List-wise deletion
- Pair-wise deletion
- Imputation by matching
- Multiple imputation

List-wise deletion pertains to the deletion of the entire case when missing values are found for any of the items (Du Toit & Du Toit, 2001). The final sample to be used in the analysis will therefore only include complete data records. The disadvantage of this method is that it could result in a decreased sample size, especially where there are many cases with missing values. Pair-wise deletion refers to the deletion of cases with missing values only for specific analysis purposes. With this method a case is only deleted when analysis is conducted on those specific variables where data is missing. When analysis is conducted on variables where data is not missing, the case is included in the analysis (Byrne, 2001). Imputation by matching entails the substitution of missing values by real values. These real values are obtained by identifying cases that has a similar response pattern to items. By imputing the value of a similar case where data is missing a completed data set is created (Du Toit & Du Toit, 2001). Multiple imputations pertain to where a number of imputations are made by substituting missing values by average values in the data set. The main assumptions made by this method are that data is missing at random, and that the data follows an underlying multivariate normal distribution. Because the imputed values are approximations that reflect the normal distribution of all data in the data set, the values that are created are credible and unlikely to distort any patterns within the data (Du Toit & Du Toit, 2001).

Missing values did not present a significant problem in the acquired data set. The few surveys (67 in total) that did contain missing values mostly had gaps in the items pertaining to the demographic profile of the respondent. Missing values were dealt with by using the multiple imputation method.

3.7 Data analysis

In the following sections the data analysis techniques that were employed in this study to realise the research objectives are discussed briefly.

3.7.1 Introduction

The choice of data analysis techniques is dependent on the objectives of the study and the type of research questions it attempts to answer. The main objective of this study was to diagnose the hypothesised low levels of work engagement of nursing practitioners by using the Job Demands and Resources model as diagnostic framework. Before diagnosis can commence it is necessary to confirm the reliability of the measuring instruments used to

conduct the diagnosis, as well as test the model used as diagnostic foundation. Once the soundness of the diagnostic model and related measuring instruments has been confirmed the diagnostic analysis of the various independent variables can be conducted with confidence and the assurance of increased likelihood of accurate deductions. To achieve this, the step-by-step analysis procedure that was utilised within this study (through the use of Statistica 12 en SmartPLS 2 software) included item analysis, multiple regression analysis, PLS analysis, and analysis of variance (ANOVA). Each of these steps will be explained in more detail in the following sections.

3.7.2 Reliability of the measuring instruments

As mentioned earlier, the confirmation of the overall reliability of the measuring instruments used in a diagnostic study is important in order to provide the assurance that the deductions and conclusions that are made are based on a sound theoretical and scientific foundation. Consequently, item analysis was performed on both measurement instruments used within this study to ensure internal reliability and to identify the items that do not contribute to the internal description of the latent variables.

According to Pallant (2007) internal consistency is frequently used when determining the reliability of a measurement scale. Internal consistency pertains to the degree to which the items that make up the scale measure the same underlying construct(s). One of the most commonly used indicators of internal consistency is the Cronbach's alpha coefficient. The Cronbach's alpha value ranges from zero to one, and the closer the values are to one, the greater the internal consistency of the items of the scale (Pallant, 2007). It is generally accepted that where the Cronbach's alpha exceed the value of .70 the item's reliability is sufficient (Kerlinger & Lee, 2000; Pallant, 2007). In this study, the seminal guidelines of Nunnally (1967) (refer to Table 3.2) were used to determine if adequate levels of reliability were obtained.

Table 3.2

General Guidelines for Interpreting Reliability Coefficients

Reliability coefficient value	Interpretation
.90 and above	Excellent
.80 - .89	Good
.70 - .79	Adequate
below .70	May have limited applicability

(Nunnally, 1967)

It is noteworthy that Cronbach's alpha values are very sensitive to the number of items that measure each construct. Therefore, where constructs are measured with short scales (less than ten items) it is common to find lower values (in the range of .50) (Pallant, 2007). The *Corrected Item-Total Correlation* indicates the degree to which each item correlates with the total score. According to Pallant (2007), low values (less than .30) indicate that the item does not reliably measure the same construct as the rest of the scale. The *Alpha if Item is Deleted* score afford further insight into the value of each item. Should the value of the *Alpha if Item is Deleted* be substantially higher than the final Cronbach's Alpha of the scale it is an indication that results might be more reliable if the item is removed. In such cases the removal of the item from the data analysis procedure should be considered.

3.7.3 Testing the diagnostic model

The Job Demands and Resources model was used as diagnostic framework for this study. In order to ensure accuracy of deductions made during the diagnostic evaluation the model needs to be tested empirically, this was achieved through the use of three distinct processes. Firstly, the relationship between each independent variable (all the job demands and resources) and the dependent variable (work engagement) was established through correlation analysis. Secondly, the proposed effect of the moderating variables were established through hierarchical multiple regression analysis. Hierarchical multiple regression evaluates each possible relationship in isolation from the other hypothesised relationships, the complete model (inclusive of all interactions simultaneously) was assessed by PLS analysis. Each of the analyses is explained in more detail in the following sections.

3.7.3.1 Correlation analysis

A correlation analysis is used to describe the strength and direction of the linear relationships between two variables (Pallant, 2007). In this study the Pearson product-moment correlation coefficient (r) was utilised to measure the strength of the relationship between variables within the diagnostic model.

When conducting a correlation analysis the value of Pearson product-moment correlation coefficient should only be used to determine the strengths and direction of a relationship once the statistical *significance* of the relationship has first been established. The significance of the relationship is indicated by the probability of observing the sample Pearson correlation coefficient estimated under the assumption that the value of the

Personal correlation coefficient in the parameter is zero (p-value). Rumsey (2011) provides guidelines for the interpretation of the p-value in that:

- A small p-value (typically $\leq .05$) provides strong evidence of correlation in the parameter
- A large p-value ($> .05$) indicates no or weak evidence of correlation in the parameter
- p-values very close to the cut-off value (.05) are considered to indicate a marginal possibility of some correlation in the parameter

Hence, when p-values are equal or less than .05 the Pearson product-moment correlation coefficient can be used to determine the strengths and direction of a relationship. The value of the Pearson product-moment correlation coefficient (r) can range from -1 (as one variable changes, the other changes in the opposite direction by the same amount), through 0 (as one variable changes the other doesn't change at all), to +1 (as one variable changes, the other changes in the same direction by the same amount) (Field, 2005).

Table 3.3

Interpreting the Strength of Correlations using the Pearson Product-moment Coefficient

Positive correlation	Negative correlation	Strength of correlation
$r = .10$ to $.29$	$r = -.10$ to $-.29$	Small
$r = .30$ to $.49$	$r = -.30$ to $-.49$	Medium
$r = .50$ to 1.00	$r = -.50$ to -1.00	Large

(Pallant, 2007, p. 126)

In this study the strength of the correlation between variables was interpreted by referring to the size of the Pearson product-moment coefficient. The guidelines of Pallant (2007) (refer to Table 3.3) were used to determine the strength of the correlations.

3.7.3.2 Multiple regression analysis

A series of hierarchical multiple regression analyses were carried out to determine whether each job demand statistically significantly moderate the effect of each independent variable (the job resources) on the dependent variable (work engagement). The series of hierarchical multiple regression analyses were therefore used to determine whether the interaction between specific job resources and job demands statistically significantly explain unique variance in work engagement that is not explained by the job resources main effect.

Pallant (2007) clarifies that regression analysis is the name for a family of techniques that attempts to predict one variable (a dependent variable) from another variable, or set of variables (the independent variables). Regression is based on correlation, but allows for more sophisticated exploration of the interrelationship among a set of variables, because each independent variable is evaluated in terms of its predictive power over and above what is offered by all the other independent variables. Pallant explains that in hierarchical regression the independent variables are entered into the equation in the order specified by the researcher. Variables are entered into the equation in a step-wise process so that each additional independent variable can be assessed in terms of the unique contribution it adds in the prediction of the dependent variable (work engagement), after the previous variables have been controlled for. The advantage and power of hierarchical regression is that it enables the researcher to estimate the effect of each variable, thereby controlling for the other variables (Salkind, 2007). For this reason regression analysis is by far the most widely used and versatile dependence analysis (Hair, Black, Balbin, Anderson & Tatham, 2006).

In order to analyse the effect of the moderating variable the proportion of variance in the dependent variable (work engagement) that is declared by the independent variable (job resources) was first established (R^2). Hence, the R^2 value indicates the proportion of variance in work engagement which can be explained by each job resource (for example, where $R^2 = .45$ it indicates that 45% of the dependent variable is explained by the independent variable). Once R^2 has been determined without the interaction effect the job resource x job demand interaction effect was added to the equation to determine if there is a change in R^2 when the moderator effect is included. A p-value was calculated to indicate the significance of this change in R^2 . Where there is a significant change in R^2 it signifies that the job resource x job demand interaction effect makes a significant contribution to amount of variance in the dependent variable (work engagement) that is explained by the regression model. It therefore means that the specific job demand statistically significantly moderates the effect of the specific job resource on engagement. This in turn indicates that it would be inappropriate to diagnostically interpret the levels of the job resource in isolation without consideration of the level of the job demand moderator variable.

3.7.3.3 Partial least squares (PLS) analysis

Structural Equation Modelling (SEM) is a general term that describes a variety of statistical analyses that can be used to test and validate structural models. SEM can be viewed as an extension of normal linear modelling procedures such as multiple regression analysis since it can be utilised to investigate a series of dependence relationships simultaneously (as

opposed to testing a relationship in isolation such as in the case of multiple regression analysis) and is therefore useful in testing theories that contain multiple equations involving dependence relationships (MacCallum & Austin, 2000). Therefore, SEM estimates a series of separate, but interdependent, multiple regression equations simultaneously by specifying the structural model used by the statistical programme. An advantage of SEM is that it allows for the estimation of the strength of the multiple relationships that exist between multiple latent variables rather than between the fallible observed scores.

One variant of SEM is known as Partial Least Squares (PLS) modelling. Henseler, Ringle and Sinkovics (2009) suggest that PLS modelling is applied in order to test and validate exploratory models, or for prediction orientated research. PLS uses the measurement model to obtain latent score estimates for each latent variable and then evaluates the structural model by using the latent score estimates in a series of multiple regression analyses (in contrast to SEM that estimates the structural model parameters iteratively in an attempt to minimise the discrepancy between the observed and reproduced covariance matrices). Since the diagnostic model (refer to Figure 2.1 in Chapter Two) needs to be tested before diagnostic analyses can be made, and the diagnostic model consist of series of separate, but interdependent relationships, the PLS SEM is appropriate for this study.

PLS models are formally defined by two sets of linear equations: the measurement model and the structural model. The structural model specifies the relationships between the latent variables comprising the model, whereas the measurement model specifies the relationships between the latent variables and their observed or manifest variables/indicators (Henseler et al., 2009). As a result, Chin (1998) suggests a two-step process when conducting PLS analysis. Firstly, the evaluation of the measurement model should be conducted; essentially the PLS analysis of the measurement model statistically verifies whether each item in the questionnaire successfully reflects the construct that it intends to measure. Secondly, the proposed interrelatedness of latent variables in the structural model is evaluated. The measurement model is assessed as a first step, because it only makes sense to evaluate the structural model when the calculated latent variable scores show evidence of sufficient reliability and validity.

In order to interpret PLS results the bootstrapping method was utilised to determine whether the coefficients are statistically significant (Davison & Hinkley, 2003; Efron & Tibshirani, 1993). The null hypothesis states that there is no relationship between the item and construct that it intends to measure (when assessing the measurement model), or that there is no relationship between latent variables (when assessing the structural model). Where

the 95% confidence interval (the range between 95% upper and 95% lower) does not include 0, there is a significant relationship between the item and the construct (measurement model analysis), or the latent variables (structural model analysis). Where the 95% confidence interval does include 0 there is no significant relationship between the item and the construct that it intends to measure because the value assumed under the null hypothesis for the parameter forms part of the interval of values that one is 95% confident the parameter could assume.

Further interpretation of PLS results is conducted based on the Average Variance Extracted (AVE). Fornell and Larcker (1981) explain that the AVE measures the amount of variance due to the construct in relation to the amount of variance caused by the measurement error (measurement model). If the AVE is less than .50, then the variance caused by measurement error is greater than the variance due to the construct. This implies that the convergent validity of the construct is questionable.

3.7.3.4 Summary: testing of the model

In order to test the diagnostic model the relationship between each independent variable (all the job demands and resources) and the dependent variable (work engagement) was established through correlation analysis. Thereafter the proposed effect of the moderating variables were established through hierarchical multiple regression analysis. Finally, the integrated model was assessed with PLS analyses. The results of these analyses are discussed in Chapter Four.

3.7.4 Diagnosing work engagement of nursing practitioners

The main objective of this study was to diagnose the hypothesised low levels of work engagement of nursing practitioners by using the Job Demands and Resources model as diagnostic framework. In order to truly understand the drivers of work engagement of nursing practitioners, a detailed investigation of the average levels of engagement of the sample population, as well as an investigation in the differences in work engagement levels between subgroups (in this study the subgroups included age and nursing category) is necessary. In similar vein, the general levels of satisfaction pertaining to each specific job demand and job resource within the diagnostic model, including differences between subgroups for each of the independent variables, needed to be investigated and understood. In an attempt to identify whether these subgroups differed significantly in terms of these variables, a one-way analysis of variance (ANOVA) was performed by comparing the independent variable means

of the subgroups. Note that although additional demographic variables were included in the questionnaire the investigation of all the alternative subgroups is outside of the scope of this study.

According to Burns and Grove (2007) an ANOVA is a statistical analysis that is used to examine the differences among two or more groups, by comparing the variability between groups with the variability within each group. A one-way analysis of variance (ANOVA) is used to determine whether there are significant differences between the means of two or more independent (unrelated) groups. Therefore the purpose of ANOVA is to "decide whether the differences between the means of observation is simply due to chance (random sampling error) or whether there are systematic effects that have caused scores of observation in one or more group to be statistically significantly different from those in other groups" (Burns & Burns, 2008, p. 285).

In an ANOVA, one assumption is the homogeneity of variance (HOV). That is, in an ANOVA we assume that treatment variances (in this case group means) are equal:

$$H_0: \sigma^2_1 = \sigma^2_2 = \dots = \sigma^2_a$$

When interpreting one-way ANOVA values moderate deviations from the assumption of equal variances is not viewed as significant or problematic (Burns & Burns, 2008). Therefore, the ANOVA is robust to small deviations from the HOV assumption. Researchers only need to be concerned about **large** deviations from the HOV assumption. The significance score (p-value) for the equality of variances test indicates when these deviations are large enough to justify further analysis. When p-values are smaller than .05 the assumption of homogeneity of variance is rejected.

When a one-way ANOVA indicates that there are differences in the means of the subgroups it cannot identify which specific groups were significantly different from each other. Therefore, when the $H_0: \mu_1 = \mu_2 = \dots = \mu_a$ is rejected through interpretation of ANOVA results (p-value), and it has therefore been determined that at least one group differs from the other groups, a *post hoc* test aimed at determining which specific groups within the study differ statistically significantly from other groups, is suggested. Within this study, Fisher's Least Significant Difference (LSD) test was utilised as *post hoc* test to investigate the statistical significance of all possible pair-wise differences between means of subgroups (also referred to pair-wise comparisons) (Williams & Abdi, 2010). When interpreting the results of the LSD

test the probability scores (p-values) that are smaller than .05 are again seen as significant. Therefore; probability scores lower than .05 indicates a significant difference between the means of the two subgroups which confirms that the two subgroups are indeed unique.

According to Pallant (2007) caution needs to be exercised when you specify a large number of ANOVA comparisons because the pair-wise *post hoc* comparisons do not control for the increased risk of Type One Errors (a type one error pertains to rejecting the null hypothesis of homogeneity of variance, when it is actually true). Stated differently, when conducting a large amount of ANOVA's on the same data set there is an increased risk of confirming significant results when the results could have occurred due to chance. A further word of caution pertaining to the use of ANOVA is suggested by Pallant (2007) in that when a sample is large enough, small differences between groups can become statistically significant. Consequently, interpretation of significance scores should be conducted with care.

3.8 Conclusion

In this chapter, an overview of the research methodology used for this study was provided. The measuring instruments and their psychometric properties were discussed together with an overview of the data analysis techniques, including correlation analysis, hierarchical multiple regression analysis, PLS analysis and ANOVA. The next chapter provides a detail report and discussion of the research findings.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

The previous chapter focused on the research methodology and measuring instruments used for data collection, as well as a discussion on analysis strategies employed to achieve to objectives of this study. In this chapter, the results of the statistical analyses are reported and discussed on the basis of the set research objectives. An overview of the sample population is also provided in this chapter.

4.2 Sampling population

The target population of this study was non-managerial nursing practitioners. The specific sampling population (the subset of the target population that have a positive, non-zero probability of being selected) comprised of non-managerial nursing practitioners permanently employed at a private hospital group in South Africa, that were working during the data collection period and was not on leave. The selected hospital group has over 50 hospitals countrywide with more than 8000 permanently employed non-managerial nursing practitioners, and respondents represented all regional areas. Of the over 8000 employees roughly 28% are between the ages of 18 and 30, 42% between the ages of 31 and 45, and 30% over the age of 45. Furthermore, 92% are female and 8% are male. In terms of race, 48% is African, 28% white, 10% coloured, and 5% Indian (September 2014). Table 4.1 provides a summary of the demographic profile of the respondents (n = 453).

The sample group was well represented by all age groups, with the majority (41%) of respondents between the age of 31 and 45. As expected from the nursing profession which has always been female-dominated, 91% of the respondents were female. The respondents predominantly belonged to the white population group (45%); followed by the African population group (32%), and then the coloured population group (18%). In terms of nursing category, 38% of the sample consisted of Professional / Registered Nurses, 26% were Senior Professional Nurses, with 22% Enrolled Nurses and 11% Enrolled Nurse Auxiliaries. Therefore, the majority of the nurses selected into the sample were relatively senior in terms of nursing category (64%). The majority (69%) of the sample indicated that their highest qualification was a certificate or diploma, with a mere 17% indicating a degree or postgraduate degree.

Table 4.1
Demographic Profile of Respondents

Variable	Category	Frequency	%
Age	18 - 30	111	25%
	31 - 45	186	41%
	46 - 65	154	34%
	No response	2	<1%
Gender	Female	410	91%
	Male	40	9%
	No response	3	<1%
Ethnicity	White	201	45%
	African	142	32%
	Coloured	82	18%
	Indian	22	5%
	Other	2	<1%
	No response	4	<1%
Nursing category	Enrolled Nurse Auxiliary (ENA)	51	11%
	Enrolled Nurse (EN)	100	22%
	Professional / Registered Nurse (PN/RN)	170	38%
	Senior Professional Nurse (SPN)	120	26%
	Other	3	<1%
	No response	9	2%
Highest qualification	Matric	51	11%
	Certificate or Diploma	312	69%
	Degree	49	11%
	Post Graduate Degree	29	6%
	No response	12	3%
Length of service	0 - 1 year	63	14%
	2 - 3 years	85	19%
	4 - 5 years	43	9%
	More than 5 years	256	57%
	No response	6	1%
Total amount of employers	0 - 1	94	21%
	2 - 3	230	51%
	4 - 5	81	18%
	More than five	41	9%
	No response	7	2%
Longest time employed at any organisation	Less than a year	6	1%
	1 - 2 years	43	9%
	3 - 5 years	103	23%
	6 - 10 years	116	26%
	More than 10 years	176	40%
	No response	9	2%
Shortest time employed at any organisation	Less than a year	99	22%
	1 - 2 years	158	35%
	3 - 5 years	94	21%
	6 - 10 years	44	10%
	More than 10 years	24	5%
	No response	34	8%

More than half of the respondents (57%) have been with the organisation for more than five years, and more than half of the respondents (72%) have only been employed by one to three employers over their working lives (in total, including their current employer).

4.3 Reliability of the measurement instruments

Item analysis was performed on both measurement instruments (UWES and JDRS) used within this study in order to determine internal reliability and to identify the items that do not contribute to the measurement of the latent variables.

4.3.1 Reliability analysis of the Utrecht work engagement scale (UWES)

The Utrecht Work Engagement Scale (UWES) consists of 17 items which measure the subscales absorption, dedication and vigour. The item analysis results indicated that this work engagement measuring instrument has an overall reliability coefficient of .78. This value is higher .70, and therefore the instrument seems to be reliable overall. Each of the subscales was subjected to Cronbach's alpha item analysis. The results are presented in detail in the following sections.

Vigour Subscale: Table 4.2 represents the reliability and correlation results for the 6-item *vigour* subscale. The Cronbach's alpha was found to be .80. This was satisfactory and above the sufficient value of at .70. All items appeared to have item-total correlations larger than .30 and no items were flagged as problematic. It is also of interest to note that the Cronbach's alpha would have decreased if any of the items were deleted; this indicates that all the items add value to the measurement of vigour. The results of the item analysis of the vigour subscale therefore did not raise any concerns and no items were deleted.

Table 4.2

Reliability of the Vigour subscale of the UWES

Scale mean = 25.32; SD = 5.54; n= 451; Cronbach's alpha = .80				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 15	21.38	21.27	.66	.75
Item 16	21.17	21.35	.67	.75
Item 17	21.34	20.39	.61	.76
Item 18	21.07	22.08	.52	.78
Item 19	21.09	22.93	.49	.79
Item 20	20.55	24.40	.41	.80

Dedication subscale: Table 4.3 represents the reliability results for the 5-item *dedication* subscale. The Cronbach's alpha of this subscale was .86 which is above the sufficient value of .70. All items presented an item-total correlation substantially above the recommended cut-off value (.30). The results of the item analysis of the dedication subscale did not raise any concerns and all items were retained for further analysis.

Table 4.3

Reliability of the Dedication Subscale of UWES

Scale mean = 25.40; SD = 5.540; n= 451; Cronbach's alpha = .86				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 21	20.20	13.58	.72	.83
Item 22	20.41	12.92	.76	.82
Item 23	20.44	12.26	.79	.81
Item 24	19.98	14.45	.71	.83
Item 25	20.55	14.38	.48	.89

Absorption subscale: Table 4.4 represents the reliability results for the *absorption* subscale which consists of six items. Cronbach's alpha of this subscale was found to be .81. This was satisfactory as it is above the value of .70 (Kerlinger & Lee, 2000; Pallant, 2007). From the item-total statistics it was evident that the item-total correlations of all items exceeded .30. It is also of interest to note that there was no increase in the alpha if any of the items was deleted and as a result, no items were deleted from further analyses.

Table 4.4

Reliability of the Absorption Subscale of UWES

Scale mean = 24.73; SD = 6.21; n= 451; Cronbach's alpha = .81				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 26	19.92	31.50	.44	.81
Item 27	20.81	26.28	.60	.77
Item 28	20.23	28.40	.56	.77
Item 29	20.41	27.75	.68	.76
Item 30	21.01	25.98	.62	.77
Item 31	21.34	26.75	.52	.79

Conclusion: reliability of UWES: All the items in the work engagement measure provided high levels of reliability, while the 17-item work engagement measuring instrument has an overall reliability coefficient of .78. The reliability of the measurement scale for the purpose of this study is therefore satisfactory. This result concurs with Demerouti et al. (2001), Salanova et al. (2001), Schaufeli and Bakker (2004) and Schaufeli et al. (2008) who also reported high levels of internal consistency for the UWES.

4.3.2 Reliability analysis of the job demands-resources scale (JDRS)

The Job Demands-Resources Scale (JDRS) consists of 42 items measuring the subscales variety at work, opportunities to learn, independence at work, relationship with colleagues, relationship with supervisor, information, communication, participation, contact possibilities, remuneration, career possibilities, pace and amount of work, mental load, emotional load, ambiguities of work, and uncertainty about the future. Each of these subscales was subjected to Cronbach's alpha item analysis.

Pace and amount of work subscale: Table 4.5 represents the reliability results for the *pace and amount of work* subscale of the JDRS which consists of two items. Cronbach's alpha of this subscale was found to be .69. Although this figure is not above the value of .70, subscales that are tested using very limited items often have lower Cronbach's alpha levels (Palant, 2007). Of further note, the Cronbach's alpha value would have decreased if any of the items were removed. Because this subscale is measured with only two items this result is not surprising and therefore both items were retained for further analyses.

Table 4.5

Reliability of the Pace and Amount of Work Subscale of the JDRS

Scale mean = 5.67; SD = 1.38; n= 451; Cronbach's alpha = .69				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 33	2.95	.63	.52	Not applicable
Item 34	2.71	.62	.52	Not applicable

Mental load subscale: Table 4.6 represents the reliability results for the *mental load* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .64 which is not surprising given the scale length. Of further note, the Cronbach's alpha value would have decreased if any of the items were removed; as a result all the items were retained for further analyses

Table 4.6

Reliability of the Mental Load Subscale of the JDRS

Scale mean = 10.21; SD = 1.51; n= 451; Cronbach's alpha = .64				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 35	7.01	1.14	.48	.49
Item 36	6.66	1.43	.47	.51
Item 37	6.75	1.36	.40	.60

Emotional load subscale: Table 4.7 represents the reliability results for the *emotional load* subscale of the JDRS which consists of three items. Despite the fact that only three items are used to measure this subscale the Cronbach's alpha was found to be .71. The Cronbach alpha would have decreased with the deletion of any of the items; as a result all items were retained for further analyses.

Table 4.7

Reliability of the Emotional Load Subscale of the JDRS

Scale mean = 7.36; SD = 1.94; n= 451; Cronbach's alpha = .71				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 38	5.10	1.90	.51	.63
Item 39	4.54	1.80	.50	.66
Item 40	5.08	2.01	.58	.56

Opportunities to learn subscale: Table 4.8 represents the reliability results for the *opportunities to learn* subscale of the JDRS which consists of two items. Despite the fact that only two items measure this subscale the Cronbach's alpha was found to be .80 which is higher than the value of .70. Furthermore, from the item-total statistics it was evident that the item-total correlations of all items significantly exceed .30 and as a result no items were deleted from further analyses.

Table 4.8

Reliability of the Opportunities to Learn Subscale of the JDRS

Scale mean = 5.90; SD = 1.64; n= 451; Cronbach's alpha = .80				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 42	2.96	.80	.67	Not applicable
Item 43	2.94	.80	.67	Not applicable

Variety at work subscale: *Variety at work* had only one item in the questionnaire, consequently item analysis was not possible.

Independence at work subscale: Table 4.9 represents the reliability results for the *independence at work* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .77 which is higher than the value of .70. The Cronbach's alpha would have decreased with the deletion of any of the items and consequently all items were retained for further analyses.

Table 4.9

Reliability of the Independence at Work Subscale of the JDRS

Scale mean = 8.86; SD = 2.02; n= 451; Cronbach's alpha = .77				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 44	5.83	1.98	.59	.72
Item 45	5.81	2.09	.63	.67
Item 46	6.07	2.00	.60	.70

Participation subscale: Table 4.10 represents the reliability results for the *participation* subscale of the JDRS which consists of two items. Cronbach's alpha of this subscale was found to be .54 which indicates that caution should be applied when interpreting the results related to this subscale. The measures possibly do not provide a satisfactory representation of the latent variable. Palant (2005) does indicate that Cronbach's alpha values are often in the range of .50 when there is less than 10 items utilised to measure the subscale. Because both of the Corrected Item-Total Correlation values exceeded the value of .30, both items were retained for further analyses and the findings related to this subscale will be interpreted with caution.

Table 4.10

Reliability of the Participation Subscale of the JDRS

Scale mean = 4.76; SD = 1.47; n= 451; Cronbach's alpha = .54				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 47	1.97	.85	.38	Not applicable
Item 65	2.79	.73	.38	Not applicable

Relationships with colleagues subscale: Table 4.11 represents the reliability results for the *relationship with colleagues* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .79 which is higher than the recommended value of .70. Interestingly the Cronbach alpha would have increased to .83 if item 50 was deleted from the measuring instrument. However, because the value is still higher than .70 and the corrected item-total correlation of the item exceeded the value of .30 the item was not deleted from further analyses.

Table 4.11

Reliability of the Relationship with Colleagues Subscale of the JDRS

Scale mean = 9.38; SD = 1.90; n= 451; Cronbach's alpha = .79				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 48	6.48	1.57	.70	.64
Item 49	6.22	1.54	.71	.63
Item 50	6.05	2.22	.52	.83

Relationship with supervisor subscale: Table 4.12 represents the reliability results for the *relationship with supervisor subscale* of the JDRS which consists of three items. Despite the fact that only three items measure this subscale the Cronbach's alpha was found to be .84 which is higher than the value of .70. The results are satisfactory and no items were deleted from further analyses.

Table 4.12

Reliability of the Relationship with Supervisor Subscale of the JDRS

Scale mean = 9.81; SD = 2.07; n= 451; Cronbach's alpha = .84				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 51	6.52	2.00	.67	.81
Item 52	6.37	2.31	.74	.75
Item 53	6.73	1.87	.71	.76

Ambiguities of work subscale: Table 4.13 represents the reliability results for the *ambiguities of work subscale* of the JDRS which consists of two items. Cronbach's alpha of this subscale was found to be .61. Because this subscale is measured with only two items, which both yielded corrected item-total correlation values higher than .30, both items were retained for further analyses.

Table 4.13

Reliability of the Ambiguities of Work Subscale of the JDRS

Scale mean = 6.88; SD = 1.03; n= 451; Cronbach's alpha = .61				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 54	3.64	.29	.45	Not applicable
Item 55	3.24	.44	.45	Not applicable

Information subscale: Table 4.14 represents the reliability results for the *information* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .79 which is higher than the value of .70. The Cronbach's alpha would have decreased with the deletion of any of the items, as a result all the items were retained for further analyses.

Table 4.14

Reliability of the Information Subscale of the JDRS

Scale mean = 8.95; SD = 2.04; n= 451; Cronbach's alpha = .79				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 56	5.95	1.99	.62	.73
Item 57	5.82	2.27	.61	.74
Item 58	6.13	1.88	.67	.67

Communication subscale: Table 4.15 represents the reliability results for the *communication* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .80 which is higher than the value of .70. The Cronbach's alpha would have decreased with the deletion of any of the items; consequently none of the items was deleted for further analyses.

Table 4.15

Reliability of the Communication Subscale of the JDRS

Scale mean = 9.20; SD = 2.09; n= 451; Cronbach's alpha = .80				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 59	5.95	2.23	.60	.77
Item 60	6.07	2.03	.74	.64
Item 61	6.39	2.11	.61	.77

Contact possibilities subscale: Table 4.16 represents the reliability results for the *contact possibilities* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .77 which is higher than the value of .70. All the corrected item-total correlations exceeded the value of .30, and the Cronbach's alpha would have decreased with the deletion of any of the items. As a result all items were retained for further analyses.

Table 4.16

Reliability of the Contact Possibilities Subscale of the JDRS

Scale mean = 9.38; SD = 2.07; n= 451; Cronbach's alpha = .77				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 62	6.22	2.30	.56	.75
Item 63	6.11	2.01	.64	.66
Item 64	6.45	2.01	.63	.67

Uncertainty about the future subscale: Table 4.17 represents the reliability results for the *uncertainty about the future* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .92 which is significantly higher than the value of .70. All the corrected item-total correlation values were also significantly higher than the value of .30. Furthermore, the Cronbach's alpha would have decreased with the deletion of any of the items. These results are highly satisfactory and all items were consequently retained for further analyses.

Table 4.17

Reliability of the Uncertainty about the Future subscale of the JDRS

Scale mean = 7.45; SD = 3.08; n= 451; Cronbach's alpha = .92				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 66	4.98	4.50	.81	.90
Item 67	4.96	4.13	.89	.83
Item 68	4.96	4.55	.80	.91

Remuneration subscale: Table 4.18 represents the reliability results for the *remuneration* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .86 which is higher than the recommended value of .70. The Cronbach's alpha would have decreased with the deletion of any of the items and therefore none of the items were removed from further analyses.

Table 4.18

Reliability of the Remuneration Subscale of the JDRS

Scale mean = 5.45; SD = 2.32; n= 451; Cronbach's alpha = .86				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 69	3.46	2.38	.74	.80
Item 70	3.63	2.64	.74	.80
Item 71	3.81	2.63	.73	.80

Career possibilities subscale: Table 4.19 represents the reliability results for the *career possibilities* subscale of the JDRS which consists of three items. Cronbach's alpha of this subscale was found to be .67 that could be attributed to the number of items. Due the corrected item-total correlations which all exceeded the value of .30 it was not deemed necessary to delete any of the items from further analysis.

Table 4.19

Reliability of the Career Possibilities Subscale of the JDRS

Scale mean = 7.30; SD = 2.27; n= 451; Cronbach's alpha = .67				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 72	5.36	2.66	.49	.56
Item 73	4.19	3.02	.40	.68
Item 74	5.04	2.27	.57	.46

Conclusion: Reliability of the JDRS: Most of the Job Demands and Resources subscales provided acceptable levels of reliability (above .70), however five subscales (namely; pace and amount of work, mental load, participation, ambiguities of work and career possibilities) showed values below .70. In cases of low Cronbach's alpha values (lower than .70) one contributing factor could be the fact that very few items were used to measure the subscale. In these cases the corrected item-total correlations were consulted to determine whether the items measured the intended subscale. In all cases the corrected item-total correlations exceeded the value of .30, and as a result all the items were retained in the scale for all further analysis. This result concurs with Narainsamy and Van der Westhuizen (2013) and Jackson and Rothmann (2005) who also reported acceptable Cronbach's alpha values for the JDRS. Of note is that the reliability coefficient for a composite score was not calculated for this measurement instrument because only the scores on the subscales are used in subsequent analysis.

4.3.3 Conclusion on reliability of the measuring instruments

The confirmation of the overall reliability of the measuring instruments used in a diagnostic study is important in order to provide the assurance that the deductions and conclusions that are made are based on a sound theoretic and scientific foundation. Item analysis was therefore performed on both measurement instruments used within this study in order to ensure internal reliability and to identify the items that do not contribute to the internal description of the latent variables. Results of the item analysis was mostly satisfactory, with the exception of the five subscales in the JDRS namely; pace and amount of work, mental load, participation, ambiguities of work and career possibilities, that resulted in Cronbach's

alphas below .70. However, because in all cases the corrected item-total correlations exceeded the value of .30 all the items were retained for all further analysis. The latent variables measured by the subscales with Cronbach's alphas below .70 were interpreted with caution in further analyses. Overall it is posited that the measuring instruments that were utilised within this study was sufficiently dependable and consequently assurance is provided of an increase in the likelihood of accuracy of inferences made during further data analyses.

4.4 Testing the diagnostic model

The Job Demands and Resources model was used as diagnostic framework for this study. In order to ensure accuracy of deductions made during the diagnostic evaluation the model needs to be tested empirically. This was achieved through the use of correlation analysis, hierarchical multiple regression analysis and PLS analysis. The results of each of these analyses are discussed in the following sections.

4.4.1 Correlation analysis of independent variables and work engagement

A correlation analysis is used to determine the strength and direction of the linear relationship between two variables. Correlation analysis was conducted between each independent variable (the 16 job demands and resources) and work engagement (as a single score). Table 4.20 indicates the results of the correlation analyses.

The results of the correlation analysis revealed that 15 of the 16 job demands and resources were significantly related to the dependent variable (work engagement). Contrary to the stated hypothesis *pace and amount of work* did not statistically significantly correlate with work engagement ($p=.32$). Interestingly, this result does not corroborate previous research which indicated that *pace and amount of work* is negatively correlated with work engagement in the nursing industry (Tomic & Tomic, 2011). It is posited that because nursing practitioners have become accustomed to working at a fast pace (likely due to the nursing shortage) the effect of this variable on work engagement has become less significant. However; due to the apparent inconsistencies between this results and literature, it suggested that the correlation between *pace and amount of work* and work engagement be further investigated in future research.

Table 4.20

Correlation Analyses of Independent Variables and Work Engagement

Variable	Pearson (r)	Pearson p-value
Variety at work	.29	.01*
Opportunities to learn	.45	.01*
Independence at work	.39	.01*
Relationships with colleagues	.29	.01*
Relationships with supervisor	.36	.01*
Information	.35	.01*
Communication	.29	.01*
Participation	.36	.01*
Contact possibilities	.30	.01*
Remuneration	.17	.01*
Career possibilities	.29	.01*
Pace and amount of work	-.05 ^a	.32
Mental load	.09	.05*
Emotional load	-.15 ^a	.01*
Ambiguities aofwork	.33	.01*
Uncertainty about the future	.14	.01*

^aNegative correlation

* p-value ≤ .05 (significant)

The majority of the other job demands and resources which did indicate a significant correlation with work engagement yielded medium strength positive relations to work engagement (r between .3 and .45). *Uncertainty about the future* (r = .14) and *remuneration* (r = .17) had significant, but weak correlations with the dependent variable work engagement. Freney and Tiernan (2009) as well as Maslach and Leiter (1997) also reported that *remuneration* is a confirmed antecedent of work engagement of nursing practitioners. Although no literature that specifically corroborate or contradict the weak relationship between work engagement and *remuneration* could be uncovered, only weak correlations between *remuneration* and job satisfaction have been reported. Judge, Piccolo, Padsakoff, Shaw and Rich (2010) reported that level of pay bears a positive, albeit modest, relationship to job satisfaction and pay satisfaction. Other studies have also revealed a weak relationship between pay satisfaction and job satisfaction (Adams & Beehr, 1998; Dunham & Hawk, 1977). These results are similar to the findings of this study. It is therefore posited that *remuneration* is not likely, by itself, to result in work engagement, hence employers interested in having an engaged workforce may need to supplement sufficient *remuneration* with further drivers of engagement. Some practical suggestions toward this goal are discussed in Chapter Five.

The results further revealed that only one independent variable was significantly negatively correlated with the dependent variable. The Pearson correlation coefficient (r) of the job demand *emotional load* ($r = -.15$) indicated a significant, but weak negative correlation with work engagement. This result is in line with the hypothesis that nursing practitioners who experience high levels of *emotional load* will also experience lower levels of engagement. Support for these results are found in the studies of Kowalski et al. (2010), and Pereira et al. (2011) who reported that workload leads to burnout (the positive antithesis of work engagement).

The job demands *mental load*, *ambiguities of work* and *uncertainty about the future* were not negatively correlated to work engagement as anticipated based on the literature presented in Chapter Two. Although it was hypothesised that *mental load* will have a negative correlation with work engagement, Verbruggen's (2009) study indicated that mental overload was positively related to the engagement scales vigour and dedication; which supports the results of this study. Verbruggen proposes that being occupied mentally and working with lots of information provided a positive challenge that made employees feel more persistent and energetic and experience more enthusiasm and inspiration. The positive correlation between *ambiguities of work* and work engagement is surprising as it not only contradicts the hypothesis, but confirmatory literature for this result could also not be found. It is possible that the Cronbach's alpha of .609 of this subscale in the measurement instrument contributed to this result. Turning to *uncertainty about the future*; literature demonstrated a negative relationship between job insecurity and work engagement (e.g. Mauno et al., 2007; Vander Elst et al., 2013; De Cuyper & De Witte, 2007). Hence, no support for these specific results of this study could be found. Although the results indicated only a weak correlation, no logical explanation for these results can be provided. Because no rational explanations for the positive correlations between work engagement and *ambiguities of work* and *uncertainties about the future* respectively can be argued, it is suggested that the hypothesised negative correlation of these specific job demands with work engagement be further investigated in future research.

It is noteworthy that the primary aim of the research was not to evaluate the relationship between work engagement and job demands and resources. Nonetheless, it serves to enhance the credibility of the diagnostic findings of the research if it can be shown that the assumed antecedents of work engagement (the specific job demands and resources) do significantly explain variance in work engagement of nursing practitioners, and that the relationships are in the expected direction (positive or negative correlations). Following from the correlation analysis between the dependent and independent variables in the diagnostic

model, the proposed moderating effect of the job demands on the relationship between the job resources and engagement was assessed through the use of hierarchical multiple regression analysis.

4.4.2 Hierarchical multiple regression analysis: testing the moderating effect of job demands

To gain a deeper understanding of the work engagement of nursing practitioners, the effect of each independent variable and moderator on work engagement needed to be understood. According to the model of Rothmann and Jordaan (2006) job demands moderate any potential impact that job resources may have on work engagement (the dependent variable). Hence, a hierarchical multiple regression analysis (as described in Chapter Three) was conducted to determine whether job demands weaken the effect of job resources on work engagement in the nursing environment. The results of this test are reported in Table 4.21.

Table 4.21

Hierarchical Multiple Regression Analysis

Independent variable	Moderator	Interaction coefficient	R ² with interaction	R ² without interaction	R ² change	P-value
Variety at work	Pace and amount of work	.01	.08	.08	-.00	.91
Variety at work	Mental load	.10	.90	.08	-.01	.03*
Variety at work	Emotional load	.09	.09	.08	-.01	.05*
Variety at work	Ambiguities of work	-.05	.09	.08	-.00	.23
Variety at work	Uncertainty about the future	-.07	.09	.08	-.00	.14
Opportunities to learn	Pace and amount of work	-.07	.21	.21	-.00	.10
Opportunities to learn	Mental load	-.06	.21	.21	-.00	.16
Opportunities to learn	Emotional load	.13	.22	.21	-.02	.00*
Opportunities to learn	Ambiguities of work	-.03	.21	.21	-.00	.54
Opportunities to learn	Uncertainty about the future	-.11	.22	.21	-.01	.01*
Independence at work	Pace and amount of work	.03	.15	.15	-.00	.56
Independence at work	Mental load	.03	.15	.15	-.00	.52
Independence at work	Emotional load	.04	.15	.15	-.00	.42
Independence at work	Ambiguities of work	.02	.15	.15	-.00	.71
Independence at work	Uncertainty about the future	-.03	.15	.15	-.00	.53
Participation	Pace and amount of work	-.02	.13	.13	-.00	.59
Participation	Mental load	-.04	.13	.13	-.00	.35
Participation	Emotional load	.10	.14	.13	-.01	.03*
Participation	Ambiguities of work	-.04	.13	.13	-.00	.34
Participation	Uncertainty about the future	-.02	.13	.13	-.00	.68

Table 4.21 (continued)

Hierarchical Multiple Regression Analysis

Independent variable	Moderator	Interaction coefficient	R2 with interaction	R2 without interaction	R2 change	P-value
Relationships with colleagues	Pace and amount of work	.06	.09	.08	-.00	.16
Relationships with colleagues	Mental load	-.01	.08	.08	-.00	.90
Relationships with colleagues	Emotional load	.08	.09	.08	-.01	.08*
Relationships with colleagues	Ambiguities of work	-.07	.09	.08	-.00	.13
Relationships with colleagues	Uncertainty about the future	-.00	.08	.08	-.00	.94
Relationship with supervisor	Pace and amount of work	-.01	.13	.13	-.00	.78
Relationship with supervisor	Mental load	-.00	.13	.13	-.00	.92
Relationship with supervisor	Emotional load	.01	.13	.13	-.00	.77
Relationship with supervisor	Ambiguities of work	-.02	.13	.13	-.00	.62
Relationship with supervisor	Uncertainty about the future	-.01	.13	.13	-.00	.76
Information	Pace and amount of work	.01	.12	.12	-.00	.75
Information	Mental load	-.00	.12	.12	-.00	.97
Information	Emotional load	.02	.12	.12	-.00	.67
Information	Ambiguities of work	-.03	.12	.12	-.00	.54
Information	Uncertainty about the future	.01	.12	.12	-.00	.86
Communication	Pace and amount of work	.04	.08	.08	-.00	.42
Communication	Mental load	.04	.08	.08	-.00	.41
Communication	Emotional load	.05	.09	.08	-.00	.26
Communication	Ambiguities of work	-.01	.08	.08	-.00	.77
Communication	Uncertainty about the future	.04	.08	.08	-.00	.42
Contact possibilities	Pace and amount of work	.04	.09	.09	-.00	.36
Contact possibilities	Mental load	.02	.09	.09	-.00	.68
Contact possibilities	Emotional load	.06	.10	.09	-.00	.17
Contact possibilities	Ambiguities of work	.02	.09	.09	-.00	.71
Contact possibilities	Uncertainty about the future	.09	.10	.09	-.01	.06*
Remuneration	Pace and amount of work	-.03	.03	.03	-.00	.53
Remuneration	Mental load	.00	.03	.03	-.00	1.00
Remuneration	Emotional load	.11	.04	.03	-.01	.02*
Remuneration	Ambiguities of work	-.05	.03	.03	-.00	.28
Remuneration	Uncertainty about the future	-.04	.03	.03	-.00	.44
Career possibilities	Pace and amount of work	-.02	.08	.08	-.00	.65
Career possibilities	Mental load	-.00	.08	.08	-.00	.95
Career possibilities	Emotional load	.13	.10	.08	-.02	.00*
Career possibilities	Ambiguities of work	-.07	.09	.08	-.00	.13
Career possibilities	Uncertainty about the future	-.01	.08	.08	-.00	.86

* p-value \leq .05 (significant)

The results of the hierarchical multiple regression analysis indicates that only nine of the possible 55 job resource x job demands interaction effects were statistically significant ($p \leq .05$). These nine interaction effects are summarised in Table 4.22 below.

Table 4.22

Significant Job Resource X Job Demands Interaction Effects

Independent variable	Moderator	Dependent variable
Career possibilities	Emotional load	Work engagement
Opportunities to learn	Emotional load	Work engagement
Participation	Emotional load	Work engagement
Relationships with colleagues	Emotional load	Work engagement
Remuneration	Emotional load	Work engagement
Variety at work	Emotional load	Work engagement
Variety at work	Mental load	Work engagement
Contact possibilities	Uncertainty about the future	Work engagement
Opportunities to learn	Uncertainty about the future	Work engagement

Only three of the job demands were involved in interaction effects with job resources that statistically significantly ($p \leq .05$) explained unique variance in work engagement that is not explained by job resources; namely *emotional load* (moderates the effect between 6 of the 11 possible job resources and work engagement), *mental load* (moderates only the relationship between *variety at work* and work engagement); and *uncertainly about the future* (moderates only the relationship between *contact possibilities* and *opportunities to learn* with work engagement).

This result does not correspond to the model of Rothmann and Jordaan (2006) which suggested that the five job demands moderate the effect of the eleven job resources on work engagement. It is therefore concluded that, when evaluating the relationships between the job resources and work engagement independently for each job resource, each job resource statistically significantly explains variance in work engagement (with the exception of pace and amount of work) but that job demands only moderate these relationships in a select few instances. A further understanding of these results can be gained through the use of the PLS analysis, which test the fit of the total model.

4.4.3 PLS analysis

PLS modelling was attempted on the complete Job Demands and Resources model; however, the extreme complexity of the model made it a practically impossible task. The complete model failed to return a solution. Consequently, to simplify the analysis, a PLS

analysis was firstly conducted on the model without including the moderating effect of the job demands. Stated differently, a PLS analysis was conducted in which engagement was regressed on all the job resource and job demand latent variables without including the job demands latent variables as moderators.

As explained in Chapter Three, when using the PLS approach to structural equation modelling, a two-step process is suggested (Chin, 1998). The first step of the PLS analysis pertains to the evaluation of the measurement model parameter estimates (using the bootstrap method). The purpose of this evaluation is to determine the measurement quality of the item indicators used to represent the constructs to be used in the evaluation of the inner (or structural) model. The results of this analysis are reported in Table 4.23.

Table 4.23

PLS Evaluation of the Measurement Model (Moderation Effect Excluded)

Construct	Item	Outer loading	Bootstrap mean	95% lower	95% upper
Work engagement	UWES item 15	.67	.67	.59	.74*
Work engagement	UWES item 16	.71	.71	.65	.76*
Work engagement	UWES item 17	.72	.72	.67	.77*
Work engagement	UWES item 18	.56	.56	.47	.63*
Work engagement	UWES item 19	.47	.47	.36	.56*
Work engagement	UWES item 20	.43	.44	.34	.54*
Work engagement	UWES item 21	.74	.73	.67	.79*
Work engagement	UWES item 22	.80	.80	.76	.83*
Work engagement	UWES item 23	.81	.81	.77	.84*
Work engagement	UWES item 24	.72	.71	.65	.77*
Work engagement	UWES item 25	.55	.54	.44	.63*
Work engagement	UWES item 26	.57	.57	.48	.65*
Work engagement	UWES item 27	.47	.47	.36	.57*
Work engagement	UWES item 28	.68	.68	.60	.74*
Work engagement	UWES item 29	.64	.64	.55	.73*
Work engagement	UWES item 30	.48	.47	.36	.58*
Work engagement	UWES item 31	.45	.45	.33	.56*
Pace and amount of work	JDRS item 33	.75	.66	-.40	.97
Pace and amount of work	JDRS item 34	.96	.74	-.94	1.00
Mental load	JDRS item 35	.37	.28	-.58	.72
Mental load	JDRS item 36	.92	.83	.28	.99*
Mental load	JDRS item 37	.64	.55	-.20	.86
Emotional load	JDRS item 38	.76	.75	.60	.85*
Emotional load	JDRS item 39	.73	.72	.56	.82*
Emotional load	JDRS item 40	.88	.88	.81	.95*
Variety at work	JDRS item 41	1.00	1.00	1.00	1.00*

Table 4.23 (continued)

PLS Evaluation of the Measurement Model (Moderation Effect Excluded)

Construct	Item	Outer loading	Bootstrap mean	95% lower	95% upper
Opportunities to learn	JDRS item 42	.88	.87	.83	.91*
Opportunities to learn	JDRS item 43	.95	.95	.93	.96*
Independence at work	JDRS item 44	.82	.82	.76	.87*
Independence at work	JDRS item 45	.87	.87	.83	.89*
Independence at work	JDRS item 46	.79	.79	.72	.84*
Participation	JDRS item 47	.85	.85	.78	.90*
Relationships with colleagues	JDRS item 48	.87	.86	.82	.90*
Relationships with colleagues	JDRS item 49	.86	.85	.80	.89*
Relationships with colleagues	JDRS item 50	.79	.79	.73	.85*
Relationships with supervisor	JDRS item 51	.84	.84	.80	.88*
Relationships with supervisor	JDRS item 52	.88	.88	.83	.91*
Relationships with supervisor	JDRS item 53	.89	.89	.87	.92*
Ambiguities of work	JDRS item 54	.84	.84	.77	.91*
Ambiguities of work	JDRS item 55	.86	.86	.78	.91*
Information	JDRS item 56	.84	.84	.79	.88*
Information	JDRS item 57	.82	.82	.77	.87*
Information	JDRS item 58	.85	.85	.81	.89*
Communication	JDRS item 59	.79	.79	.72	.85*
Communication	JDRS item 60	.88	.87	.83	.91*
Communication	JDRS item 61	.86	.86	.82	.90*
Contact possibilities	JDRS item 62	.81	.81	.75	.86*
Contact possibilities	JDRS item 63	.82	.82	.76	.87*
Contact possibilities	JDRS item 64	.85	.85	.79	.89*
Participation	JDRS item 65	.81	.81	.73	.87*
Uncertainty about the future	JDRS item 66	.90	.89	.80	.95*
Uncertainty about the future	JDRS item 67	.95	.94	.90	.96*
Uncertainty about the future	JDRS item 68	.92	.91	.86	.97*
Remuneration	JDRS item 69	.89	.89	.84	.93*
Remuneration	JDRS item 70	.87	.87	.81	.91*
Remuneration	JDRS item 71	.88	.88	.83	.93*
Career possibilities	JDRS item 72	.74	.74	.62	.81*
Career possibilities	JDRS item 73	.78	.78	.69	.86*
Career possibilities	JDRS item 73	.80	.79	.72	.86*

*Zero is not included in confidence interval; hence the corresponding coefficient is statistically significant ($p \leq .05$).

The results depicted in Table 4.23 indicate that the two items that measure *pace and amount of work* does not statistically significantly represent the latent variable that they were tasked to reflect (zero was included in the confidence interval; hence the corresponding coefficient was not significant). In the item analysis the Cronbach's alpha of this subscale was found to be a somewhat disappointing .69. The low alpha indicates the presence of random error

variance in the item measures. It is noteworthy that the correlation analysis (Table 4.20) indicated no correlation between the variable *pace and amount of work*, and work engagement. Given the results of the item PLS analyses on the measurement model it is postulated that the lack of correlation may be partially due the items in the measurement instrument (measurement error). Results on the analysis of the measurement model indicated furthermore that two of the three items that measure *mental load* do not have a significant relationship with the construct; which could explain why results of the correlation analysis indicated a marginal relationship between *mental load* and work engagement. The rest of the measurements to be used in the evaluation of the inner model provided acceptable levels of reliability. Hence, the evaluation of the structural model can be made without serious concern about the quality of the measurement items.

With reference to average variance extracted (AVE) which measures the amount of variance due to the construct in relation to the amount of variance caused by the measurement error, only the latent independent variable *mental load* yielded an AVE of less than .50 (refer to Table 4.24). This implies that the convergent validity of the *mental load* items is questionable due to the dominant presence of measurement error. Overall the AVE scores were acceptable.

Table 4.24

Average Variance Extracted for the Measurement Model (Moderation Effect Excluded)

Construct	Average variance extracted (AVE)	Composite reliability
Ambiguities of work	.72	.84
Career possibilities	.60	.82
Communication	.72	.88
Contact possibilities	.69	.87
Emotional load	.63	.84
Independence at work	.69	.87
Information	.71	.88
Mental load	.47*	.70
Opportunities to learn	.83	.91
Pace and amount of work	.74	.85
Participation	.69	.82
Relationships with colleagues	.70	.88
Relationships with supervisor	.76	.91
Remuneration	.78	.91
Uncertainty about the future	.85	.95
Variety at work	1.00	1.00

* AVE < .50

The second phase of PLS analysis proposed by Chin (1998) involves the evaluation of the structural model parameter estimates using the bootstrap method. The results of this analysis are reported in Table 4.25.

Table 4.25

PLS Path Coefficients (Moderation Effect Excluded)

Path	Path coefficient	Bootstrap mean	95% lower	95% upper
Ambiguities of work & work engagement	.16	.16	.06	.25*
Career possibilities & work engagement	.04	.04	-.07	.14
Communication & work engagement	.03	.04	-.07	.15
Contact possibilities & work engagement	-.09	-.10	-.22	.03
Emotional load & work engagement	-.22	-.21	-.31	-.12*
Independence at work & work engagement	.07	.07	-.04	.19
Information & work engagement	.03	.04	-.08	.15
Mental load & work engagement	.09	.10	-.01	.20
Opportunities to learn & work engagement	.23	.23	.12	.34*
Pace and amount of work & work engagement	0	0	-.08	.09
Participation & work engagement	.10	.10	-.01	.20
Relationships with colleagues & work engagement	.02	.01	-.08	.12
Relationships with supervisor & work engagement	.09	.09	-.02	.21
Remuneration & work engagement	.04	.04	-.04	.13
Uncertainty about the future & work engagement	.08	.08	>.00	.17*
Variety at work & work engagement	.10	.10	>.00	.19*

*Zero is not included in confidence interval; hence the parameter estimate is statistically significant ($p \leq .05$).

As seen in Table 4.25 there was only five occurrences where the 95% confidence interval (the range between 95% upper and 95% lower) did not include zero and therefore confirmed statistically significant ($p \leq .05$) paths between the exogenous job resources and job demands latent variables and the single endogenous work engagement latent variable. The statistically significant ($p \leq .05$) paths include:

- Ambiguities of work and work engagement
- Emotional load and work engagement
- Opportunities to learn and work engagement
- Uncertainty about the future and work engagement
- Variety at work and work engagement

These five job resource and job demand latent variables did significantly ($p \leq .05$) explain unique variance in the single endogenous work engagement latent variable in a model including all the job resource and job demand latent variables. The remaining job resources and job demands were statistically insignificant ($p > .05$) and did not explain unique variance in the single endogenous engagement latent variable in a model including all the job resource and job demand latent variables.

The identified job resource and job demand latent variables which confirmed significant paths with work engagement were utilised to build a new simplified structural model. In the simplified structural model the latent job demand effects that were found to significantly explain variance in engagement in the first PLS model were allowed to moderate the effect of the job resource latent variables (that were found to significantly explain variance in engagement in the first PLS model) on engagement in the second PLS model. The second PLS model therefore existed out of two independent latent variables (*opportunities to learn* and *variety at work*), three moderating latent variables (*ambiguities of work*, *emotional load* and *uncertainty about the future*), and one latent dependent variable (*work engagement*). Gaining an understanding of the potential moderating roles of these job demands will produce a deeper appreciation of the interrelatedness of antecedents of work engagement of nursing practitioners, and help develop suggestions to human resource functions that address engagement holistically (as opposed to fragmented solutions). PLS modelling was therefore conducted on this new simplified model, again starting with the PLS of the measurement model. Results are indicated in Table 4.26.

Table 4.26

PLS Evaluation of the Simplified Measurement Model (Moderation Effect Included)

Construct	Item	Outer loading	Bootstrap mean	95% lower	95% upper
Work engagement	UWES item 15	.67	.67	.59	.74*
Work engagement	UWES item 16	.71	.71	.65	.76*
Work engagement	UWES item 17	.72	.72	.66	.77*
Work engagement	UWES item 18	.56	.56	.47	.63*
Work engagement	UWES item 19	.46	.46	.35	.57*
Work engagement	UWES item 20	.43	.44	.33	.54*
Work engagement	UWES item 21	.74	.73	.66	.79*
Work engagement	UWES item 22	0.8	0.8	.76	.83*
Work engagement	UWES item 23	.81	.81	.77	.84*
Work engagement	UWES item 24	.72	.72	.66	.77*
Work engagement	UWES item 25	.55	.55	.45	.64*
Work engagement	UWES item 26	.57	.57	.48	.65*

Table 4.26 (continued)

PLS Evaluation of the Simplified Measurement Model (Moderation Effect Included)

Construct	Item	Outer loading	Bootstrap mean	95% lower	95% upper
Work engagement	UWES item 27	.47	.47	.35	.57*
Work engagement	UWES item 28	.68	.68	.59	.75*
Work engagement	UWES item 29	.64	.64	.55	.73*
Work engagement	UWES item 30	.48	.48	.36	.58*
Work engagement	UWES item 31	.45	.45	.34	.55*
Variety at work	JDRS item 41	1.00	1.00	1.00	1.00*
Opportunities to learn	JDRS item 42	.88	.88	.83	.91*
Opportunities to learn	JDRS item 43	.95	.95	.93	.96*
Emotional load ^a	JDRS item 38	.76	.75	.56	.84*
Emotional load ^a	JDRS item 39	.73	.72	.57	.83*
Emotional load ^a	JDRS item 40	.88	.88	.82	.96*
Ambiguities of work ^a	JDRS item 54	.84	.84	.77	.90*
Ambiguities of work ^a	JDRS item 55	.86	.86	.78	.91*
Uncertainty about the future ^a	JDRS item 66	.90	.90	.81	.95*
Uncertainty about the future ^a	JDRS item 67	.95	.94	.89	.96*
Uncertainty about the future ^a	JDRS item 68	.92	.92	.87	.97*
Variety at work x emotional load ^a	JDRS items 41 & 38	.92	.82	-.06	.99
Variety at work x emotional load ^a	JDRS items 41 & 39	.71	.62	-.4	.90
Variety at work x emotional load ^a	JDRS items 41 & 40	.79	.69	-.27	.93
Variety at work x ambiguities of work ^a	JDRS items 41 & 54	.85	.77	-.36	1.00
Variety at work x ambiguities of work ^a	JDRS items 41 & 55	.93	.79	-.54	1.00
Variety at work x uncertainty about the future ^a	JDRS items 41 & 66	.91	.85	.19	.97*
Variety at work x uncertainty about the future ^a	JDRS items 41 & 67	.95	.89	.28	.97*
Variety at work x uncertainty about the future ^a	JDRS items 41 & 68	.93	.87	.01	.99*
Opportunities to learn x emotional load ^a	JDRS items 42 & 38	.76	.73	.43	.86*
Opportunities to learn x emotional load ^a	JDRS items 42 & 39	.71	.68	.42	.83*
Opportunities to learn x emotional load ^a	JDRS items 42 & 40	.71	.68	.23	.82*
Opportunities to learn x emotional load ^a	JDRS items 43 & 38	.79	.77	.46	.91*
Opportunities to learn x emotional load ^a	JDRS items 43 & 39	.77	.75	.52	.90*
Opportunities to learn x emotional load ^a	JDRS items 43 & 40	.77	.75	.40	.86*
Opportunities to learn x ambiguities of work ^a	JDRS items 42 & 54	.30	.56	-.47	.96
Opportunities to learn x ambiguities of work ^a	JDRS items 42 & 55	.87	.57	-.77	.95
Opportunities to learn x ambiguities of work ^a	JDRS items 43 & 54	.43	.57	-.5	.94
Opportunities to learn x ambiguities of work ^a	JDRS items 43 & 55	.93	.58	-.77	.96
Opportunities to learn x uncertainty about the future ^a	JDRS items 42 & 66	.82	.73	-.17	.94
Opportunities to learn x uncertainty about the future ^a	JDRS items 42 & 67	.83	.74	-.09	.92
Opportunities to learn x uncertainty about the future ^a	JDRS items 42 & 68	.81	.73	-.17	.93
Opportunities to learn x uncertainty about the future ^a	JDRS items 43 & 66	.80	.71	-.01	.92
Opportunities to learn x uncertainty about the future ^a	JDRS items 43 & 67	.81	.73	-.02	.94
Opportunities to learn x uncertainty about the future ^a	JDRS items 43 & 68	.80	.72	-.04	.92

^a Moderating Variable*Zero is not included in confidence interval; hence the parameter estimate is statistically significant ($p \leq .05$).

The results depicted in Table 4.26 indicate that the following items did not reliably measure the latent variables in the structural model:

- items that measure variety at work and emotional load
- items that measure variety at work and ambiguities of work
- items that measure opportunities to learn and ambiguities of work
- items that measure opportunities to learn and uncertainty about the future

The rest of the measurements to be used in the evaluation of the inner model provided acceptable levels of reliabilities.

In reference to average variance extracted (AVE), which measures the average proportion of the variance in the items earmarked to reflect a construct that can be attributed to the construct in relation to the amount of variance caused by the measurement error, only the interaction effect between *opportunities to learn* and *ambiguities of work* yielded an AVE of less than .50 (refer to Table 4.27). The AVE (.47) result for the *opportunities to learn* and *ambiguities of work* scale indicates that a greater amount of variance in the items is explained by measurement error than by the underlying dimension. This should be taken into consideration when interpreting further analysis of the *opportunities to learn* and *ambiguities of work* scale. Overall the AVE scores were acceptable.

Table 4.27

Average Variance Extracted for the Simplified Measurement Model (Moderation Effect Included)

Constructs	Average variance extracted (AVE)	Composite reliability
Variety at work	1	1
Opportunities to learn	.83	.91
Emotional load ^a	.63	.84
Ambiguities of work ^a	.72	.84
Uncertainty about the future ^a	.85	.95
Variety at work x emotional load ^a	.66	.85
Variety at work x ambiguities of work ^a	.79	.88
Variety at work x uncertainty about the future ^a	.86	.95
Opportunities to learn x emotional load ^a	.57	.89
Opportunities to learn x ambiguities of work ^a	.47*	.75
Opportunities to learn x uncertainty about the future ^a	.66	.92

^a Moderator Variable

* AVE < .50

PLS analysis was conducted on the simplified structural model as a final step. The results of this analysis are reported in Table 4.28.

Table 4.28

PLS Path Coefficients for the Simplified Model (Moderation Effect Included)

Path	Path coefficient	Bootstrap mean	95% lower	95% upper
Variety at work & work engagement	.10	.10	.01	.19*
Opportunities to learn & work engagement	.35	.34	.26	.43*
Emotional load ^a & work engagement	-.20	-.20	-.29	-.10*
Ambiguities of work ^a & work engagement	.21	.20	.12	.29*
Uncertainty about the future ^a & work engagement	.10	.10	.02	.18*
Variety at work x emotional load ^a & work engagement	.00	.02	-.10	.12
Variety at work x ambiguities of work ^a & work engagement	.01	.01	-.10	.13
Variety at work x uncertainty about the future ^a & work engagement	-.02	-.02	-.11	.08
Opportunities to learn x emotional load ^a & work engagement	.20	.18	.06	.29*
Opportunities to learn x ambiguities of work ^a & work engagement	.02	.01	-.11	.14
Opportunities to learn x uncertainty about the future ^a & work engagement	-.09	-.10	-.2	.03

**Zero is not included in confidence interval; hence the parameter estimate is statistically significant (p≤.05).*

Results of the PLS analysis on the simplified model are depicted graphically in Figure 4.1

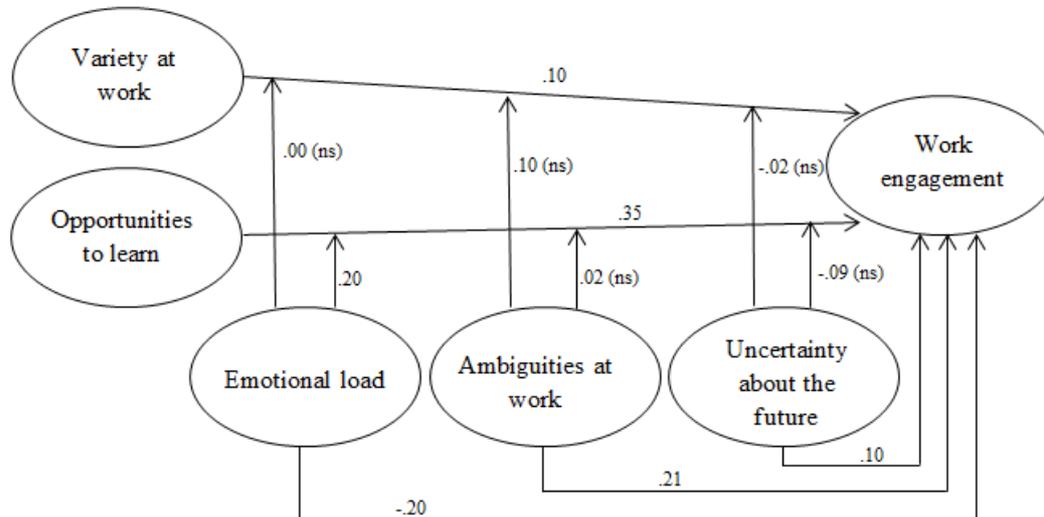


Figure 4.1. Simplified PLS Model with Path Coefficients

The inferences made from this analyses indicate that the only one confirmed moderating relationship exist; namely *emotional load*, which moderates the relationship between *opportunities to learn* and *work engagement*. Where only one of 55 possible moderating paths is confirmed the possibility that the result of a single confirmed path may be due to chance cannot be disregarded; hence it seems rational to posit that the notion that job

demands weaken the relationship between work engagement and job resources is not true for this sample of nursing practitioners.

4.4.4 Conclusion: testing the diagnostic model

In light of these results, the following observations can be made:

- 15 of the 16 job demands and resources included in the diagnostic model significantly contributed to the work engagement of nursing practitioners
- *Pace and amount of work* did not correlate with work engagement of nursing practitioners
- *Emotional load* moderated the relationship between *opportunities to learn* and work engagement (potentially due to chance)
- None of the other four job demands moderated the relationship between job resources and work engagement

Empirical support for the diagnostic model is important to ensure that valid and credible conclusions are derived in the diagnostic study. Levels of work engagement of nurses are circuitous to determine. If the levels of work engagement experienced by nurses in a specific context are low one or more of the latent variables in the nomological network are responsible for this state of affairs. One or more of the latent variables in the nomological network have inappropriately low (in the case of latent variables positively related to engagement) or high levels (in the case of latent variables positively related to engagement) and these produce, via the nomological network, the low levels of work engagement. To successfully diagnose the specific causes of the low levels of work engagement the identity of the determining latent variables and the manner in which they combine to affect engagement need to be validly understood. As a result, only those relationships within the model that were confirmed through statistical analysis should be used to draw inferences in the diagnostic component of this study. Results of analyses on the diagnostic model indicated positive correlations between the independent variables and work engagement (with the exception of *pace and amount of work* that indicated no correlation and *emotional load* that confirmed a negative correlation). However, significant evidence was not found in support of the moderating effect of job demands. Consequently, the proposed moderating effects of the job demands in the diagnostic model were excluded from further analysis, and inferences were only made based on the correlational relationships that were confirmed. The results of the diagnostic evaluation of the work engagement of nursing practitioners is presented and discussed in the following sections of this chapter.

4.5 Diagnosing the work engagement of nursing practitioners

The reliability of the measuring instruments and the support for the main effect claims made by the diagnostic model have been confirmed (noting those items that produced somewhat less than satisfactory Cronbach's alphas); as a result the diagnostic evaluation of the research problem can be conducted with the assurance of increased likelihood of accurate deductions.

The main research objectives of this study include the investigation of the most salient job demands and job resources that influence work engagement of nursing practitioners. To fully comprehend the work engagement of nursing practitioners a thorough understanding of the antecedents of engagement is required; including an understanding of the perceptions of nursing practitioners based on each of the proposed antecedents. However, making inferences based merely on the average group results could be erroneous, because the sample population exists of various individuals who differ from others in the group in many different ways. Therefore it is prudent to also analyse how the results differ between groups. Given that literature indicated that nursing practitioners of different ages differ significantly in terms of their workplace expectations, and it was hypothesised that work engagement differs for nursing practitioners of different nursing categories, the results of different age groups and nursing categories were further analysed. As such, analysis of variance (ANOVA) was conducted on work engagement levels and reported job demands and job resources of nursing practitioners of different ages and different nursing categories. Of note is that the output of the ANOVA tests within Statistica 12 (the software used for the data analysis) did not produce the detail pertaining to regression, error and F-value scores. It was decided that for the purpose of this study the interpretation of the p-values and mean scores were sufficient to identify statistically significant differences between groups. The results of these ANOVA analyses are discussed in the sections below.

All the job demands and resources were measured by 42 items in the JDERS on a four-point Likert frequency scale ranging from one (never) to four (always). In the absence of available empirically evaluated norm groups one would anticipate that a score of three (most of the time) (for those factors which loads positively on work engagement) or two (sometimes) (for those factors that contribute negatively to work engagement) can be viewed as satisfactory. These scores were utilised as guideline to identify those job demands and resources that may require remedial action in order to address work engagement levels. Where remedial action seem to be required, practical suggestions are discussed in Chapter Five.

Table 4.29

Standard Norm Scores for the 17-Item UWES

Total score	Interpretation
≤ 1.93	Very low
1.94 - 3.06	Low
3.07 - 4.66	Average
4.67 - 5.53	High
≥ 5.54	Very high

(Schaufeli & Bakker, 2003, p. 40)

In terms of work engagement, which is measured by the 17 Likert-type (ranging from zero to seven) items in the UWES; the total work engagement score was interpreted by following the standard norm groups published by Schaufeli and Bakker (2003). The interpretation of these standard norms is provided in Table 4.29.

4.5.1 Work engagement

In contradiction to what was anticipated, the work engagement of nursing practitioners in this sample was not low. The grand work engagement mean for this sample of nursing practitioners was found to be $\bar{x} = 4.47$ (refer to Tables 4.30 & 4.31), which according to the UWES standard norm groups published by Schaufeli and Bakker (2003), can be interpreted as *average* (refer to Table 4.29). In Chapter Two it was hypothesised that work engagement will be low, based on supporting literature (e.g. Freeny & Tiernan, 2009) which postulates that nursing practitioners experience lower levels of work engagement. Although this average score is higher than the anticipated low score it remains at unfavourable levels as positive individual and organisational outcomes of work engagement is experienced in circumstances of higher work engagement. It thus conceded that work engagement of nursing practitioners warrant remedial action. In order to determine the most appropriate remedial action a deeper understanding of the antecedents of work engagement (the job demands and resources) are required. Further to this, it is argued that important trends in the work engagement of nursing practitioners might be hidden in the grand mean score, which can be revealed by investigating potential differences in firstly, the work engagement of different groups (in this case age and nursing category), and secondly, by unpacking how these groups differ in terms of their response to the different job demands and resources. These investigations were conducted by means of ANOVA tests and the results are presented in the following sections.

Work engagement and age: Within this sample, age did not seem to play a significant role in the work engagement levels of nursing practitioners. This result is in contrast to research findings in literature on engagement and age (Gilbert, 2011; Pitt-Catsouphes & Matx-Costa, 2008) that reported that nursing practitioners of different ages report different levels of work engagement. As indicated in Table 4.30 the probability (p-value) in the one-way ANOVA was found to be .84. This value is sufficiently large to conclude that the differences in the engagement means across the three age categories are not statistically significant ($p > .05$) and therefore the null hypothesis ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) cannot be rejected.

Table 4.30

Descriptive Statistics: Work Engagement of Different Age Groups

p-value = .84					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	4.47	.80	.04	4.40	4.55
18-30	4.46	.64	.06	4.34	4.58
31-45	4.46	.84	.06	4.34	4.58
46-65	4.51	.85	.04	4.37	4.64

This deduction is further reflected in the reported work engagement means of the different age groups, which did not deviate significantly from the total group mean of $\bar{x} = 4.47$ (refer to Table 4.30 & Figure 4.2).

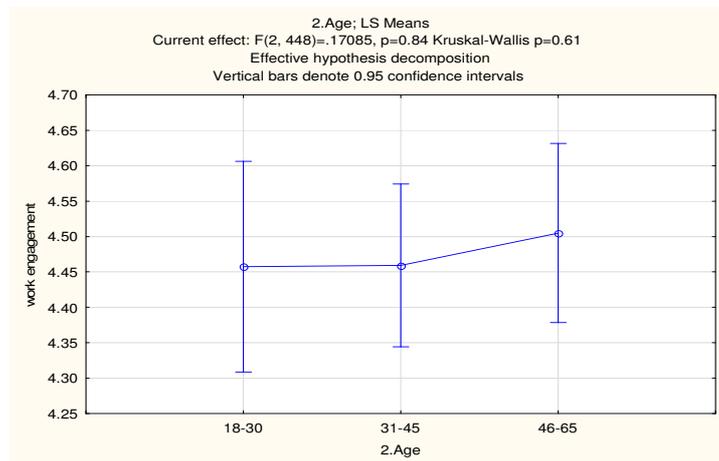


Figure 4.2. Work Engagement Means of Different Age Groups

Further analyses into the antecedents of work engagement, and how reported levels differ between age groups, might provide additional insight into the reported levels of work engagement; this is achieved through the ANOVA tests that are reported on in the remainder of this chapter.

Work engagement and nursing category: Within this sample differences in levels of work engagement between different nursing categories were observed. The p-value of smaller than .01 (refer to Table 4.31) is sufficiently small to conclude that statistically significant differences exist between two or more of the engagement means calculated for the four nursing categories and thus the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) can be rejected. This result is not consistent with the findings of Jenaro et al. (2010) who did not find supportive evidence for differences in how different nursing categories experience work engagement.

Table 4.31

Descriptive Statistics: Work Engagement of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value < .01*	
				-95.00%	+95.00%
Total	4.47	.80	.04	4.40	4.55
ENA	4.81	.68	.10	4.62	5.00
EN	4.54	.75	.08	4.40	4.69
PN	4.39	.82	.06	4.17	4.52
SPN	4.38	.82	.08	4.23	4.53

*p-value < .05 (significant)

The work engagement mean of Enrolled Nurse Auxiliaries (ENA's) ($\bar{x} = 4.81$) was higher than the work engagement mean of Professional Nurses (PN's) ($\bar{x} = 4.39$), Senior Professional Nurses (SPN's) ($\bar{x} = 4.38$) and Enrolled Nurses (EN's) ($\bar{x} = 4.54$) (refer to Table 4.31 & Figure 4.3). The work engagement means reported in Table 4.31 and Figure 4.3 indicate a decline in work engagement as nursing practitioners become more senior in terms of nursing category. The engagement means of all the nursing categories fall within the *average* range according to Schaufeli & Bakker (2003) (refer to Table 4.29); with the exception of ENA's who reported *high* levels of work engagement based on standard norm groups. As argued earlier, although the work engagement levels of nursing practitioners are not as low as anticipated, remedial action is nonetheless warranted since work engagement is not at an optimum level.

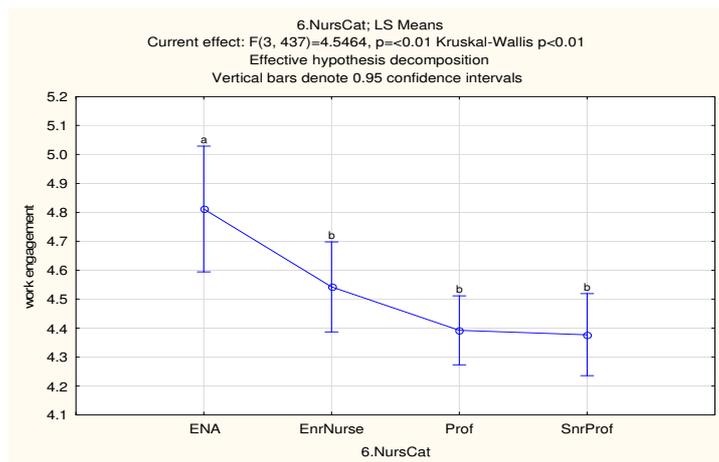


Figure 4.3. Work Engagement Means of Different Nursing Categories

In order to determine how specific groups differed significantly from the other groups the Fishers Least Square Difference (LSD) test was applied (refer to Table 4.32). Results of the LSD test confirmed significant differences between the engagement means scores of ENA's in comparison to EN's, PN's and SPN's.

Table 4.32

Fisher's LSD Test: Comparing Work Engagement of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.04*	.00*	.00*
EN	.04*		.13	.12
PN	.00*	.13		.87
SPN	.00*	.12	.87	

* p-value < .05 (significant)

It is consequently posited that the work engagement levels of nursing practitioners decline as nursing practitioners become more senior in terms of nursing category. To fully understand the potential reasons for the differences in means between different nursing categories the differences in antecedents of work engagement (job demands and job resources) need to be investigated. This investigation was conducted through the ANOVA tests that are reported on in the following sections of this chapter.

4.5.2 Variety at work

The job resource *variety at work* was assessed within the JDRS with only one item; namely: *Do you have enough variety in your work?* Table 4.33 provides the mean *variety at work* score for the total sample. This indicates that from the perspective of the total sample the

typical nursing practitioner tended to respond with a response closest to *most of the time* ($\bar{x} = 2.90$) to the item in this subscale. It has also been reported earlier that the average work engagement means of nursing practitioners are average (Tables 4.30 & 4.31). Consequently these results are in line with the hypothesised and reported significant positive correlation between *variety at work* and work engagement of nursing practitioners (refer to Table 4.20). Overall, *variety at work* does not seem to present a great problem to the typical nurse in the sample. However, because the mean score is below the guideline score of 3, remedial action may be warranted. Further to this, the grand mean calculated for the whole sample might mask specific problems with regards to this job resource and hence ANOVA analyses were conducted to determine potential differences between groups (age and nursing category).

Variety at work and age: Table 4.33 provides the results of the ANOVA tests of the differences between means of *variety at work* as job resource among nursing practitioners of different ages. The p-value (<.01) is less than the critical value of .05 and as a result the statistical null hypothesis that posits equal *variety of work* means across age groups ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) can be rejected.

Table 4.33

Descriptive Statistics: Variety at Work of Different Age Groups

p-value < .01*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.90	.79	.04	2.83	2.97
18-30	2.83	.77	.07	2.68	2.97
31-45	2.80	.80	.06	2.69	2.92
46-65	3.07	.76	.06	2.95	3.19

*p-value < .05 (significant)

As seen in Figure 4.4 it is apparent (based on the mean scores for the groups) that age groups 18 – 30 and 31 – 45 potentially experience similar levels of *variety at work*, while it seems that older nurses might experience more *variety at work*.

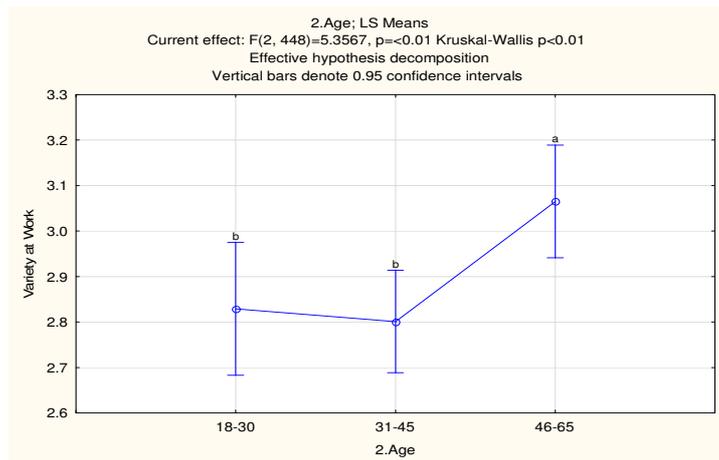


Figure 4.4. Variety at Work Means of Different Age Groups

To determine which of the means of different age groups in terms of *variety at work* are statistically significantly different the LSD test was applied. Results (Table 4.34) confirmed that the null hypothesis of equal means ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) can be rejected. The mean *variety of work* score of nurses in the 46 – 65 age category differed significantly from nurses in the 31 – 45 year category and from the 18 – 30 year category. The older age group did experience significantly ($p<.05$) more *variety at work* in comparison to the two younger nursing practitioner categories. The mean job resource score for the younger two age categories did not differ significantly ($p>.05$).

Table 4.34

Fisher's LSD Test: Comparing Variety of Work of Different Age Groups

	18-30	31-45	46-65
18-30		.77	.02*
31-45	.77		.00*
46-65	.02*	.00*	

*p-value <.05 (significant)

Literature in support of, or opposing these specific findings could not be located. It is proposed that the higher levels of experienced work engagement of older nursing practitioners can be attributed to the reality that older nurses tend to be more experienced, and as a result are occasionally entrusted with a greater variety of tasks (for example, older nursing practitioners are often requested to assist with training or mentoring of younger nursing practitioners, or new staff additions to the specific unit). It is of note that only the age group 46 – 65 produced a mean score above the recommended score of three ($\bar{x} = 3.07$,

Table 4.33); as a result *variety at work* is possibly not problematic for this age group, whereas the remedial action may be required for the younger nursing practitioners.

Variety in work and nursing category: In terms of nursing category, descriptive statistics (refer to Table 4.35) confirmed that the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) cannot be rejected. The p-value of .46 confirms that there is no significant difference between the reported levels of *variety at work* of different nursing categories. Consequently it is posited that nursing category does not impact perceptions of *variety of work*.

Table 4.35

Descriptive Statistics: Variety at Work of Different Nursing Categories

p-value = .46					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.89	.79	.04	2.82	2.96
ENA	2.96	.77	.11	2.74	3.19
EN	2.85	.83	.08	2.69	3.02
PN	2.84	.79	.06	2.72	2.96
SPN	2.97	.77	.07	2.83	3.11

The similar *variety at work* means between different nursing categories can potentially be ascribed to the possibility that nursing practitioners evaluate their perceived levels of variety from the perspective of their unique nursing category; therefore if they expect lower levels of variety (for example ENA's) they will not report a dissatisfaction with their experienced level of variety. Furthermore, it is possible that there is in fact similar levels of *variety at work* between different nursing categories, where the differences in work are experienced in terms of level of complexity as opposed to diversity of tasks.

Overall, due to the reported correlation between *variety at work* and work engagement, *variety at work* may pose problems to work engagement for nursing practitioners of all categories, as well as those aged younger than 46. Hence, practical suggestions pertaining to remedial action in terms of this job resource will be discussed in Chapter Five.

4.5.3 Opportunities to learn

The job resource *opportunities to learn* is assessed within the JDRS by the following two items:

- *Does your job offer you opportunities for personal growth and development?*
- *Does your work give you the feeling that you can achieve something?*

In general it is apparent that perceptions pertaining to *opportunities to learn* reported by nursing practitioners gravitate towards the higher end of the 4-point Likert scale (just under 3; Tables 4.36 & 4.37). This indicates that typically nursing practitioners report that they are provided with sufficient *opportunities to learn most of the time*. Although this score is still not optimal, this result is not directly in line with the hypothesis that nursing practitioners may have limited *opportunities to learn*. Which is more, because nursing practitioners function within a strict scope of practice, this result is unexpected since even lower scores were anticipated. One possible explanation for this result can be found in the reported levels of *variety at work*. It is suggested that nursing practitioners perceive *opportunities to learn* in the variety of tasks that is applicable to all nursing practitioners. Stated differently; because nursing practitioners are expected to perform a variety of tasks they experience *opportunities to learn* in these tasks.

The confirmation of a significant positive correlation between work engagement and *opportunities to learn* has been reported earlier (Table 4.20), which concurs with the results of Main (2011) and Barbier et al. (2013). Furthermore, work engagement was found to be *average* for nursing practitioners (Table 4.29), and *opportunities to learn* are also experienced just below *most of the time*. Given the positive correlation the reported scores here could partially explain the average engagement scores that were observed.

Descriptive statistics indicate that there is no statistical significant difference between the average *opportunities to learn mean* scores for nursing practitioners of different ages (Table 4.35; p-value = .78) or different nursing categories (Table 4.36; p-value = .07). Both p-values are above the critical level of .05; hence the hypothesis of equal means cannot be rejected for age groups ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) or nursing categories ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$). These results indicated that nursing practitioners have similar *opportunities to learn* to their peers of different ages and categories.

Table 4.36

Descriptive Statistics: Opportunities to Learn of Different Age Groups

Category	Mean	Standard deviation	Standard error	p-value = .78	
				-95.00%	+95.00%
Total	2.95	.82	.04	2.87	3.02
18-30	3.00	.82	.08	2.84	3.15
31-45	2.93	.86	.06	2.81	3.06
46-65	2.93	.77	.06	2.81	3.05

Of note is the p-value of .07 reported in the ANOVA results of different nursing categories (refer to Table 4.37), which although above the critical level of .05, nevertheless appears relatively low. According to Burns and Burns (2008), when interpreting one-way ANOVA values moderate deviations from the assumption of equal variances, it is not viewed as significant or problematic. Therefore, the ANOVA is robust to small deviations from the homogeneity of variance (HOV) assumption. Researchers only need to be concerned about large deviations from the HOV assumption. Given this argument, the p-value of .07 for different nursing categories was not viewed as problematic and it was concluded that the null-hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) should not be rejected.

Table 4.37

Descriptive Statistics: Opportunities to Learn of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value = .07	
				-95.00%	+95.00%
Total	2.95	.82	.04	2.87	3.03
ENA	3.11	.78	.12	2.86	3.35
EN	3.09	.87	.09	2.91	3.23
PN	2.87	.79	.06	2.75	2.99
SPN	2.88	.77	.07	2.74	3.02

Overall, *opportunities to learn* may partially contribute to the average work engagement scores of nursing practitioners and remedial action is therefore warranted. Practical suggestions for these remedial actions are presented in Chapter Five.

4.5.4 Independence at work

The job resource *independence at work* is assessed within the JDERS by the following three questions:

- *Does your job offer you the possibility of independent thought and action?*
- *Do you have freedom in carrying out your work activities?*
- *Do you have influence in the planning of your work activities?*

Tables 4.38 and 4.39 provide the mean *independence at work* score for the total sample, which was found to be just below three ($\bar{x} = 2.95$). It is apparent that on average nursing practitioners report that they are provided with opportunities to function independently close to *most of the time*. This result is not directly in line with the hypothesis that nursing practitioners may have very limited *independence at work*, or the concurring argument of Bauer (2010) that the autonomy of nursing practitioners is low because it is threatened by

medical practitioner dominance and state practice regulation. It is posited that the origin of the slightly higher than expected, albeit non-optimal, levels of *independence at work* is partially rooted in the shortage of nursing staff. In those circumstances where there are less than sufficient nursing practitioners functioning within in a unit, and nursing practitioners are required to function outside of their scope of practice (ignoring the dormant ethical questions within this reality for the purpose of this study), it is likely that greater levels of independence will be experienced. Returning to work engagement; a positive correlation between *independence at work* and work engagement of nursing practitioners has been confirmed (Table 4.20) which concurs with literature (Bakken & Torp, 2012; Lorens et al., 2007; Xanthopoulou et al., 2009). It therefore seems plausible that the work engagement of nursing practitioners were positively influenced by the higher reported levels of *independence at work*.

Descriptive statistics indicate that there is no statistical significant difference between the average *independence at work* mean scores for nursing practitioners of different ages ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) (p-value = .96; Table 4.38) or different nursing categories ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) (p-value = .97; Table 4.39). The null hypothesis of homogeneity of means cannot be rejected because both p-values are above the critical level of .05. Hence, it is concluded that nursing practitioners of all ages and nursing categories experience similar levels of *independence at work*. These results are inconsistent with findings of Iliopoulou and While (2010) who reported that younger nurses report statistically significant lower levels of autonomy compared to their older counterparts. The results are also inconsistent with the hypothesis that the more strict scope of practice of the more junior nursing categories will lead to lower reported experiences of *independence at work* in comparison to the more senior nursing categories. Again, the earlier argument that the current shortage of nursing staff potentially leads to marginally higher than expected levels of *independence at work*, seem rational to apply. Further to this, to assist with practical tasks on unit level during a particular shift a unit manager will sometimes informally appoint a shift leader in the unit. This shift leader can be any age or nursing category; hence it is posited that the opportunity to informally take the lead within the unit can provided further opportunities to function independently at work for nursing practitioners of all ages and categories.

Table 4.38

Descriptive Statistics: Independence at Work of Different Age Groups

p-value = .96					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.95	.67	.03	2.89	3.02
18-30	2.94	.67	.06	2.81	3.06
31-45	2.96	.68	.05	2.86	3.06
46-65	2.96	.68	.06	2.85	3.07

Table 4.39

Descriptive Statistics: Independence at Work of Different Nursing Categories

p-value = .97					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.95	.67	.03	2.90	3.02
ENA	2.98	.71	.10	2.78	3.18
EN	2.96	.72	.07	2.82	3.11
PN	2.94	.64	.05	2.84	3.04
SPN	2.98	.67	.06	2.86	3.10

Overall the mean *independence at work* scores were all below the suggested score of three and therefore it is posited that this job resource contributed to the average work engagement scores of this sample of nursing practitioners. Remedial actions are therefore suggested in Chapter Five.

4.5.5 Relationship with colleagues

The job resource *relationships with colleagues* is assessed within the JDRS by the following three questions:

- *Can you count on your colleagues when you come across difficulties in your work?*
- *If necessary, can you ask your colleagues for help?*
- *Do you get on well with your colleagues?*

In general, nursing practitioners report a relatively high level of satisfaction with *relationships with colleagues*. This is observed in the mean *relationship with colleagues* score for the total sample of $\bar{x} = 3.12$ (refer to Tables 4.40 & 4.41); which indicates good *relationships with colleagues most of the time*. It is postulated that because nursing practitioners work within a relative stable work team, stronger work relationships are built over time. Further to this, in a work environment that is known to be challenging nursing practitioners might rely on the support of their colleagues which is likely to further improve the relationships with time.

Because the positive relationship between *relationships with colleagues* and work engagement has been confirmed within this study (Table 4.20) and within literature (Bakken & Torp, 2012; Ducharme & Martin, 2000; Main 2011; Parris, 2003) it is postulated that the average levels of work engagement of all nursing practitioners could partially be the result of the positive *relationship with colleagues*.

The results of the ANOVA tests indicated that there are no statistically significant differences between the means of reported levels of *relationships with colleagues* of nursing practitioners of different ages or categories. Table 4.40 indicates that the p-value in terms of *relationships with colleagues* of different age groups is .42, and Table 4.41 reflects a p-value of .11 in terms of *relationship with colleagues* of different nursing categories. Because both p-values are above the critical level of .05 the null hypothesis (homogeneity of means) cannot be rejected for both age ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) and different nursing categories ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$). These results indicated that nursing practitioners have similar levels of *relationships with their colleagues*, in comparison to their peers of different ages and categories. It is suggested that the argument that a stable working team, coupled with a challenging work environment, enhances working relationships of nursing practitioners is likely to be true for nursing practitioners of all ages and categories.

Table 4.40

Descriptive Statistics: Relationship with Colleagues of Different Age Groups

p-value = .42					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.12	.64	.03	3.07	3.18
18-30	3.15	.63	.06	3.04	3.27
31-45	3.08	.63	.05	2.99	3.17
46-65	3.16	.64	.05	3.06	3.27

Table 4.41

Descriptive Statistics: Relationship with Colleagues of Different Nursing Categories

p-value = .11					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.12	.64	.03	3.06	3.18
ENA	3.20	.66	.09	3.01	3.38
EN	3.23	.58	.06	3.12	3.35
PN	3.07	.65	.05	2.97	3.17
SPN	3.06	.64	.06	2.95	3.18

In general *relationships with colleagues* have been reported to be sufficient for nursing practitioners of all ages and nursing categories. Consequently, no remedial actions in terms of this job resource seem to be necessary.

4.5.6 Relationship with supervisor

The job resource *relationship with supervisor* is assessed within the JDRS by the following three questions:

- *Can you count on your supervisor when you come across difficulties in your work?*
- *Do you get on well with your supervisor?*
- *In your work, do you feel appreciated by your supervisor?*

It is evident that nursing practitioners believe that they have good relationships with their supervisors *most of the time* (mean *relationship with supervisor* for the sample of $\bar{x} = 3.27$; Tables 4.42 & 4.43). This result is not consistent with the hypothesis that the assumed limited opportunity for meaningful personal interaction, feedback, and recognition between staff members and supervisors will likely influence the quality of the relationships negatively. In practice unit managers often appoint SPN's or shift leaders on a rotational basis as formal or informal supervisors in the unit to oversee patient care and provide staff support. Nursing practitioners will thus have more regular direct interaction with these SPN's and shift leaders than with the unit manager. Hence, it is postulated that respondents may have referred to the role of SPN's or shift leaders, rather than the unit manager, when responding to the related survey items. It is likely that because the interactions between these individuals and nursing practitioners are likely to be more regular and direct, a more positive *relationship with the supervisor* is observed (possibly not based on the quality of the interaction with the unit manager). Referring back to work engagement; it has been confirmed in this study (Table 4.20) and in literature (Xanthopoulou et al., 2009) that there is a significant positive correlation between *relationship with supervisor* and reported work engagement. From these statements it is deduced that the positive *relationships with supervisors* had a positive impact on the work engagement of the target population, and as a result work engagement levels were positively influenced.

An overview of the descriptive statistics pertaining to *relationship with supervisor* indicate that neither differences in age ($p=.64$; Table 4.42) nor differences in nursing category ($p=.14$; Table 4.43) impact the relationship that nursing practitioners have with their supervisors. Because both p-values are above the critical level of .05 the statistical null hypothesis that posits equal means can be rejected for age ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) and nursing category

($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$). The rotational informal appointment of shift leaders on unit level implies that nursing practitioners of all ages and categories could be assigned the opportunity to take the lead; therefore nursing practitioners will likely interact more regularly and directly with shift leaders of all ages and categories. As a result the relationships reported with these informal supervisors are likely to be similar despite age or category.

Table 4.42

Descriptive Statistics: Relationship with Supervisor of Different Age Groups

p-value = .64					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.27	.69	.03	3.21	3.33
18-30	3.23	.66	.06	3.11	3.36
31-45	3.26	.73	.05	3.15	3.37
46-65	3.31	.66	.05	3.21	3.41

Table 4.43

Descriptive Statistics: Relationship with Supervisor of Different Nursing Categories

p-value = .14					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.27	.69	.03	3.20	3.33
ENA	3.34	.63	.09	3.16	3.52
EN	3.38	.67	.07	3.25	3.52
PN	3.23	.71	.05	3.12	3.34
SPN	3.19	.70	.06	3.06	3.32

Overall, relationships between nursing practitioners and their supervisors have not been determined to be problematic for nursing practitioners of all ages and nursing categories. Hence, no remedial action in terms of this job resource seems to be necessary. However, neglecting those job demands and resources that are not currently reported to be problematic, could lead to future unsatisfactory levels. Therefore, the practice of informally appointing supervisors should be maintained to ensure continuous satisfactory levels of *relationship with supervisor*.

4.5.7 Information

The job resource *information* is assessed within the JDRS by the following three questions:

- *Do you know exactly what your direct supervisor thinks of your performance?*
- *Do you receive sufficient information on the purpose of your work?*
- *Do you receive sufficient information on the results of your work?*

The mean *information* score of the total sample was determined to be $\bar{x} = 2.98$ (Tables 4.44 & 4.46), which indicates that nursing practitioners reported that they experience satisfaction with the *information* they receive close to *most of the time*. Although this result cannot be interpreted as optimal, it remains in contradiction with the hypothesis that nursing practitioners are likely to report insufficient levels of *information* received. It is suggested that the strict scope of practice which guides nursing practitioners in the quality and process of tasks that they are responsible for provides some level of job specific *information* to produce average levels of satisfaction with *information*. Furthermore, it can be argued that nursing practitioners are more informed on some of the results of their work since the impact of their work can be directly observed in the patient recovery process. In terms of the impact on work engagement; it has also been reported earlier that the work engagement mean of nursing practitioners are average (Tables 4.30 & 4.31). These results are in line with the hypothesised and reported significant positive correlation between *information* and work engagement of nursing practitioners (refer to Table 4.20). These results concur with the proposition of Gruman and Saks (2011) that work engagement starts with the employee being informed, and that more informed employees will as a result be more engaged at work. Overall, *information* seems to potentially present some problems to the typical nurse in the sample.

The grand mean calculated for the whole sample might, however, mask further problems with regards to this job resource and hence ANOVA analyses were conducted to determine potential differences between groups (age and nursing category).

Information and age: Table 4.44 provides the results the of the ANOVA tests of the differences between means of *information* as job resource among nursing practitioners of different ages. The p-value (.03) is less than the critical value of .05 and as a result the assumption of homogeneity ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) can be rejected.

Table 4.44

Descriptive Statistics: Information of Different Age Groups

p-value = .03*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.98	.68	.03	2.92	3.05
18-30	2.85	.68	.06	2.72	2.98
31-45	2.99	.70	.05	2.89	3.09
46-65	3.07	.64	.05	2.97	3.17

*p-value < .05 (significant)

As seen in Figure 4.5 the age groups 18 – 30 differ from the age group 46 – 65. The age group 31 – 45 does not seem to differ significantly from either of the other two groups. The graph suggests that as nursing practitioners become older they report to be better informed at work.

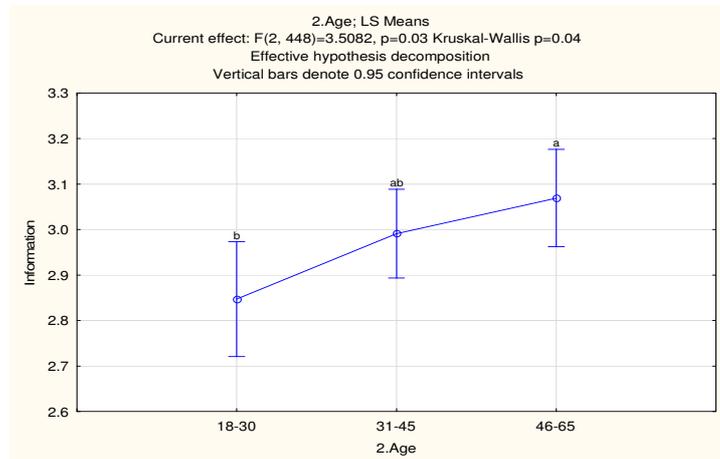


Figure 4.5. Information Means of Different Age Groups

To determine which of the means of different age groups in terms of *information* are statistically significantly different the LSD test was applied. The LSD test confirmed (Table 4.45) that the youngest age group and the oldest age group are indeed statistically significantly different in terms of mean scores (the null hypothesis, $H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$ can be rejected), but the age group 31 – 45 does not differ significantly from the mean scores of the older or younger age groups. Literature in support of, or opposing these specific findings could not be allocated. The gradual increase in the *information* means (as nursing practitioners mature in age) could potentially be attributed to the proposition that older nursing practitioners are likely to have more work experience and have therefore been exposed to more *information* during their careers.

Table 4.45

Fisher's LSD Test: Comparing Information of Different Age Groups

	18-30	31-45	46-65
18-30		.08	.01*
31-45	.08		.29
46-65	.01*	.29	

*p-value < .05 (significant)

It is of note that the mean *information* score of the age group 46 – 65 are higher than the recommended score of three ($\bar{x} = 3.069$, Table 4.44); and therefore *information* is not deemed as problematic for this specific age group.

Information and nursing category: In terms of nursing category, descriptive statistics (refer to Table 4.46) confirms that the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) cannot be rejected. The p-value of .45 indicates that there is no statistical significant difference between the reported levels of *information* received of different nursing categories. Consequently it is suggested that nursing category does not impact satisfaction with access to *information*.

Table 4.46

Descriptive Statistics: Information of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value = .45	
				-95.00%	+95.00%
Total	2.98	.68	.03	2.92	3.045
ENA	3.09	.69	.10	2.89	3.28
EN	3.01	.73	.07	2.86	3.15
PN	2.99	.68	.05	2.89	3.09
SPN	2.91	.62	.06	2.80	3.02

Overall nursing practitioners report to receive sufficient *information* close to *most of the time*. Further to this, the confirmed positive relationship between work engagement and *information* suggests that the average work engagement result was partially influenced by the reported levels of *information*. Because statistically significant differences between the mean *information* score for nursing practitioners of different ages was reported and the oldest age group reported sufficient levels of *information*, remedial action is only warranted in terms of information for nursing practitioners younger than the age of 46. However, it is important to also ensure continued sufficient levels of *information* for the age group older than 46; neglecting to sustain the current levels of *information* may lead to reduced levels in the future which will have an adverse impact on work engagement. Hence, remedial actions implemented for the younger age groups in terms of the job resource *information*, could be applied for all ages. Suggestions pertaining to these remedial actions are provided in Chapter Five.

4.5.8 Communication

The job resource *communication* is assessed within the JDRS by the following three questions:

- *Does your direct supervisor inform you about important issues within your department/organisation?*
- *Are you kept adequately up-to-date about important issues within your organisation?*
- *Is the decision-making process of your organisation clear to you?*

In general it is apparent that nursing practitioners are kept up-to-date through organisational *communication most of the time*. The grand mean score for *communication* was determined to be $\bar{x} = 3.06$ (Tables 4.47 & 4.48). This result is not in line with the hypothesis that nursing practitioners may receive infrequent and insufficient *communication*. Due to the lack of computer access and assumed limited direct interaction with management this result is unexpected. One possible explanation for this could potentially be that nursing practitioners do not perceive the need for any general organisational *communication*. It is possible that they are satisfied in as far as they receive the required information related to themselves (e.g. shifts) and enough information (e.g. patient records) to provide the patient care that they have trained for, and have a passion for. Returning focus to work engagement; the positive correlation between *communication* and work engagement has been established earlier in this chapter (Table 4.20). This conclusion corroborates the inferences of Sarangi and Srivastava (2012) that organisational *communication* is a significant predictor of work engagement. Nordin, Habib and Ghazali (2011) also concur that organisational *communication* plays a profound role in the shaping of engagement levels of employees. It is thus posited that the reported levels of *communication* does not pose a serious problem to the work engagement of this sample of nursing practitioners.

To determine if any potential problems in *communication* were masked by the grand mean score ANOVA analyses were conducted to determine if differences exist in the mean *communication* scores of nursing practitioners of different ages, as well as different nursing categories.

Communication and age: In terms of age, descriptive statistics (refer to Table 4.47) confirms that the assumption of homogeneity of means ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) cannot be rejected. The ANOVA test indicated a p-value of .30, which corroborate that there is no significant difference between the reported levels of *communication* received by nursing

practitioners of different ages. This result did not deviate from the hypothesis that limited *communication* will reduce the work engagement of nursing practitioners of all ages.

Table 4.47

Descriptive Statistics: Communication of Different Age Groups

p-value = .30					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.06	.70	.03	3.00	3.13
18-30	3.13	.67	.06	3.01	3.26
31-45	3.08	.72	.05	2.98	3.18
46-65	3.00	.69	.06	2.89	3.11

Communication and nursing category: In terms of different nursing categories, (Table 4.48) it is evident that nursing practitioners of different nursing categories report different levels of *communication* received. The p-value is smaller than .01 which implies that the assumption of homogeneity of means is not true and the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) can consequently be rejected.

Table 4.48

Descriptive Statistics: Communication of Different Nursing Categories

p-value < .01*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.06	.70	.03	3.00	3.13
ENA	3.30	.68	.10	3.11	3.49
EN	3.17	.67	.07	3.03	3.30
PN	3.01	.72	.06	2.90	3.12
SPN	2.96	.66	.06	2.84	3.08

*p-value < .05 (significant)

As evident in Figure 4.6 the most junior category in terms of rank seem to be most positive in terms of the *communication* that they receive; this is evident from the highest average mean ($\bar{x} = 3.30$; Table 4.48). The category with the lowest satisfaction in terms of *communication* is the SPN's (average mean of $\bar{x} = 2.96$; Table 4.48). The average mean *communication* scores seem to reduce progressively as the nursing practitioners become more senior in terms of nursing category (downward slope).

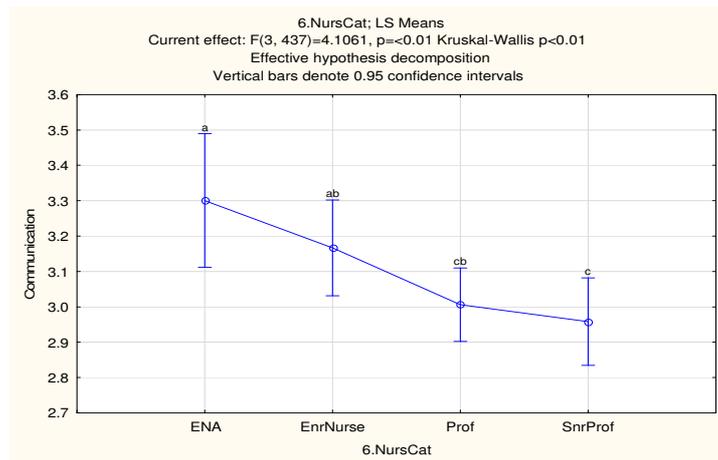


Figure 4.6. Communication Means of Different Nursing Categories

The subsequent LSD test (refer to Table 4.49) confirmed that the means of the different nursing categories differ statistically significantly, specifically between ENA's (most junior) and SPN's (most senior). The means of PN's differs significantly from the means of ENA's, and EN's means differs significantly from that of the SPN's (confirming the downwards sloping curve of satisfaction with communication). It is posited that the more junior nursing practitioners often report indirectly to the senior nurses in the unit with whom they have direct interaction in the unit on a daily basis. SPN's on the other hand are the most senior staff members within the unit; as a result it is suggested that the more junior nursing practitioners look to the SPN's for *communication*; whereas the SPN's are dependent on *communication* from managers who are not necessarily readily available within the unit. Hence, it is possible that more junior categories are more satisfied with *communication* received, because it is more readily available to them. Further to this, it is possible that the organisational *communication* needs do differ between groups; more senior nursing practitioners potentially expect more organisational *communication* whereas the more junior nursing practitioners mostly expect job specific *communication*. It is prudent to point out that despite the difference in the means between different nursing categories, overall all nursing categories reported non-problematic mean *communication* scores (three on the 4-point Likert scale) (with the exception of SPN's which indicated mean scores just below three) and thus there seems to be no great concern in terms of this job resource, regardless of nursing category.

Table 4.49

Fisher's LSD Test: Comparing Communication of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.26	.01*	.00*
EN	.26		.06	.03*
PN	.01*	.06		.56
SPN	.00*	.03*	.56	

*p-value < .05 (significant)

Overall, despite the reported correlation between *communication* and work engagement, *communication* have not been determined to be problematic for nursing practitioners of any age or category. Hence, no remedial action in terms of this job resource seems to be necessary. It is necessary to point out that neglecting to maintain the satisfactory levels of *communication* could have an adverse impact on work engagement in the future; hence it is suggested that attention is paid to the continuous maintenance of this job resource.

4.5.9 Participation

The job resource *participation* is assessed within the JDRS by the following two questions:

- *Can you participate in the decision about when a piece of work must be completed?*
- *Do you have a direct influence on your organisation's decisions?*

Overall, nursing practitioners within this sample reported that they *sometimes* have opportunities to participate in decision making ($\bar{x} = 2.38$; Tables 4.50 & 4.51). This is in line with the earlier argument that nursing practitioners are seldom involved in decision-making processes that affect their work because the profession is strongly guided by guidelines, policies and procedures, and there is little time for face-to-face direct interactions with management. Because a positive correlation has been confirmed between the construct *participation* and work engagement (Table 4.20) it is eluded that the reported levels of *participation* contributed to the reported average level of work engagement. To determine if further problems with *participation* are hidden in the grand mean score ANOVA test was conducted on nursing practitioners of different ages, as well as different nursing categories.

Participation and age: As evident in Table 4.50 the results of the ANOVA tests on the perceived levels of opportunities to participate at work of different age groups yielded a p-value of .96 (refer to Table 4.50). This value is higher than the critical score of .05; as a

result the assumption of homogeneity ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) cannot be rejected. It is therefore concluded that there is no significant differences between the levels of *participation* experienced by nursing practitioners of different age groups. It is posited that nursing category has a bigger influence on opportunities to participate in comparison to age. This proposition is elaborated on in the following section.

Table 4.50

Descriptive Statistics: Participation of Different Age Groups

p-value = .96					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.38	.74	.04	2.31	2.45
18-30	2.39	.70	.07	2.26	2.53
31-45	2.37	.74	.05	2.26	2.48
46-65	2.78	.76	.06	2.26	2.50

Participation and nursing category: In terms of different nursing categories (Table 4.51) it is evident that there are significant differences between the opportunities to participate experienced by different age group. The p-value of .02 indicates that the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) should be rejected.

Table 4.51

Descriptive Statistics: Participation of Different Nursing Categories

p-value = .02*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.38	.74	.04	2.31	2.45
ENA	2.58	.79	.11	2.36	2.80
EN	2.43	.77	.08	2.28	2.58
PN	2.26	.70	.05	2.15	2.36
SPN	2.42	.712	.07	2.29	2.55

*p-value < .05 (significant)

Figure 4.7 indicates that ENA's report highest levels of *participation*, and PN's the lowest. The mean scores of the EN's and SPN's do not seem to differ significantly from the other nursing categories.

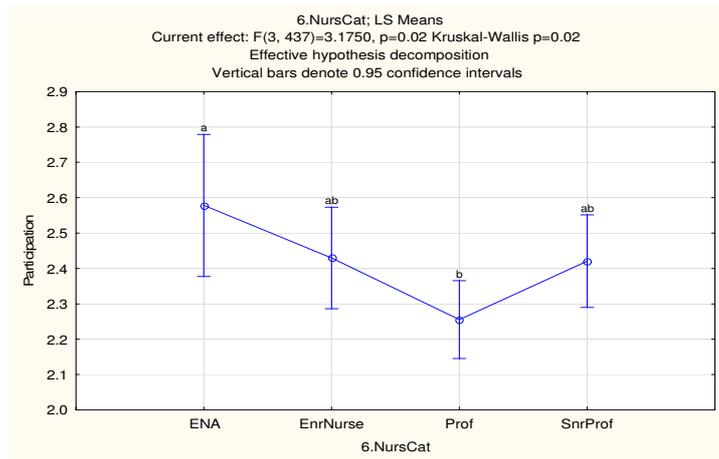


Figure 4.7. Participation Means of Different Nursing Categories

In order to confirm the identified specific differences between means of nursing categories the LSD test was applied (Table 4.52), which confirmed that ENA’s differ statistically significantly from PN’s in terms of reported levels of *participation*. These results are in line with the proposition of Cready et al. (2008) that *participation* strategies such as empowered work teams, lead to improved attitudes toward work of lower category nursing staff members. The study of Torsney (2011) also corroborates that the effect of participating at work is greater for the lower status nursing practitioner in comparison to the staff members who had more status. In contradiction with these reports, the mean score of the SNP’s (most senior non-managerial nursing staff member in the ward) is higher than the mean score of the PN’s. It is posited that this result can potentially be attributed to the fact that the SPN’s often fulfil additional senior tasks in the unit in assistance of the unit manager, which can lead to increased reports of opportunities to participate.

Table 4.52

Fisher's LSD Test: Comparing Participation of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.24	.01*	.20
EN	.24		.06	.93
PN	.01*	.06		.06
SPN	.20	.93	.06	

*p-value < .05 (significant)

It is posited that the sub-optimal reported levels of *participation* at work for nursing practitioners of all ages and categories contributed to the reported average level of work engagement and as a result remedial action may be required in terms of this job resource. Hence, remedial actions are proposed within Chapter Five.

4.5.10 Contact possibilities

The job resource *contact possibilities* is assessed within the JDERS by the following three questions:

- *Is it clear to you whom you should address within the organisation for specific problems?*
- *Can you discuss work problems with your direct supervisor?*
- *Can you participate in decisions about the nature of your work?*

Tables 4.53 and 4.54 provide the mean *contact possibilities* score for the total sample. This indicates that from the perspective of the total sample the typical nursing practitioner tended to respond with a response closest to *most of the time* ($\bar{x} = 3.12$) to the items in this subscale. This outcome contradicts the hypothesis that nursing practitioners have limited *contact possibilities*. According to Mariani (2012) the concept of mentoring (as one form of contact possibility) is not new to nursing. Because an effective mentorship program currently exists for nursing practitioners in the participatory company, it is suggested that this type of contact lead to the higher than anticipated levels of *contact possibilities*. Further to this; because the positive correlation between *contact possibilities* and work engagement has been confirmed within this study (Table 4.20) it is deduced that the average levels of work engagement of all nursing practitioners were not severely impacted by negative perceptions pertaining to *contact possibilities*.

To identify any potential problems masked by the grand mean score, ANOVA tests were applied. The results of the ANOVA indicated that there are no significant differences between the *contact possibilities* mean scores of nursing practitioners of different ages or categories. Table 4.53 indicates that the p-value in terms of *contact possibilities* of different age groups is .55, and Table 4.54 reflects a p-value of .47 for different nursing categories. Because both p-values are above the critical level of .05 the null hypotheses ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$; $H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) cannot be rejected. It is therefore surmised that age and nursing category does not impact the *contact possibilities* afforded to nursing practitioners.

Table 4.53

Descriptive Statistics: Contact Possibilities of Different Age Groups

p-value = .55					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.12	.69	.03	3.06	3.19
18-30	3.08	.67	.06	2.96	3.21
31-45	3.12	.73	.05	3.01	3.22
46-65	3.17	.65	.05	3.07	3.28

Table 4.54

Descriptive Statistics: Contact Possibilities of Different Nursing Categories

p-value = .47					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.12	.69	.03	3.06	3.19
ENA	3.16	.73	.10	2.95	3.36
EN	3.19	.69	.07	3.06	3.33
PN	3.06	.70	.05	2.96	3.17
SPN	3.14	.65	.06	3.02	3.25

Overall nursing practitioners of all ages and categories appear to receive sufficient *contact possibilities* and hence no remedial action is warranted in terms of this job resource. It is however important for human resources practitioners to ensure the continued maintenance of the current *contact possibilities* that are provided to nursing practitioners to ensure that this job resource continues to positively impact on work engagement.

4.5.11 Remuneration

The job resource *remuneration* is assessed within the JDRS by the following three questions:

- *Do you think that the organisation pays good salaries?*
- *Can you live comfortably on your pay?*
- *Do you think you are paid enough for the work that you do?*

In general it is apparent that perceptions pertaining to *remuneration* reported by nursing practitioners gravitate towards the lower end of the 4-point Likert scale (mean score for the sample of $\bar{x} = 1.82$; Tables 4.55 & 4.57). This indicates that in general nursing practitioners do not believe that they are remunerated fairly or sufficiently. This conclusion corroborates with the hypothesis that nursing practitioners are dissatisfied with *remuneration* levels. The

conclusion is also confirmed in literature; Freeny and Tiernan (2009) as well as Maslach and Leiter (1997) argue that *remuneration* and rewards are important facilitators of engagement of nursing practitioners. Mee (2005) elucidates that many nursing practitioners consider themselves significantly underpaid in comparison to other professionals. Mee furthermore argues that a perceived good salary can still be regarded as poor compensation by nurses who are challenged on a daily basis with unsafe staffing levels, overtime and other problems pertaining to the nursing shortage. Because the significant positive correlation between *remuneration* and work engagement have been established (Table 4.20) it is feasible that the low satisfaction with *remuneration* will have an unfavourable impact on the engagement levels of nursing practitioners. ANOVA analyses were conducted to identify any further problems to *remuneration* pertaining to age or nursing category.

Remuneration and age: Results of the ANOVA (refer to Table 4.55) indicates that there are potential differences between the reported means in terms of *remuneration* of nursing practitioners of different ages (p-value = .02). The hypothesis of equal means ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) is therefore rejected.

Table 4.55

Descriptive Statistics: Remuneration of Different Age Groups

Category	Mean	p-value = .02*			
		Standard deviation	Standard error	-95.00%	+95.00%
Total	1.82	.77	.04	1.75	1.89
18-30	1.96	.74	.07	1.82	2.10
31-45	1.84	.82	.06	1.72	1.96
46-65	1.69	.71	.06	1.58	1.81

*p-value < .05 (significant)

Figure 4.8 signifies that the youngest age group (18 – 30) are most satisfied with their *remuneration* (in comparison to other age groups), and the oldest nursing practitioners (46 – 65) are least satisfied. The age-group 31 – 45 does not differ significantly from the age groups both their juniors and seniors in terms of age, which explicates a gradual decline in *remuneration* satisfaction of nursing practitioners as they become older.

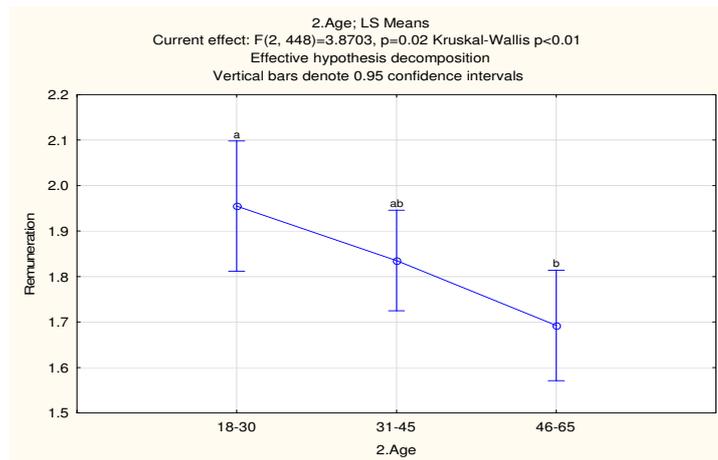


Figure 4.8. Remuneration Means of Different Age Groups

An LSD test was conducted to confirm which specific groups differ from other groups in terms of *remuneration* means. Results of the test (refer to Table 4.56) concluded that the older and younger age groups do differ significantly in terms of *remuneration* satisfaction.

Table 4.56

Fisher's LSD Test: Comparing Remuneration of Different Age Groups

	18-30	31-45	46-65
18-30		.19	.01*
31-45	.19		.09
46-65	.01*	.09	

*p-value < .05 (significant)

It is proposed that the more mature nursing practitioners expect higher *remuneration* in comparison to their younger counterparts based on the premise that they usually have more years of practical experience. Younger nursing practitioners, especially those just starting out with their career, might have lower expectations in terms of *remuneration* which in turn leads to slightly higher levels of satisfaction with *remuneration*. Regardless of the statistically significant differences in the mean *remuneration* scores of nursing practitioners of different ages the reported levels are at problematic low levels for all age groups.

Remuneration and nursing category: In terms of *remuneration* no significant difference is evident between the means of nursing practitioners of different categories (p-value = .85; Table 4.57) and therefore the hypothesis $H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$ cannot be rejected. Consequently it is surmised that category does not impact on the level of satisfaction with *remuneration* of nursing practitioners.

Table 4.57

Descriptive Statistics: Remuneration of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value = .85	
				-95.00%	+95.00%
Total	1.82	.78	.04	1.75	1.89
ENA	1.87	.96	.14	1.60	2.14
EN	1.78	.73	.07	1.63	1.92
PN	1.81	.75	.06	1.70	1.92
SPN	1.86	.77	.07	1.72	1.99

Because a significant positive correlation between *remuneration* and work engagement have been established (Table 4.20) it is feasible that the low satisfaction with *remuneration* will have an unfavourable impact on the engagement of nursing practitioners of all ages and nursing categories, therefore remedial actions are proposed and discussed for this job resource within Chapter Five.

4.5.12 Career possibilities

The job resource *career possibilities* is assessed within the JDRS by the following three questions:

- *Does your job offer you the possibility to progress financially?*
- *Does your organisation give you opportunities to follow training courses?*
- *Does your job give you the opportunity to be promoted?*

The mean career possibility scores for this sample of nursing practitioners average at $\bar{x} = 2.43$ (refer to Tables 4.58 & 4.60); hence it is apparent that most nursing practitioners believe they have positive career prospects only *sometimes*. Since a positive correlation between the independent and dependent variables has been confirmed (Table 4.20) it is deduced that the reported levels of *career possibilities* within this sample had a negative impact on the reported levels of work engagement. This result is in line with the hypothesis that limited career advancement possibilities within the nursing profession will have a negative impact on work engagement. Bakker and Demerouti (2008) corroborate and explain that opportunities for development can stimulate work engagement because it satisfies the need for competence (an intrinsic motivational role). The grand mean calculated for the whole sample might mask further problems with regards to this job resource and hence ANOVA analyses were conducted to determine potential differences between groups (age and nursing category).

Career possibilities and age: Results of the ANOVA test (Table 4.58) indicate that nursing practitioners of different ages experience different levels of satisfaction in terms of career prospects. Because the p-value of .02 is less than the critical value of .05 the null hypothesis of homogeneity of means ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) can be rejected.

Table 4.58

Descriptive Statistics: Career Possibilities of Different Age Groups

p-value = .02*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.43	.76	.04	2.36	2.50
18-30	2.58	.77	.07	2.44	2.73
31-45	2.43	.79	.06	2.31	2.54
46-65	2.33	.69	.06	2.22	2.44

*p-value < .05 (significant)

As can be seen in Figure 4.9 it is apparent that the most junior category in terms of age (ages 18 – 30) seems to be most positive about their career prospects. The age group with the lowest satisfaction in terms of *career possibilities* is age-group 46 – 65. The mean score of the age group 31 – 45 does not seem to deviate significantly from the means of the other two age groups; the result is a curve that slopes down progressively from the younger employees to the older employees.

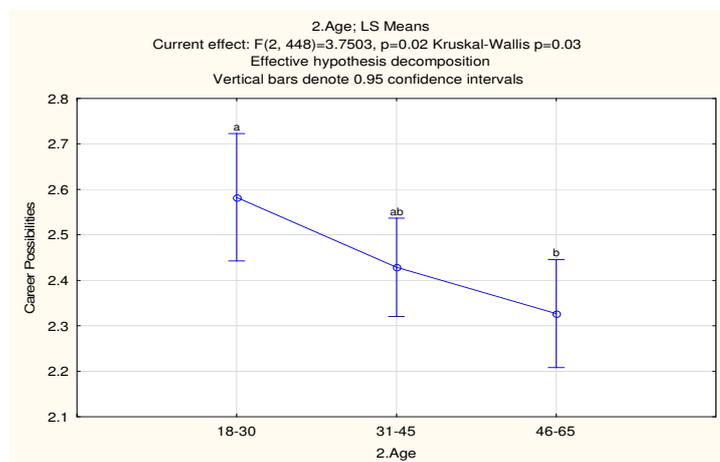


Figure 4.9. Career Possibilities Means of Different Age Groups

A subsequent LSD test was carried out to confirm which specific groups differ statistically significantly in terms of *career possibilities* (Table 4.59). The results confirmed that the means of the different age groups differ significantly, especially between age groups 18 – 30 and 46 – 65. This result seem rather predictable because as older nursing practitioners start to near retirement age they are less likely to have career growth potential; younger

employees on the other hand are more likely to still be positive about future *career possibilities* because they have the time to further grow their careers. Chang et al. (2007) agrees and elucidate that nursing practitioners have different career needs at different career stages; furthermore they propose that a gap exists between the career needs of nursing practitioners and career development programmes offered by employers. It is of note that despite the statistically significant differences between age groups, the mean *career possibilities* scores for all age groups were at suboptimal levels and may require attention in order to address work engagement levels.

Table 4.59

Fisher's LSD Test: Comparing Career Possibilities of Different Age Groups

	18-30	31-45	46-65
18-30		.06	.01*
31-45	.06		.22
46-65	.01*	.22	

*p-value < .05 (significant)

Career possibilities and nursing category: Results of the ANOVA test on *career possibilities* of different nursing categories (Table 4.60) yielded a p-value of .18. The p-value higher of .05 implies that the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) cannot be rejected and that nursing practitioners of different categories are therefore likely to report similar levels of satisfaction with *career opportunities* available to them. It is posited that because nursing practitioners of all categories have the opportunity to progress to the next category (through required education and training) all nursing practitioners will have some opportunities for growth. Further to this; as less nursing practitioners progress to more senior categories the supply and demand of job opportunities balance out. Consequently, nursing practitioners of different nursing categories will report similar, albeit suboptimal, opportunities for career growth.

Table 4.60

Descriptive Statistics: Career Possibilities of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value = .18	
				-95.00%	+95.00%
Total	2.43	.75	.04	2.36	2.50
ENA	2.52	.87	.12	2.27	2.76
EN	2.51	.77	.77	2.35	2.66
PN	2.33	.69	.05	2.23	2.44
SPN	2.46	.75	.07	2.33	2.60

Nursing practitioners within this sample reported limited opportunities for career progression which is argued to negatively influence the work engagement of nursing practitioners, based on the confirmed positive correlation between the dependent and independent variable. Although differences between age groups are apparent the available *career opportunities* seem to be problematic for nursing practitioners of all ages. In order to address work engagement levels remedial action in terms of *career possibilities* may therefore be necessary for nursing practitioners of all ages and categories, consequently practical suggestions are proposed pertaining to these job resources in Chapter Five.

4.5.13 Pace and amount of work

The job demand *pace and amount of work* is assessed within the JDRS by the following two questions:

- *Do you have too much work to do?*
- *Do you work under time pressure?*

In general it is apparent that perceptions pertaining to *pace and amount of work* reported by nursing practitioners gravitate towards a three on the 4-point Likert scale ($\bar{x} = 2.83$; Tables 4.61 & 4.62). This indicates that on average nursing practitioners believe that they have too much work to do *most of the time*. This result corroborates with the hypothesis that nursing practitioners are burdened by high workload. However, in contradiction to the hypothesis the correlation analysis did not indicate a correlation between *pace and amount of work* and work engagement (Table 4.20; p-value = .32). This outcome is unexpected, because it is also inconsistent with literature. Main (2011) reported that work overload displays a statistically significant relationship with vigour, indicating that employees with too much workload find it difficult to have high levels of energy, mental resilience and willingness to invest effort in their work. Tomic and Tomic (2011) also determined that workload was negatively associated with work engagement. It is posited that an unreliable measurement scale for this subscale in the JDRS contributed to this outcome (Cronbach's alpha = .69; Table 4.5) since one would have expected that if *pace and amount of work* had a substantial influence on work engagement (as suggested by literature) these rather negative perceptions would have had a negative impact on the work engagement scores. It is proposed that being very busy at work could increase the experienced meaning of work; where nursing practitioners work fast and hard to provide care for more patients they may feel that the work that they are performing are meaningful and as a result the high *pace and amount of work* may not have the anticipated negative impact on work engagement.

Descriptive statistics from the ANOVA tests indicate that there is no statistical significant difference between the *pace and amount of work* experienced by nursing practitioners of different ages (Table 4.61; p-value = .34) and different categories (Table 4.62; p-value = .33). Both p-values are above the critical level of .05; hence the assumptions of homogeneity cannot be rejected for age ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) or nursing category ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$).

Table 4.61

Descriptive Statistics: Pace and Amount of Work of Different Age Groups

p-value = .34					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.83	.69	.04	2.77	2.90
18-30	2.79	.67	.06	2.67	2.92
31-45	2.89	.68	.05	2.79	2.99
46-65	2.79	.71	.06	2.68	2.91

Table 4.62

Descriptive Statistics: Pace and Amount of Different Nursing Categories

p-value = .33					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.83	.69	.03	2.77	2.90
ENA	2.67	.71	.10	2.47	2.87
EN	2.83	.69	.07	2.69	2.96
PN	2.86	.69	.05	2.75	2.96
SPN	2.87	.69	.06	2.74	2.99

A correlation between the independent variable (*pace and amount of work*) and the dependent variable (work engagement) was not confirmed through statistical correlation analyses; hence the significance of the impact of *pace and amount of work* on engagement cannot be accurately determined. Consequently this job demand is excluded from further analysis and discussion in this study. However, because support for a relationship between the two constructs have been supported by literature (e.g. Main, 2011; Tomic & Tomic, 2011) this topic is suggested as avenue for further research.

4.5.14 Mental load

The job demand *mental load* is assessed within the JDERS by the following three questions:

- *Do you have to be attentive to many things at the same time?*
- *Do you have to give continuous attention to your work?*
- *Do you have to remember many things in your work?*

The mean *mental load* score for this sample of nursing practitioners has been determined as very high ($\bar{x} = 3.40$ on the 4-point Likert scale, Tables 4.63 & 4.64); which implies that overall nursing practitioners report very regular high *mental load*. These results reflect the hypothesis that nursing practitioners experience high *mental load*. Further support of this result is also evident in literature. Potter et al. (2005) argue that nursing practitioners have to transition between different patients regularly (each with a unique condition that require unique treatment) reprioritise continuously, and are often interrupted while they work, all which increase cognitive load. Higuchi-Smith and Donald (2002) concur that nursing practitioners require skills in complex thinking processes in order to make inferences, synthesize information, and choose an appropriate course of action for each patient. Similar views are also held by Simmons et al. (2003).

Unexpectedly, the correlation analysis results indicated a significant positive correlation between the constructs *mental load* and work engagement ($r=.09$; Table 4.20). Although not aligned to the hypothesis, these results reflect similar findings in literature. Verbruggen (2009) reported that mental overload was positively related to the engagement scales vigour and dedication. He proposes that being occupied mentally and working with a lot of information makes employees feel more persistent and energetic (vigour). Employees also experience more enthusiasm and inspiration (dedication) in such circumstances. Hence, it is deduced that when *mental load* is higher, nursing practitioners feel challenged and motivated, which increases their work engagement levels.

In terms of the results of the ANOVA tests, no significant differences between the means of reported levels of *mental load* were observed for nursing practitioners of different ages or categories. Table 4.63 indicates p-value of .76 (analysis on age groups), and Table 4.64 reflects a p-value of .07 in (analysis on different nursing categories). Because both p-values are above the critical level of .05 the null hypothesis (homogeneity of means) for age ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) or nursing category ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) cannot be rejected. This result corroborates with the hypothesis that *mental load* will impact nursing practitioners of all ages and categories.

Table 4.63

Descriptive Statistics: Mental Load of Different Age Groups

p-value = .76					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.40	.53	.03	3.36	3.45
18-30	3.43	.51	.05	3.34	3.53
31-45	3.39	.54	.04	3.31	3.46
46-65	3.41	.53	.04	3.32	3.49

Table 4.64

Descriptive Statistics: Mental Load of Different Nursing Categories

p-value = .07					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.40	.53	.03	3.36	3.46
ENA	3.35	.54	.08	3.20	3.51
EN	3.32	.58	.06	3.21	3.44
PN	3.48	.51	.04	3.41	3.56
SPN	3.39	.49	.05	3.30	3.48

Given the evident positive correlation between *mental load* and work engagement that was reported in this study, it seems rational to concede that the reported high levels of *mental load* would have had a positive impact on the work engagement of this sample of nursing practitioners, and hence no remedial action is warranted. It would however be prudent to point out that in circumstances of extreme *mental load* burnout (Demerouti, et al., 2002) and exhaustion (O'Conner et al., 2000) are more likely to occur; hence it is suggested that human resources practitioners closely monitor the impact of *mental load* on nursing practitioners to prevent adverse impact. Further to this, it has been reported earlier that the convergent validity of *mental load* is questionable due to the increased possibility of measurement error (AVE of less than .50; refer to Table 4.24). Hence, these results should be interpreted with care. Further research into the relationship between *mental load* and work engagement may be necessary.

4.5.15 Emotional load

The job demand *emotional load* is assessed within the JDRS by the following three questions:

- *Are you confronted in your work with things that affect you personally?*
- *Do you have contact with difficult people in your work?*
- *Does your work put you in emotionally upsetting situations?*

Tables 4.65 and 4.66 provide the mean *emotional load* score for the total sample, which was determined to be $\bar{x} = 2.45$. This signifies that in general nursing practitioners are faced with relatively high levels of *emotional load*. Chou et al. (2012) explains that nurses are generally expected to display a caring demeanour, express empathy for patients and show an understanding of their pain. Furthermore, employers expect that nursing staff suppress any negative feelings such as anxiety when interacting with patients. When nursing staff experience anxiety they have to regulate the emotion to ensure that the patient perceives only care and empathy. Hence, nurses experience high *emotional load*. The reported mean scores are therefore aligned to both literature, as well as the hypothesis that nursing practitioners experience high *emotional load*. It has also been reported earlier that the correlation analysis confirmed a statistically significant negative correlation between the construct work engagement and job demand *emotional load* (Table 4.20); this finding is in line with the hypothesis. Although specific evidence was not found in literature of this relationship in the nursing profession it seems rational to concede that higher *emotional load* of nursing practitioners will have an adverse impact on work engagement. Since further problems pertaining to *emotional load* may be masked by the grand mean score, ANOVA analyses were conducted to determine if differences exist within *emotional load* of different groups (age and nursing category).

Emotional load and age: In terms of *emotional load* no significant difference is evident between the means from nursing practitioners of different ages (p-value .66; Table 4.65). Consequently, it is surmised that age does not significantly impact the experienced level of *emotional load* and the null hypothesis ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$) cannot be rejected.

Table 4.65

Descriptive Statistics: Emotional Load of Different Age Groups

p-value = .66					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.45	.65	.03	2.39	2.51
18-30	2.42	.69	.07	2.29	2.55
31-45	2.44	.65	.05	2.35	2.53
46-65	2.49	.62	.05	2.39	2.59

Emotional load and nursing category: As evident in Table 4.66 different nursing categories report different levels of *emotional load* (p-value smaller than .01). Because the p-value is smaller than the critical score of .05 the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) can be rejected.

Table 4.66

Descriptive Statistics: Emotional Load of Different Nursing Categories

Category	Mean	Standard deviation	Standard error	p-value < .01*	
				-95.00%	+95.00%
Total	2.45	.65	.03	2.39	2.51
ENA	2.35	.64	.09	2.17	2.53
EN	2.22	.63	.06	2.09	0.35
PN	2.54	.63	.05	2.44	2.63
SPN	2.55	.64	.06	2.43	2.67

*p-value < .05 (significant)

Figure 4.10 indicates that EN's report the lowest level of *emotional load*, whereas the more senior categories (PN's and SPN's) report the highest levels of *emotional load*. The reported mean of the ENA's seems to be midway between the mean scores of EN's and the more senior nursing practitioners.

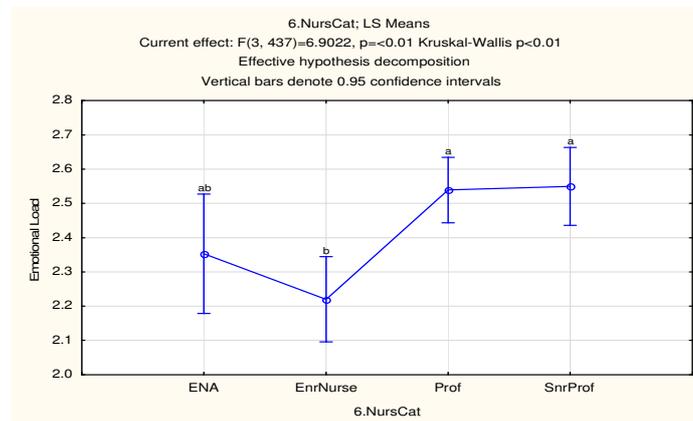


Figure 4.10. Emotional Load Means of Different Nursing Categories

The LSD analysis was conducted to identify the specific groups that differ statistically significantly in terms of mean scores (refer to Table 4.67). Results confirm that the mean scores of EN's differ statistically significantly to that of the PN's and SPN's. Since there seems to be no logical or gradual incline or decline in terms of level of *emotional load* experienced as nursing categories progress from junior to senior (Figure 4.10) it is suggested that further research on the differences between mean *emotional load* scores of nursing practitioners of different categories could add value. For the purpose of the current study, it is evident that remedial action in terms of *emotional load* may be warranted for nursing practitioners of all categories since the *emotional load* mean scores of all categories were found to be above the recommended score of two.

Table 4.67

Fisher's LSD Test: Comparing Emotional Load of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.22	.07	.06
EN	.22		.00*	.00*
PN	.07	.00*		.89
SPN	.06	.00*	.89	

*p-value < .05 (significant)

A positive correlation between *emotional load* and work engagement was confirmed within this study. Further to this, it is apparent that due to the reported high levels of *emotional load* remedial action may be necessary in terms of this job demand for nursing practitioners of all ages and categories. In addition, it has been reported earlier that *emotional load* moderates the relationship between *opportunities to learn* and work engagement. Remedial action pertaining to *emotional load* is therefore not only necessary in its own right, but potentially also to ensure that proposed remedial action based on *opportunities to learn* will have an increased likelihood of being effective. These remedial actions are proposed and discussed within Chapter Five.

4.5.16 Ambiguities of work

The job demand *ambiguities of work* is assessed within the JDRS by the following two questions:

- *Do you know exactly what other people expect of you in your work?*
- *Do you know exactly for what you are responsible?*

In general nursing practitioners within this sample report very high levels of *ambiguities of work* (refer to the mean scores of $\bar{x} = 3.44$ in Tables 4.68 & 4.69). This conclusion concurs with Chang and Hancock (2003) who reported that increased levels of responsibility, and performing duties outside their area of specialty due to low staffing levels, can create uncertainty in employees that is linked to role ambiguity. Surprisingly, the results of the correlation analysis (Table 4.20) yielded a positive correlation between *ambiguities of work* and work engagement. This result is in contradiction to the hypothesis of a negative correlation, as well as literature (e.g. Chang & Hancock, 2003). No rational explanation can be conjured for these results and consequently it is suggested that further research on these results in future studies can add value. In order to identify any potential differences within groups that can elucidate on the difference of ambiguity experienced by nursing practitioners

of different age groups and categories ANOVA tests were once again applied for these two subgroups.

Ambiguities of work and age: No significant differences in the means scores of nursing practitioners of different age groups in terms of *ambiguities of work* have been determined (p-value = .17, Table 4.68) within this study; therefore the null hypothesis could not be rejected ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$). It is therefore eluded that age does not play a significant role in the level of work uncertainty in the nursing profession.

Table 4.68

Descriptive Statistics: Ambiguities of Work of Different Age Groups

p-value = .17					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.44	.52	.02	3.39	3.49
18-30	3.39	.49	.05	3.30	3.49
31-45	3.41	.57	.04	3.33	3.50
46-65	3.50	.46	.04	3.43	3.57

Ambiguities of work and nursing category: According to the results of the ANOVA test there are significant differences between the mean *ambiguities of work* scores of different nursing categories (p-value = .01; Table 4.69); therefore the null hypothesis ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$) can be rejected.

Table 4.69

Descriptive Statistics: Ambiguities of Work of Different Nursing Categories

p-value = .01*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	3.44	.52	.03	3.39	3.49
ENA	3.63	.48	.07	3.49	3.76
EN	3.45	.52	.05	3.34	3.55
PN	3.44	.48	.04	3.37	3.52
SPN	3.35	.56	.05	3.25	3.45

*p-value < .05 (significant)

As can be seen in Figure 4.11 the more junior categories tend to be more uncertain about work whereas the more senior categories experience less ambiguities. The curve gradually curves from higher levels of reported ambiguity to lower levels as the rank becomes more senior.

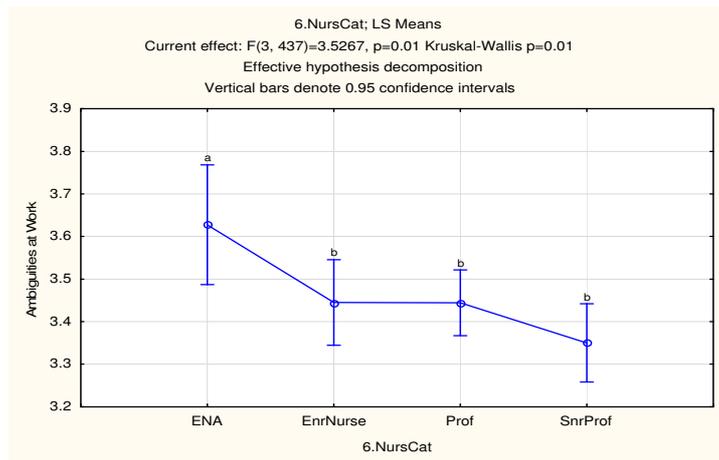


Figure 4.11. Ambiguities of Work Means of Different Nursing Categories

The LSD test (Table 4.70) confirmed that there are significant differences in the mean scores of ENA's in comparison to the other nursing categories. It is postulated that the more senior nursing practitioners report lower levels of ambiguities based on the assumption that they tend to have more years of practical experience and therefore know and understand their work role better. Furthermore, more senior the nursing practitioners have broader scope of practices: hence the possibility of being asked to perform tasks outside of the scope of practice is reduced. Stated differently, there are very few nursing tasks outside of the scope of practice of SNP's; while the limited scope of practice of the ENA's restricts them to very specific tasks. The probability are therefore greater that ENA's will experience high ambiguity when they are asked to perform duties outside of the scope of practice (as stated earlier, the ethical consideration of this assumption is outside of the scope of this study).

Table 4.70

Fisher's LSD Test: Ambiguities of Work of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.04*	.03*	.00*
EN	.04*		.99	.17
PN	.03*	.99		.12
SPN	.00*	.17	.12	

*p-value < .05 (significant)

Again it is noteworthy that the mean scores of all nursing categories is reasonably high, which indicate that all categories report dissatisfaction with the level of work ambiguity. This could partially be ascribed to the reality that nursing practitioners of all categories are on occasion expected to perform duties outside of their scope of practice.

Despite the unexpected positive correlation between *ambiguities of work* and work engagement, and the results pertaining to this job demand thereby seeming to be non-problematic (high ambiguities will increase work engagement in circumstances of a positive correlation) it is suggested that human resources practitioners monitor the levels of ambiguity carefully and intervene when levels become exceedingly high. It seems rational to postulate, based on conclusions in literature, that high levels of role ambiguity may have adverse impact on other factors (not necessarily pertaining to work engagement) such as burnout, depersonalisation, and experiences of low personal accomplishment (Tunc & Kutanis, 2009) and reduced affective commitment (Brunette, 2011), which therefore warrants remedial action when levels of ambiguities are perceived to be excessively high.

4.5.17 Uncertainty about the future

The job demand *uncertainty about the future* is assessed within the JDRS by the following three questions:

- *Do you need to be more secure that you will still be working in one year's time?*
- *Do you need to be more secure that you will keep your current job in the next year?*
- *Do you need to be more secure that next year you will keep the same function level as currently?*

In general nursing practitioners reported mean levels of *uncertainty about the future* scores in the range of $\bar{x} = 2.48$ (refer to Tables 4.71 & 4.72). It is thus eluded that nursing practitioners experience problematic levels of *uncertainty about the future*. This conclusion is consistent with the hypothesis that nursing practitioners experience increased job insecurity. In Laine et al's. (2009) epidemiological study in Europe it was also reported that nursing practitioners reported as least some level of concern about the future due to becoming unemployed, transferred, becoming unfit to work due to illness or injury, or unwanted changes in work schedules (all which pertains to *uncertainty about the future*). In contradiction to the hypothesis the results of the correlation analysis (Table 4.20) yielded a positive correlation ($r = .14$) between *uncertainly about the future* and work engagement. This result is also inconsistent with other studies. Main (2011) for example reported that job insecurity had a weak negative relationship with the dedication component of work engagement, which indicates that employees find it difficult to be dedicated to their work if they feel insecure about future employment. No logical explanation can be provided for this outcome and as a result it is suggested that further research is conducted on the relationship between the two constructs. The grand mean calculated for the whole sample might mask

specific problems with regards to this job resource and hence ANOVA analyses were again conducted to determine potential differences between groups (age and nursing category).

Uncertainty about the future and age: ANOVA test results indicate that there is no statistical significant difference between the means of job uncertainty for nursing practitioners of different ages (Table 4.71). The p-value of .39 is higher than the critical score of .05 and as a result the assumption of homogeneity cannot be rejected ($H_0: \mu_{18-30} = \mu_{31-45} = \mu_{46-65}$). It is thus eluded that nursing practitioners of different ages experience similar levels of *uncertainty about the future*.

Table 4.71

Descriptive Statistics: Uncertainty about the Future of Different Age Groups

p-value = .39					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.48	1.03	.05	2.39	2.58
18-30	2.38	0.93	.09	2.21	2.56
31-45	2.48	1.04	.08	2.33	2.63
46-65	2.56	1.08	.09	2.39	2.73

Uncertainty about the future and nursing category: Results of ANOVA indicate that nursing practitioners of different nursing categories (Table 4.72) report statistically significant different levels of *uncertainty about the future*. The p-value of .01 is lower than the critical value of .05, hence the null hypothesis of equal means should be rejected ($H_0: \mu_{ENA} = \mu_{EN} = \mu_{PN} = \mu_{SPN}$).

Table 4.72

Descriptive Statistics: Uncertainty about the Future of Different Nursing Categories

p-value = .01*					
Category	Mean	Standard deviation	Standard error	-95.00%	+95.00%
Total	2.48	1.03	.05	2.39	2.58
ENA	2.73	0.94	.13	2.47	3.00
EN	2.69	1.01	.10	2.49	2.89
PN	2.39	1.05	.08	2.24	2.55
SPN	2.33	1.02	.09	2.14	2.51

*p-value < .05 (significant)

As can be seen in Figure 4.12 it is evident that the most junior nursing categories are more concerned about their future in comparison to the more senior nursing categories. The age group with the lowest level of uncertainty is SPN's. It is apparent that nursing practitioners

become less concerned about their future as they progress in their careers and grow into more senior roles.

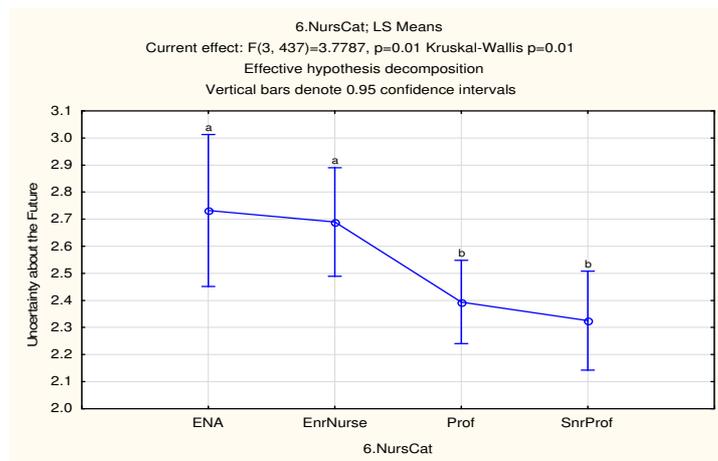


Figure 4.12. Uncertainty about the Future Means of Different Nursing Categories

Fisher's LSD test was applied to identify the specific nursing categories that differ statistically significantly from other categories in terms of the reported mean scores (refer to Table 4.73). The test results confirmed that the means of different nursing categories differ significantly. More specifically, the two more junior roles (ENA and EN) differed significantly from the more senior roles (PN and SPN). It is proposed that this outcome can be attributed to the reality that there is a greater shortage of senior category nursing practitioners. As a result a senior category nurse will be more assured of employment in comparison to the more junior roles. In other words; supply and demand economics are in favour of senior categories (demand outweighs supply), which is not always the case for junior category nursing practitioners.

Table 4.73

Fisher's LSD Test: Comparing Uncertainty about the Future of Different Nursing Categories

	ENA	EN	PN	SPN
ENA		.81	.04*	.02*
EN	.81		.02*	.01*
PN	.04*	.02*		.57
SPN	.02*	.01*	.57	

*p-value < .05

A positive correlation has been determined between the constructs *uncertainty about the future* and work engagement. Since the *uncertainty about the future* mean scores were relatively high one would concede that it influenced work engagement positively. Despite this conclusion there is sufficient evidence in literature of other adverse consequences of

high levels of job insecurity, such as increased job-related stress and reduced affective organisational commitment (Bemhard-Oettel, 2011; Jordan et al., 2002; Van Zyl et al., 2013). Hence, it is proposed that human resources practitioners should monitor levels of uncertainty carefully and intervene when the likelihood of adverse impact is increased.

4.5.18 Summary

The purpose of this study was partially to comprehend the specific antecedents of work engagement of nursing practitioners by interpreting their reported perceptions on the job demands that they are faced with, and the resources that they are provided. By comparing the reported results of different groups (age and nursing category) a deeper understanding of the work engagement of nursing practitioners were achieved. Table 4.74 provides a broad summary of the results of the diagnostic investigation. The specific implications and recommendations for Human Resources Management stemming from the findings are discussed in Chapter Five, along with some practical suggestions for remedial action where relevant.

Within Table 4.74 the job resources are presented from highest mean score to lowest mean score, indicating the job resources that nursing practitioners perceive as provided most often to least often. The job demands are sorted from lowest means score to highest mean score to provide an overview of the demands that they are faced with in order of frequency (least often to most often). Furthermore, Table 4.74 presents an indication of whether significant differences in means were found for nursing practitioners of different age groups and nursing categories. Where possible an attempt was made to link the results of the research to literature that either support or contradict these findings. However, the rather specific nature of the analyses lead to very limited directly related literature, specifically pertaining to differences between age and category for each specific job demand and resource. However, literature related to the constructs specifically was addressed. Although more supporting or contradicting evidence in literature would have increased the validity of the reported results, the lack thereof supports the need for this study. It is consequently suggested that similar studies are conducted in future research endeavours to validate the results of this study.

All the job demands and resources were measured by 42 items in the JDERS on a 4-point Likert frequency scale ranging from 1 (never) to 4 (always). In the absence of empirically evaluated norm groups one would anticipate that a score of 3 (most of the time) (for those factors which loads positively on work engagement) or 2 (sometimes) (for those factors that

contribute negatively to work engagement) can be viewed as satisfactory. These scores were therefore applied as guidelines in the preceding sections within this chapter to identify those job demand and resources that are at problematic levels. Some of the highlights of the results are discussed as summary within the remainder of this chapter, before practical implications and suggestions are proposed within Chapter Five.

Table 4.74

ANOVA Results Summary

Rank	Job resource	Total mean score	Significant differences in means in term of age	Significant differences in means in term of nursing category
1	Relationships with supervisor	3.27	No	No
2	Relationship with colleagues	3.12	No	No
3	Contact possibilities	3.12	No	No
4	Communication	3.06	No	Yes
5	Information	2.98	Yes	No
6	Opportunities to learn ^a	2.95	No	No
7	Independence at work	2.95	No	No
8	Variety at work	2.89	Yes	No
9	Career possibilities	2.43	Yes	No
10	Participation	2.38	No	Yes
11	Remuneration	1.82	Yes	No

Rank	Job demand	Total mean score	Significant differences in means in term of age	Significant differences in means in term of nursing category
1	Emotional load ^{a, b}	2.45	No	Yes
2	Uncertainty about the future	2.48	No	Yes
3	Pace and amount of work ^c	2.83	No	No
4	Mental load	3.40	No	Yes
5	Ambiguities of work	3.44	No	Yes

^a Emotional load moderates the relationship between opportunities to learn and work engagement

^b Emotional load has a negative correlation with work engagement

^c Pace and amount of work is not correlated with work engagement

In terms of job resources, it is evident that nursing practitioners are least satisfied with their **remuneration** ($\bar{x} = 1.82$). This result corroborate the statement by Mee (2005) who pointed out that many nursing practitioners consider themselves significantly underpaid in comparison with other professionals. *Remuneration* received the lowest total mean score of all the job resources, and as a result it is posited that *remuneration* has a great impact on the work engagement of nursing practitioners. Results indicated that age plays a significant role in perceptions on *remuneration* of nursing practitioners. Older nursing practitioners are generally less satisfied ($\bar{x} = 1.69$) with *remuneration* in comparison to younger nursing

practitioners; this is potentially due to higher *remuneration* expectations of older nursing practitioners based on the premise that they should be rewarded for their years of experience and tenure. Nevertheless, because mean scores were low for all age groups it is suggested that human resources functions pay particular attention on *remuneration* of all age groups in order to enhance work engagement of nursing practitioners.

Nursing practitioners report that they are provided with **opportunities to participate** at work only some of the time ($\bar{x} = 2.38$). Further to this, indications are that nursing category plays a significant role in the mean scores of *opportunities to participate*: professional nurses report to have the least *opportunities to participate* at work ($\bar{x} = 2.25$). Because the mean scores of all nursing categories were lower than preferred levels it is suggested that they are provided with more *opportunities to participate* at work in order to increase work engagement. Further to this, specific emphasis on PN's, who are rather senior in the unit, but does not have formal senior responsibilities (usually formally provided to SPN's), may be necessary. Of note is the reported Cronbach's alpha of this subscale that was found to be .54. Hence, caution should be applied when interpreting the results related to this subscale.

The average mean score of **career possibilities** ($\bar{x} = 2.43$) (refer to Table 4.74) indicate that nurses perceive opportunities to progress in their careers only *sometimes*. This outcome corroborates with Robinson and Murrels (1998) who pointed out that career planning support for nurses have received little attention based on lack of career options. In particular, older nursing practitioners report to have limited career prospects. The work engagement of older nursing practitioners can potentially be increased by paying closer attention to career development of nurses older than 45. However, nursing practitioners of all ages report few *career possibilities*; consequently work engagement could be improved by creating and communicating a clear and achievable career pipeline or ladder, and putting mechanisms in place to help nursing practitioners of all ages achieve the different career steps.

The total mean score of **variety of work** was $\bar{x} = 2.89$ (refer to Table 4.74) which is below preferred levels; this result is in line with the hypothesis that nursing practitioners have a perceived lack of *variety at work*, which will have a negative impact on work engagement. Younger nursing practitioners reported less *variety at work* ($\bar{x} = 2.83$) than older nursing practitioners ($\bar{x} = 3.07$). As mentioned before, this result is attributed to the notion that older nursing practitioners often have more practical experience that managers might draw on for the allocation of additional or different tasks; this leads to a perception of greater

variety at work for this group. It is noteworthy that nursing practitioners below the age of 46 reported unsatisfactory levels of variety (possibly brought on by the strict scope of practice under which these nursing practitioners function) and as a result it is suggested that human resources functions focus on nursing practitioners of all ages, with emphasis on those younger than 46, when implementing remedial action.

Overall, nursing practitioners of all ages and categories reportedly have limited **independence at work** ($\bar{x} = 2.95$). This is again attributed to the strict scope of practice that governs the work that nursing practitioners do that limit opportunities for autonomy. When developing strategies aimed at enhancing work engagement of nursing practitioners this job resource should also receive specific attention. Because the scope of practice is unlikely to change some suggestions for alternative strategies are discussed within Chapter Five.

As hypothesised, on the whole nursing practitioners of all ages and categories reported unsatisfactory **opportunities to learn** ($\bar{x} = 2.95$). PLS analysis revealed that the relationship between *opportunities to learn* and work engagement is moderated by the job demand *emotional load* (which is negatively correlated to work engagement). Due to the fact that *emotional load* is also above the optimal level (guided by a mean score of two) it is deduced that providing additional *opportunities to learn*, without addressing high levels of *emotional load*, is likely to be less effective. Human resources functions would therefore be suggested to address these two factors collectively when developing strategies aimed at increasing work engagement.

In terms of the job resource **information**, significant differences between the mean scores of different ages were reported. The older nursing practitioners reported acceptable levels of *information* ($\bar{x} = 3.07$), whereas the younger nursing practitioners report insufficient *information* ($\bar{x} = 2.85$). Specific attention should be paid on the type, quality and frequency of *information* provided to the nursing practitioners younger than 46 when implementing work engagement strategies.

Overall average mean scores for the job resources **communication, contact possibilities, relationship with colleagues, and relationships with supervisor** exceeded a score of three. This implies that nursing practitioners are provided with these job resources at least most of the time, and as a result no suggestions pertaining to these constructs are necessary. However, it is important to note that in order to ensure sustainable sufficient

work engagement levels of nursing practitioners attention should not merely be paid to those problematic job demands and resources; it would be prudent to ensure that the current sufficient levels of the abovementioned job demand and resources are maintained to ensure that it continues to positively influence the work engagement of nursing practitioners.

Turning to job demands, **ambiguities of work** was reported to be the most challenging job demand ($\bar{x} = 3.44$). These results concur with Chang and Hancock (2003) who reported that in the nursing context, increased levels of responsibility and roles, and performing duties outside their area of specialty due to low staffing levels can create uncertainty that is linked to role ambiguity. In this study the total mean score of $\bar{x} = 3.44$ indicate that nursing practitioners are often faced with role uncertainty. This is attributed to the frequency that nursing practitioners might be required to function outside of their scope of practice (due to the shortage of nursing staff). Results of the ANOVA analysis revealed that nursing practitioners of different categories experience different levels of ambiguities of work. ENA's reported highest levels of ambiguities ($\bar{x} = 3.63$) possibly because their scope of practice is most strict, and SPN's the least ($\bar{x} = 3.35$). In contradiction to the notion of Jasper (1996), Kelly (1996) and Prebble and McDonald (1997) that young nursing practitioners (those that are new to the hospital environment) are more inclined to experience role ambiguity due to the transition from being a student nurse to being a professional nurse practicing in a hospital, ANOVA tests did not confirm evidence of differences between reported levels of *ambiguities of work* for nursing practitioners of different ages. Despite the positive correlation reported between *ambiguities of work* and work engagement, intervention is possibly warranted due to potential alternative adverse impact (not pertaining to work engagement) that was discussed earlier in this chapter.

The results of this study indicate that nursing practitioners experience high levels of **mental load**, most of the time ($\bar{x} = 3.40$). Similar conclusions have been found in supporting literature (e.g. Potter et al., 2005; Higuchi-Smith & Donald, 2002; Simmons et al., 2003) which elaborated on the various work related and environmental factors that increase the *mental load* experienced by nursing practitioners. More senior nursing categories reported higher levels of *mental load* (PN, $\bar{x} = 3.48$; SPN, $\bar{x} = 3.39$) in comparison to the more junior nursing categories (ENA, $\bar{x} = 3.35$; EN, $\bar{x} = 3.32$). This can potentially be attributed to the notion that senior nursing category staff members are expected to assist the junior categories with more difficult patients. As a result the more senior practitioners work with a greater variety of patients as well as more complex cases, both which will likely increase levels of *mental load*. Though the junior categories experience lower levels of *mental load*,

their average score for *mental load* is still higher than acceptable. Consequently it is suggested that attention is paid to the levels of *mental load* for all nursing staff members, regardless of age or category. Of importance is the average variance extracted (AVE) score of .47 for this subscale, which is lower than the acceptable .50. This score indicates that the convergent validity of the *mental load* measurement may be questionable due to the increased possibility of measurement error. It is thus posited that measurement error may draw the results of this subscale into question, and could impact the credibility of the statistical analyses. Of further note is the confirmed positive correlation between *mental load* and work engagement, which would imply that the reported high level of *mental load* is not problematic to the construct of work engagement. However, due to potential alternative adverse impact of high levels of *mental load* (as discussed earlier) some remedial action may still be sensible.

In terms of **pace and amount of work**, for which no correlation with work engagement was found, no specific actions plans are suggested. However, it is noteworthy that *pace and amount of work* is largely influenced by the shortage of nursing staff. If healthcare institutions manage to implement work engagement strategies that achieve higher work engagement levels, and as a result reduce turnover and draw employees to the nursing industry (thereby reducing the nursing shortage), any challenges pertaining to *pace and amount of work* would be addressed indirectly because the nursing shortage will have been reduced.

The total mean score of **uncertainty about the future** was reported to be $\bar{x} = 2.47$ (refer to Table 4.74) which is above preferred levels. This result supports that of Laine et al. (2009) who also reported evidence that despite the shortage of nursing staff, in general nursing practitioners experience job insecurity and *uncertainty about the future*. In this study it was inferred that the more senior nursing practitioners reported lower levels of uncertainty than the more junior nursing practitioners. As mentioned before, this result is attributed to the notion that there is a greater scarcity in more senior nursing categories and as a result senior nurses are more assured of future employment. It is noteworthy however that nursing practitioners of all categories reported unsatisfactory levels of uncertainty at work ($\bar{x} = 2.47$). Despite the reported positive correlation between job insecurity and work engagement, the risk of alternative adverse impact (not limited to work engagement) warrants some remedial action for this job demand.

Although **emotional load** (the only job demand with a confirmed negative correlation with work engagement) are listed as the job demand with the lowest total mean score ($\bar{x} = 2.45$), this mean score is still higher than acceptable and it is eluded that the *emotional load* on nursing practitioners may be high enough to have a negative impact on work engagement. Brand (2007), Chou et al. (2012), Moltern (2001), and Vitello-Cicciu (2003) corroborates that nursing practitioners regularly perform emotional labour. Results indicate that nursing category play a significant role in the reported levels of *emotional load*; PN's ($\bar{x} = 2.539$) and SPN's ($\bar{x} = 2.550$) report the highs levels of *emotional load*, and EN's ($\bar{x} = 2.220$) the lowest. Furthermore, *emotional load* possibly moderates the relationship between *opportunities to learn* and work engagement which implies that this job demand is not only important in its own right, but suboptimal levels will also impact the relationship between *opportunities to learn* and work engagement. It is posited that *opportunities to learn* may positively influence work engagement because it empowers nursing practitioners and develops and prepares them for future roles and career aspirations. However, when *emotional load* is high it overshadows the positive effect of *learning opportunities* that are provided, and as a result work engagement is affected negatively.

4.6 Conclusion

The results obtained from the sample were presented and discussed in this chapter. The results were investigated by means of different statistical analyses, namely: item analysis, correlation analysis, hierarchical regression analysis, PLS analysis, and analysis of variance. The implications of these findings are summarised in Chapter Five, together with practical recommendations for interventions and suggestions for further research pertaining to the work engagement of nursing practitioners.

CHAPTER FIVE: RECOMMENDATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

5.1 Introduction

Work engagement interventions can only be effective if the antecedents of work engagement are accurately understood. Knowing what these antecedents are and how they impact on work engagement can contribute towards the purposeful management of behaviour leading to work engagement to ultimately contribute to the reduction of the scarcity of nursing practitioners. This context provided the foundation and purpose of this current study.

Chapter One focused on the challenges that the healthcare industry face regarding the shortage of nursing practitioners and an aging workforce. It also provided introductory perspectives highlighting the unique challenges in terms of the work engagement of nursing practitioners. The chapter concluded with the delineation of the problem statement and research objectives, as well as specifying the outline of the subsequent chapters.

In Chapter Two, an overview of the concept of work engagement were discussed and, more specifically, the Job Demands and Resources model as diagnostic framework for the antecedents of work engagement of nursing practitioners. The literature review focused on developing diagnostic hypothesis that would guide the rest of this study. Eleven job resources and five job demands formed part of the diagnostic model that was discussed in detail.

Chapter Three presented the research design and methodology, and statistical analyses that were applied in this study to diagnose the work engagement of nursing practitioners based on the Job Demands and Resources model as diagnostic framework. The results of the statistical analyses were reported and discussed in detail in Chapter Four.

In this final chapter, the research results as presented in Chapter Four are briefly summarised. Furthermore, comments are made pertaining to the limitations of this study and recommendations for further research. Most importantly, based on the empirical findings of this study, this chapter provides a discussion of practical suggestions aimed at remedial actions that will address the work engagement of nursing practitioners.

5.2 Limitations of the study

Although this study provides valuable insight into the work engagement of nursing practitioners, some limitations need to be considered in order to improve future studies.

The non-probability sampling method can be viewed as a first limitation to this study. The sample was obtained from only one healthcare organisation within the private healthcare industry. This study excluded other private healthcare organisations, as well as public healthcare institutions which may pose a potential limitation in terms of the generalisation of the research results. As a result, the conclusions should be generalised with caution. In future investigations, a more representative sample of various private and public healthcare organisations could yield unique research results that may be easier to generalise.

The research design that was followed could be regarded as a possible limitation. An ex post facto research design was followed and therefore independent variables could not be controlled or manipulated. Furthermore, causality could not be determined and therefore the study of the relationships between job demands and resources, and work engagement could further benefit from a longitudinal design (Salkind, 2010).

Within this study surveys were utilised to gather data, which means that data was gathered at a single point in time. In such instances the probability of mono-method bias and response biases is increased (Salkind, 2010). Stated differently, because single-point-in-time observations were gathered and measured, and not a continued measurement over a period of time, it may have aggravated common method biases resulting in inflated correlations. Consequently, it is suggested that the multiple measures of key constructs are implemented in future research to overcome this limitation.

In terms of data analysis it is noteworthy that when a large number of analyses are conducted on the same dataset (such as in the case of the 34 ANOVA tests conducted) the probability of a type I error (finding a false positive report) is increased (Salkind, 2010). Consequently the research results should be interpreted with circumspection.

When conducting comparisons on groups (such in the case of the ANOVA tests) it is important to take into consideration that measurement instruments might work differently for different groups. Measurement bias occurs when the measurement instrument favours a particular group or result (Salkind, 2010). The measurement process will be considered biased if it systematically overstates and understates the value of the measurement for a

specific group. In these scenarios analysis of results of different groups should be conducted with caution.

Finally, the reliability of the measurement scale can be viewed as a potential limitation to this study. As elaborated on earlier, some of the subscales in the JDRS reported Cronbach's alpha values below .70, (namely; pace and amount of work, mental load, participation, ambiguities of work and career possibilities) which is not optimal. This result was partly attributed to the limited amount of items within each subscale.

5.3 Concluding remarks regarding psychometric properties of the measurement instruments

A researcher is only able to construct valid and credible conclusions regarding the ability of the structural model to explain the pattern of covariance in the hypothesised model if the items in the measurement scales are valid and reliable in the measurement of the latent variables. The reliability of the two measurement instruments used within this study was therefore evaluated through item analysis, and evaluations of average variance extracted (AVE) through PLS analysis.

All the items in the Utrecht Work Engagement Scale (UWEs) provided very high levels of reliability (Cronbach's alphas exceeding .80). The reliability of the measurement scale was therefore confirmed. All the items in the Job Demands and Resources Scale (JDRS) provided acceptable levels of reliability. Where Cronbach's alpha values were lower than .70 it was attributed to the fact that very few items were used to measure the subscale. In these scenarios the corrected item-total correlations were consulted to determine whether the items measured the intended subscale. In all cases the corrected item-total correlations exceeded the value of .30, and as a result the instrument was deemed reliable. In reference to average variance extracted (AVE) of the JDRS, which measures the amount of variance due to the construct in relation to the amount of variance caused by the measurement error, only the independent variable *mental load* yielded an AVE of less than .50 (refer to Table 4.24). This implies that the convergent validity of *mental load* is questionable due to the increased possibility of measurement error. These results were taken into consideration in the analyses and interpretation of the results.

5.4 Concluding remarks regarding the structural model

The results of the correlation analysis revealed that 15 of the job demands and resources were significantly related to the dependent variable (work engagement). *Pace and amount* of work did not correlate with work engagement. The majority of the other latent variables yielded medium strength positive relations to work engagement (with r values between .3 and .45). *Uncertainty about the future* ($r = .14$) and *remuneration* (.17) had significant, but weak correlations with the dependent variable, work engagement. The results further revealed that only one independent variable (*emotional load*) is negatively correlated with the dependent variable (work engagement). Overall the correlation analyses yielded acceptable results and the diagnosis of work engagement based on the Job Demands and Resources model could be done with a higher probability of valid and credible conclusions. It is noteworthy however that correlational research merely demonstrates if a statistical relationship exists between variables. It is possible however for two variables to indicate a statistical correlation due to chance, without there being a true causal relationship between the variables. Results of the correlation analysis was therefore used to delve deeper into possible reasons for total mean scores yielded by the ANOVA tests, which was conducted on all job demands and resources for nursing practitioners of different ages and categories.

An extensive step-by-step PLS analysis was applied to test the diagnostic model. Surprisingly only one of the possible 55 moderating relationships proposed by the Job Demand and Resources model was reported to be true; namely *emotional load*, which moderates the relationship between *opportunities to learn* and work engagement. As a result, the other proposed moderating relationships were excluded from inferences made during the diagnostic component of the research.

5.5 Concluding remarks regarding the diagnostic evaluation of work engagement of nursing practitioners

The main research objectives of this study included the investigation of the most salient eliciting job demands and job resources that influence work engagement of nursing practitioners. To fully comprehend the work engagement of nursing practitioners a thorough understanding of the antecedents of work engagement was required, including an understanding of the perceptions of nursing practitioners based on each of the proposed antecedents. However, making inferences based merely on the average group results could be erroneous, because the sample population exists of various individuals who differ from

others in the group in many different ways. Therefore the difference between groups (specifically age and nursing category) was also analysed through the use of ANOVA.

While the overall level of work engagement of nursing practitioners in the sample might not have been as low as had been anticipated, there are clearly deficiencies that need to be addressed. In terms of job resources, those factors that were found to be below optimum levels, and which therefore warrants intervention, included *remuneration, participation, career possibilities, variety at work, independence at work, opportunities to learn, and information*. The job resources *communication, contact possibilities, relationships with colleagues* and *relationship with supervisor* yielded acceptable mean scores and as a result no particular interventions are proposed for these variables. It is prudent to point out that human resources practitioners should ensure that these job resources, that currently reflect acceptable levels, are actively maintained to ensure that it continuous to add value to the work engagement of nursing practitioners. Neglecting the maintenance of these job resources may result in lower work engagement levels in future. In terms of job demands, all job demands were reported to be at unacceptably high levels; however, because no correlation between *pace and amount of work* and work engagement was confirmed, these specific job demands is also excluded from further discussions pertaining to practical recommendations.

5.6 Practical recommendations

The significance of the present study is encapsulated in the knowledge that there are important antecedents to the work engagement of nursing practitioners. By identifying those antecedents that contribute the most to the work engagement of nursing practitioners, practical suggestions can be made in an attempt to increase work engagement. The findings of this study point to six identified important job resources (*remuneration, participation, career possibilities, variety at work, independence at work, opportunities to learn, and information*) that impact the levels of work engagement of nursing practitioners (refer to Table 4.74). These antecedents can be targeted by human resources practitioner interventions in an attempt to increase work engagement. In terms of job demands; *ambiguities of work, mental load, uncertainty about the future* and *emotional load* have been reported to require intervention. Practical suggestions pertaining to each of these job demands and resources are discussed in this section.

Remuneration: *Remuneration* is the job resource that yielded the lowest total mean score; it is therefore proposed that specific attention is paid to this antecedent of work engagement. In times of economic strain it is not always possible or sustainable to merely increase

salaries of employees when they communicate dissatisfaction with levels of *remuneration*. As a result, companies need to identify alternative ways to remunerate and reward employees. It is therefore suggested that healthcare organisations relook their broader *remuneration* strategies and ensure that there is a mindful balance between economic sustainability and the needs of the employees. Further to this, alternative ways to reward employees are suggested; depending on the size and structure of the organisation. These alternatives can include monetary (such as allocation of shares, profit sharing, incentive and bonus-schemes) and non-monetary rewards (additional leave days, hours off, and creative fringe benefits such as provision of data bundles for cellular phones, or the provision of tablets and cellular phones at reduced rates). Some organisations have also successfully made use of flexible benefit and compensation plans where employees are allowed to decide what portion of their salaries and fringe packages will be taken in cash, and what portions will be committed to benefits (Brody, 1988). It is posited that once a fair (including internal equity in terms of tenure and experience) and sustainable *remuneration* strategy have been developed and implemented, it is important that employees fully understand their total reward structure. When focusing on basic pay alone, salaries can potentially seem low; but including the fringe benefits (medical aid, pension fund, uniform entitlements, housing allowances, etc.) in the salary total, a greater understanding of the total *remuneration* package is generated. These benefits need to be clearly communicated to all nursing practitioners irrespective of age and nursing level.

Participation: The reported limited opportunities to participate at work will likely have a negative effect on work engagement. However, large corporations find it extremely difficult and costly to include employees throughout the entire organisation in decision making (this is also not always a productive and beneficial process). Consequently, large organisations will at most provide employees an opportunity to voice their ideas and concerns by means of structured, companywide surveys (such as employee satisfaction surveys). Implementing company-wide *participation* strategies is therefore often seen as impractical. Another potential method of generation *participation* includes the use of open electronic employee forums that employees can utilise to voice opinions (e.g. blogs and electronic discussions boards). Unfortunately, the earlier mentioned lack of access to computers makes this an ineffective strategy within the current nursing context. It is therefore suggested that access to shared computers in open areas need to be provided to generate *participation* electronically. Further to this, ensuring that employees can access the proposed forums via their cellular phones can further accomplish the desired levels of *participation*. A further company *participation* strategy pertains the allowing of employees to select representatives who would attend general meetings on behalf of the larger employee population. However, again this

strategy often proves to be time-consuming and costly for large organisations who have branches spread geographically throughout the country. To practically provide nursing practitioners with the *participation* opportunities they desire it is proposed that employee participation is initiated with the participatory management style of supervisors (in this example the unit managers). According to Torsney (2011) participatory management styles pertain to employees being allowed and encouraged to participate in decision-making practices that affect employees directly and therefore this management style will lead to positive outcomes for both the individual and the organisation (such as enhanced engagement). To provide employees with an opportunity to interact with their more senior managers, the nursing manager and hospital manager can consider regular unit rounds aimed specifically at interacting with staff (as opposed to rounds focused on patient-interaction). Moving away from *participation* pertaining to interactions with seniors and managers, increased opportunities to participate can also be generated by allowing work-related *participation* with peers. The collaborative model (as opposed to the independent model) is known as 'team-nursing'. According to Wolf and Greenhouse (2007), with the team-nursing model nursing practitioners are assigned to teams that provide care to a defined group of patients. Team leaders are appointed to coordinate the care provided to patients, and the team then shares the responsibility for patient care. Finally, healthcare organisations should also consider indirect and informal methods of employee *participation* (which does not have to be limited to the nursing context) such as including employees in workplace committees (such as health-and-safety committees, or even informal social committees) or working groups, including fun elements into the place of work (such as team building interventions, competitions and games aimed at employee *participation*) and capitalising on social media platforms (such as Facebook).

Career possibilities: To address the lack of career opportunities in the nursing context alternative career paths, such as the replacement of traditional hierarchical careers by flatter structures, and more flexible careers built on portfolios of skills that are able to cross occupational and hierarchical boundaries (Arnold & Jackson, 1997) are suggested. Practically, alternative avenues for career growth should be identified and advocated; examples include career paths within nursing administration, formal education, case management, hospital management, or training and development. Human resources functions that take the career development of their staff as a driver of engagement seriously can consider providing career counselling or career conversations to those nursing practitioners who wish to explore career alternatives. Further to this, healthcare organisations should consider implementing formal structures and processes to facilitate the identification of high potential nursing practitioners and providing them with dedicated,

structured development programmes aimed at preparing them for future *career possibilities* (such as Nursing Management roles).

Variety at work: The nature of work that nursing practitioners do can be repetitive at times, especially for those nursing practitioners who function within one specialised unit for a longer duration. One well-known manner for creating *variety at work* is job or task rotation. This strategy gives employees the opportunity to use a variety of skills and perform different kinds of work. Within the nursing context job rotation can be achieved by rotating nursing practitioners among specialised units. One potential additional benefit of this strategy may be that nursing practitioners gain a wider array of skills, experiences and expertise. According to Asensio-Cuesta, Diego-Mas, Canós-Darós and Andrés-Romano (2012) further advantages to job rotations include the prevention of musculoskeletal disorders, the elimination of boredom and the increases of job satisfaction and morale. The subsequent positive outcomes are a more skilled and motivated workforce, increases in productivity, employee loyalty and reduction in employee turnover. A further example of rotation in the nursing context is the rotation of employees between patients. This is especially useful in long-care units where patients often stay for prolonged periods (such as oncology wards). Unit managers can also consider appointing shift-leaders to each shift, which will be expected to perform alternative tasks (such as supervisory or administrative tasks) in support of the manager; the additional positive impact of such a strategy is that the support to the unit manager which will free up her time to spend on more strategic or value-adding tasks. Finally, identifying non-nursing alternatives can further provide variety during the working day. Examples of non-nursing alternatives include involvement in project teams, social committees, and so forth.

Independence at work: Providing significant *independence at work* is a challenge in the nursing context due to the strict scope of practices that nursing practitioners are subjected to. Nursing practitioners should under no circumstances be allowed, or required, to function outside of their particular scope of practice as it could lead to the jeopardy of both the patient and the nursing practitioners. In cases of scope of practice breach, that resulted in patient risk, litigious procedures often follow. Alternative avenues of authentic independence for nursing practitioners are limited. One possible suggestion could again pertain to the appointment of shift leaders who are required to fulfil an informal supervisory role in support of the unit manager. An additional suggestion that relates to previous suggestions pertains to non-nursing avenues of independence, such as appointing nursing practitioners as the chair of a committee, or the leader of a project at work.

Opportunities to learn: It has been argued earlier in this paper that due to the current nursing shortage it is often not possible to allow nursing staff members the time away from patients' beds to attend formal training. It is proposed that healthcare institutions take the nursing shortage into consideration when planning and budgeting for formal training of nursing practitioners. Annual staffing plans and budgets should not merely allow for the payment of formal training interventions; it is suggested that healthcare institutions also plan and budget for the utilisation of extra nursing practitioners (often through the use of agencies) to ensure sufficient staff is in the unit while permanent employees attend development opportunities. In the absence of formal training solutions, alternative *opportunities to learn* are required. One alternative that can be considered is the use of formal mentorship to provide regular on-the-job training. Mariani (2012) states that mentoring is important in the development of nursing practitioners because it supports the inexperienced nurses to develop and experience success, while providing the experienced nurse with an opportunity to contribute to the profession. A further alternative to learning relates to better access to computers, cellular phones and/or electronic tablets in the units to capitalise on e-learning solutions. It is important to note that for alternative solutions for *opportunities to learn* to be affective, solutions to reduce high *emotional load* need to be in place (which is discussed further on in this section). This is based on the finding of the moderating impact of *emotional load* on the relationship between *opportunities to learn* and work engagement.

Information: Gruman and Saks (2011) proposed that work engagement starts with the employee being informed. It is proposed that the reported levels of *information* within this study are partially due to the earlier reported lack of computer access for nursing practitioners. The sharing of *information* via electronic communication (such as email) has become one of the most frequently used methods to communicate with employees in large corporate organisations. Providing employees with access to computers (or cell phones and tablets) will be beneficial in ways that surpass the provision of *information* to employees. Access to computers, cell phones and tablets will also allow for cost saving (because printing of *information* documents will be reduced), and allows the nursing practitioner to benefit from e-learning initiatives. Access to computers or other electronic technology should therefore be seriously considered. The work that nursing practitioners do does not require regular computer access and healthcare institutions can consider shared computers in general areas (such as staff tea room or a special computer room where space allows for it) or providing staff with a cell phone data bundle as a remuneration component for internet access via a cellular phone. With access to computers, cellular phones, and tablets, *information* can be shared via email, discussion boards, blogs, etc. Remaining on the topic

of technology, capitalising on social media, cell phone and tablet technology can provide creative and immediate avenues for sharing *information* (a strategy that the younger generation nursing practitioners in particular will appreciate). Perhaps most importantly in terms of *information* is the dedication of unit managers to conduct regular one-on-one formal and informal appraisal interactions with each nursing practitioners aimed at *information* sharing, provision of performance feedback, and a dedicated opportunity for two-way interaction.

Ambiguities of work: According to Chang and Hancock (2003) the increased levels of responsibility and requirements to perform duties outside their area of specialty (due to the nursing shortage) can create uncertainty and role ambiguity within the nursing profession. It is therefore posited that the reported levels of *ambiguities of work* can be partially attributed to those situations where nursing practitioners are required to perform tasks outside of their scope of practice. Healthcare organisations should take this reality more seriously and put more rigorous governing processes and structures in place that will prevent the performance of tasks outside of the scope of practice. This is not merely important to reduce job uncertainty, but will also protect the patient, as well as the nursing practitioner and healthcare organisation. Because tasks are often delegated to nursing practitioners from medical practitioners, and to further reduce the out-of-scope situations, it is important to interact with doctors to ensure that they fully understand the scope of practice that each nursing category is subjected to and adhere to these guidelines at all times. A further practical suggestion to reduce *ambiguities of work* is to ensure that clear and direct instructions (from doctors, management, etc.) are given to nursing practitioners in ambiguous situations (such as crisis situations or circumstances of extreme staff shortages) by making use of technology. Making use of technology can enhance instruction and record-keeping methods; the creation of shared patient information databases that can be accessed via computers, cell phones, tablets, etc. can ensure the continuous updating of accurate shared information to further reduce work-related uncertainty. Finally, regular structured performance interactions with unit managers will ensure that nursing practitioners remain up to date on the requirements of their role, and their performance against these expectations, to further reduce *ambiguities of work*.

Mental load: Addressing the reported high levels of *mental load* of nursing practitioners are anticipated to be a challenge as this job demand is deeply imbedded in the work itself. As a result the content of the work itself may have to be amended to truly address the root of the challenge. However, due to the reported positive correlation between *mental load* and work

engagement it is posited that higher *mental load* are experienced as a positive challenge, and therefore also a motivator. Hence, it is only when the *mental load* levels reach destructively high levels (when risk of burnout becomes a real possibility) that human resources functions need to be concerned. To prevent *mental load* levels from reaching unacceptable levels, space and opportunities for relaxation should be provided to nursing practitioners. Practically this can entail ensuring that nursing practitioners take their lunch and tea breaks even when the unit is busy, providing physical space for relaxation of staff (such as tea rooms and staff rooms), and ensuring the fairness of shift allocation to provide for sufficient rest times. Further avenues for reducing *mental load* pertains to the development and implementation of relevant creative tools, techniques and technology (such as computer, cell phone and tablet applications) that can assist with some of the cognitive tasks (such as the calculation of medication, the interpretation of symptoms, the regular electronic update of patient treatment progress) and reduce complex conceptual thinking (e.g. patient health status dashboards that visually illustrate key health indicators and progress at the bedside of each patient). The additional advantage of implementing these action plans is the likely reduction in human error, which will have a positive impact on both the patient (reduced risk) and the nursing practitioners (in terms of self-confidence and self-efficacy).

Uncertainty about the future: Various personal and organisational factors contribute to job uncertainty of nursing practitioners. The fear of losing their job or being laid off is perhaps less of a concern for nursing practitioners because the current nursing shortage supports their continuous employability. It is proposed that nursing practitioners' *uncertainty about the future* is mostly embedded in the fear of becoming injured on duty to the extent that further practice is not possible, or fears of unwanted changes in schedules or unit allocations. Comprehensive health and wellness strategies can potentially partially address uncertainties pertaining to injury on duty. Furthermore, the provision of sufficient medical aid contributions and injury on duty insurance can provide some level of assurance to nursing practitioners in this regard. Healthcare institutions could furthermore potentially gain increased engagement of nursing practitioners if they explicitly state the economic state of the organisation and the related implied assurance of employment. A final suggestion entails keeping nursing practitioners proactively up to date with developments within the healthcare industry that could affect their employment status (specifically those in the private sector that face a greater level of uncertainty due to the current Competition Commission investigation into the private healthcare sector and the potential implementation of National Health Insurance) to help them understand the impact and put their minds at ease.

Emotional load: The nature of the work that nursing practitioners do will always include occasional emotionally loaded interactions; therefore it will not be possible to remove the *emotional load* of nursing practitioners. As a result it is suggested that healthcare organisations provide structures, facilities and support to assist nursing practitioners in dealing with their emotions. Some practical suggestions include the availability of staff counsellors who can facilitate debriefing sessions, the implementation of staff support groups, confidential health and wellness programmes, and the provision of breakaway rooms for staff only. Furthermore, organisations are suggested to consider being more flexible with their visiting hours because the *mental load* on nursing practitioners can be greatly reduced when family and friends are nearby to provide emotional support to patients (thereby reducing emotional dependence on nursing practitioners).

Conclusion: The work engagement of nursing practitioners is complex and no single strategy will be able to increase the work engagement significantly in isolation. Therefore healthcare institutions and human resources functions should view the challenges related to work engagement holistically and develop integrated strategies that address all the various identified important antecedents of work engagement (including the maintenance of those job resources that reported positive levels within this study) simultaneously. Furthermore, these strategies need to be flexible and amiable to the needs and requirements of different groups, such as nursing practitioners of different ages and categories. Only when integrated strategies address the complicated intricacies of work engagement can the likelihood of success be enhanced.

5.7 Suggestions for future research

Following from the results and limitations of the current study, the following recommendations are made for future research:

- Include a variety of both private and public healthcare organisations within one study to produce research results that can be generalised with greater accuracy
- Duplicate the study in its current format to confirm (or contradict) the specific findings; there is limited specific literature available on the specific effects of job demands and resources on nursing practitioners of different ages and categories
- Conduct research with a longitudinal design in which inferences in terms of cause and effect (between job demands and resources, and work engagement) could be made over an increased period of time

- Conduct analyses on the potential impact of other group differences (such as tenure, gender, geographic location, etc.) on the effect of job demands and resources on the work engagement of nursing practitioners
- Re-evaluate the proposed moderating role of job demands between job resources and work engagement since no evidence of this relationship was established
- Re-evaluate the proposed negative correlation between job demands and work engagement to confirm the strength and direction of the relationship; with specific emphasis on ambiguities of work and uncertainty about the future (for which no logical explanation for the reported positive correlation could be provided)
- Re-evaluate the proposed correlation between pace and amount of work and work engagement, since no evidence of this anticipated correlation was confirmed in this study
- Re-evaluate the relationship between mental load and work engagement of nursing practitioners in order to determine the direction of the correlation; further to this, evaluate the potential impact of a *meaning* element of work in the evaluation should a positive relationship be confirmed
- Re-evaluate the impact of nursing category on mean emotional load scores, since no logical distribution of mean scores were observed in the results of this study

Although the present study presented a useful contribution towards a greater understanding of the work engagement of nursing practitioners, further research is required to fully understand this intricate and complex topic.

5.8 Conclusion

Healthcare is a key factor in the general health and well-being of any society. At the centre of any well-functioning healthcare system is sufficient, engaged and competent nursing staff. Access to proper healthcare is reliant on sufficient nursing staff levels, but unfortunately the global scarcity of nursing staff is proving to be a big challenge to the quality and service delivery that public and private healthcare organisations are providing. One of the many contributing factors to the shortage of nursing staff is the global problem of an aging nursing staff population. At a time of widespread concern about nursing shortages and an ageing nursing workforce globally, increasing attention should be paid to the role of human resources functions in addressing these shortages. Although attracting individuals to the nursing profession will increase the nursing pool, the engagement (and consequently retention) of current nursing staff is crucial to ensure a sustainable nursing workforce, and as a result a sustainable healthcare system.

The purpose of this study therefore included a diagnosis of the current state of work engagement of nursing practitioners in an attempt to identify those important antecedents that contribute most to the engagement of nursing practitioners. With the Job Demands and Resources model as diagnostic model this study determined that the following specific job demands and resources are correlated to work engagement, and are currently at unsatisfactory levels for nursing practitioners; namely remuneration, participation, career possibilities, variety at work, independence at work, opportunities to learn, ambiguities of work, mental load, uncertainty about the future and emotional load. Further to this, although statistically significant differences exist between the mean scores of various job demand and resources of nursing practitioners of different ages and categories; overall the above-mentioned job demands and resources were at suboptimal levels for nursing practitioners of all ages and categories. As a result practical recommendations were made related to these job demands and resources in an attempt to increase the work engagement of nursing practitioners and thereby partially address the greater problem of nursing shortages.

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ADDENDUM A



UNIVERSITEIT-STELLENBOSCH-UNIVERSITY
jou kennisvennoot • your knowledge partner

REQUEST TO PARTICIPATE IN RESEARCH

Research title: Job demands and resources as antecedents of work engagement: A sample survey of Nursing Practitioners

Dear Nursing Staff Member

You are invited to take part in the survey: *Job demands and resources as antecedents of work engagement: A sample survey of Nursing Practitioners*. This survey is being conducted by Ms Anlé D'Emiljo, who is an OD Practitioner at [the organisation] Corporate Offices and a Masters student in the Department of Industrial Psychology, Stellenbosch University (under the supervision of Prof Ronel du Preez).

1. PURPOSE OF THE STUDY

The purpose of the study is to identify those job demands and resources that have the greatest impact on the work engagement of Nursing Practitioners of different age groups and nursing categories.

2. PROCEDURE

Participation in this study is completely voluntary. If you volunteer to participate in this study, you will be asked to give input by completing this questionnaire. Because the intention of the study is to obtain insight into your personal views and opinions there is no right or wrong responses to questions. Completed questionnaire should be sent to Anlé D'Emiljo at [the company] Corporate Offices via internal mail.

3. POTENTIAL RISKS AND DISCOMFORTS

There are limited potential risks and discomforts envisaged in this study.

As participant in this study you will be required to set aside about 15 minutes of your time in order to complete the survey. This time set aside in your day could be a source of discomfort.

It is also noteworthy that you might become more cognisant of the challenges that you face on a daily basis in the nursing environment while reflecting on the demands of your job. The researcher will unfortunately not be in a position to alter any of these demands and /or their potential psychological impact on your daily operations.

Please note that all information obtained during this study will be utilised in a confidential way and would not be linked to a specific individual. Participant's names and identities will not be disclosed. There is therefore no risk of exposure of any of your responses.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participation in this study has no direct benefit to the individual participant. The study will contribute towards a better understanding of the antecedents of work engagement of Nursing Practitioners. Practical recommendations will be made to Human Resources and Management functions that could potentially be applied to enhance the work engagement of young Nursing Practitioners. The participating organisation and any individual who participate in the research will receive a copy of the final thesis on request.

5. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The results of this study will be published in the form of a completed thesis, but confidentiality will be maintained. Participant's names will not be published and all data will be reported as group data.

6. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

7. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Anlé D'Emiljo ('email address'; "telephone number") or Prof Ronel du Preez ('email address'; "telephone number").

8. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development of Stellenbosch University.

9. CONSENT

You can indicate your consent to participate in the study by selecting “Yes” or “No” in the first question of the questionnaire.

SECTION A: CONSENT

Please note that participation in this study is completely voluntarily. This study has been formally approved by the participating company. You can therefore feel free to respond to the survey honestly

I consent to participate in this research study

YES NO

SECTION B: BIOGRAPHICAL INFORMATION

Your biographical information in this study is very important, and is required for statistical purposes only. This information as well as all your responses will not be revealed to any person other than the researcher(s). You are requested to mark with a cross (X) inside the box that contains the information that best describes you.

1. Gender: Male Female

2. Age: 18 – 30 31 – 45 46 – 65

3. Ethnic group: African Coloured Indian White Other _____

4. What is the highest qualification that you have achieved?

Matric Higher Certificate or Diploma Degree Post Graduate Degree

5. In what nursing category do you fall (as what are you registered at SANC)?

Enrolled Nurse Auxiliary Enrolled Nurse Professional / Registered Nurse

Senior Professional / Registered Nurse Other _____

6. What is your length of service at your current employer in years?

0 – 1 2 – 3 4 – 5 More than 5

7. How many organisations have you been employed at in total (including your current employer)?

0 – 1 2 – 3 4 – 5 More than 5

8. What is the longest time that you have ever been employed by a single employer in years?

Less than a year 1 – 2 3 – 5 6 – 10 More than 10

9. What is the shortest time that you have ever been employed by a single employer?

Less than a year 1 – 2 3 – 5 6 – 10 More than 10

SECTION C - WORK ENGAGEMENT

This section consists of 17 statements that are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your current job. If you have never had this feeling, cross the "0" (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by marking the number that best describes how frequently you feel that way.

Never	Almost Never	Rarely	Sometimes	Often	Very Often	Always
0	1	2	3	4	5	6

1	At my work, I feel bursting with energy	0	1	2	3	4	5	6
2	At my job, I feel strong and vigorous	0	1	2	3	4	5	6
3	When I get up in the morning I feel like going to work	0	1	2	3	4	5	6
4	I can continue working for very long periods at a time	0	1	2	3	4	5	6
5	At my job I am very resilient mentally	0	1	2	3	4	5	6
6	At my work I always persevere, even when things do not go well	0	1	2	3	4	5	6
7	I find the work that I do full of meaning and purpose	0	1	2	3	4	5	6
8	I am enthusiastic about my work	0	1	2	3	4	5	6
9	My job inspires me	0	1	2	3	4	5	6
10	I am proud of the work that I do	0	1	2	3	4	5	6
11	The me, my job is challenging	0	1	2	3	4	5	6
12	Time flies when I am working	0	1	2	3	4	5	6
13	When I am working, I forget everything else around me	0	1	2	3	4	5	6
14	I feel happy when I am working intensely	0	1	2	3	4	5	6
15	I am immersed in my work	0	1	2	3	4	5	6
16	I get carried away when I am working	0	1	2	3	4	5	6
17	It is difficult to detach myself from the job	0	1	2	3	4	5	6

SECTION D – JOB DEMANDS AND RESOURCES

This section consists of 42 statements concerning your perception about the resources and demands that apply to your work. Please read each statement carefully and decide how often the statement applies to your work and your working circumstances. Indicate how often you experience it by marking the number that best describes how frequently you feel that way.

Never	Sometimes	Most of the time	Always
1	2	3	4

1	Do you have too much work to do?	1	2	3	4
2	Do you work under time pressure?	1	2	3	4
3	Do you have to be attentive to many things at the same time?	1	2	3	4
4	Do you have to give continuous attention to your work?	1	2	3	4
5	Do you have to remember many things in your work?	1	2	3	4
6	Are you confronted in your work with things that affect you personally?	1	2	3	4
7	Do you have contact with difficult people in your work?	1	2	3	4
8	Does your work put you in emotionally upsetting situations?	1	2	3	4
9	Do you have enough variety in your work?	1	2	3	4
10	Does your job offer you opportunities for personal growth and development?	1	2	3	4
11	Does your work give you the feeling that you can achieve something?	1	2	3	4
12	Does your job offer you the possibility of independent thought and action?	1	2	3	4
13	Do you have freedom in carrying out your work activities?	1	2	3	4
14	Do you have influence in the planning of your work activities?	1	2	3	4
15	Can you participate in the decision about when a piece of work must be completed?	1	2	3	4
16	Can you count on your colleagues when you come across difficulties in your work?	1	2	3	4
17	If necessary, can you ask your colleagues for help?	1	2	3	4
18	Do you get on well with your colleagues?	1	2	3	4
19	Can you count on your supervisor when you come across difficulties in your work?	1	2	3	4

Never	Sometimes	Most of the time	Always
1	2	3	4

20	Do you get on well with your supervisor?	1	2	3	4
21	In your work, do you feel appreciated by your supervisor?	1	2	3	4
22	Do you know exactly what other people expect of you in your work?	1	2	3	4
23	Do you know exactly for what you are responsible?	1	2	3	4
24	Do you know exactly what your direct supervisor thinks of your performance?	1	2	3	4
25	Do you receive sufficient information on the purpose of your work?	1	2	3	4
26	Do you receive sufficient information on the results of your work?	1	2	3	4
27	Does your direct supervisor inform you about important issues within your department/organisation?	1	2	3	4
28	Are you kept adequately up-to-date about important issues within your organisation?	1	2	3	4
29	Is the decision-making process of your organisation clear to you?	1	2	3	4
30	Is it clear to you whom you should address within the organisation for specific problems?	1	2	3	4
31	Can you discuss work problems with your direct supervisor?	1	2	3	4
32	Can you participate in decisions about the nature of your work?	1	2	3	4
33	Do you have a direct influence on your organisation's decisions?	1	2	3	4
34	Do you need to be more secure that you will still be working in one year's time?	1	2	3	4
35	Do you need to be more secure that you will keep your current job in the next year?	1	2	3	4
36	Do you need to be more secure that next year you will keep the same function level as currently?	1	2	3	4
37	Do you think that organisation pays good salaries?	1	2	3	4
38	Can you live comfortably on your pay?	1	2	3	4
39	Do you think you are paid enough for the work that you do?	1	2	3	4
40	Does your job offer you the possibility to progress financially?	1	2	3	4
41	Does your organisation give you opportunities to follow training courses?	1	2	3	4
42	Does your job give you the opportunity to be promoted?	1	2	3	4

THANK YOU FOR YOUR TIME

ADDENDUM B



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jou kennisvenoot • your knowledge partner

STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

Research title: Job demands and resources as antecedents of work engagement: A sample survey of Nursing Practitioners

You are asked to participate in a research study conducted by Anlé D'Emiljo, from the Industrial Psychology Department at Stellenbosch University. The results obtained will contribute to the completion of a Masters of Commerce degree in Industrial Psychology. The results of this study will be contributed to the completion of the thesis component of the degree. You were selected as a possible participant in this study because you are a Nursing Practitioner in an organisation who can give a valuable input to the data gathering process of this study.

1. PURPOSE OF THE STUDY

At a time of widespread concern about nursing shortages and an ageing nursing workforce globally, increasing attention should be paid to the role of human resources functions to in addressing these shortages. Although attracting individuals to the nursing profession will increase the nursing pool, the engagement (and consequently retention) of current nursing staff is crucial to ensure a sustainable nursing workforce, and as a result a sustainable healthcare system. In order to enhance the engagement of Nursing Practitioners an understanding of the unique factors that contribute to the engagement of Nursing Practitioners is required. Furthermore, literature indicates that the youngest members of the

workforce tend to be less engaged than their older counterparts. An understanding of the differences between the engagement of younger and older Nursing Practitioners will therefore add further value to Human Resources functions. The proposed study will therefore aim to address the following research objectives:

- To determine and investigate the job demands and job resources that influence work engagement of Nursing Practitioners
- To investigate potential differences in the antecedents of work engagement of Nursing Practitioners of different age groups
- To identify potential differences in the antecedents of work engagement of Nursing Practitioners of different nursing categories
- To make practical recommendations to Human Resources and Management functions to enhance the work engagement of young Nursing Practitioners

2. PROCEDURE

Participation in this study is completely voluntary. If you volunteer to participate in this study, you will be asked to give input by completing a computer based questionnaire. The questionnaire can be accessed on any computer that is linked to the internet by clicking on the link provided within the email that was sent to you. You can indicate your consent to participate in the study by selecting “Yes” or “No” in the first question of the questionnaire. Should you decide not to participate and select “No” you are not required to complete the rest of the questionnaire.

Because the intention of the study is obtain insight into your personal views and opinions there is no right or wrong responses to questions. You can complete the questionnaire at any place, time and location that is convenient to you. It is estimated that it should take no more than 20 minutes to complete the questionnaire.

3. POTENTIAL RISKS AND DISCOMFORTS

There are limited potential risks and discomforts envisaged in this study.

As participant in this study (should you decide to consent to participate) you will be required to set aside about 20 minutes of your time in order to complete the survey. This time set aside in your day could be a source of discomfort.

It is also noteworthy that you might become more cognisant of the challenges that you face on a daily basis in the nursing environment while reflecting on the demands of your job. The researcher will unfortunately not be in a position to alter any of these demands and /or their potential psychological impact on your daily operations.

Please note that all information obtained during this study will be utilised in a confidential way and would not be linked to a specific individual. Participant's names and identities will not be disclosed. There is therefore no risk of exposure of any of your responses.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participation in this study has no direct benefit to the individual participant. The study will contribute towards a better understanding of the antecedents of work engagement of Nursing Practitioners. Practical recommendations will be made to Human Resources and Management functions that could potentially be applied to enhance the work engagement of young Nursing Practitioners. The participating organisation and any individual who participate in the research will receive a copy of the final thesis on request.

5. PAYMENT FOR PARTICIPATION

No payment will be made to participants for taking part in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The results of this study will be published in the form of a completed thesis, but confidentiality will be maintained. Participant's names will not be published.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Anlé D'Emiljo ('email addresses; "telephone number") or Prof Ronel du Preez ('email addresses; "telephone number").

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development of Stellenbosch University.

10. CONSENT

Please note that participation in this study is completely voluntarily. You can indicate your consent to participate in the study by selecting "Yes" or "No" in the first question of the questionnaire.