THE DEVELOPMENT AND EMPIRICAL EVALUATION OF A PSYCHOLOGICAL WELL-BEING AT WORK STRUCTURAL MODEL FOR GERIATRIC CARE STAFF

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DECLARATION

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ABSTRACT

Nursing staff constitute the largest group of employees in the healthcare industry (Giallonardo, Wong, & Iwasiw, 2010) and evidence suggests that they experience the lowest levels of job engagement and the highest levels of burnout when compared to other professional healthcare groups, including physiotherapists, child welfare workers and social rehabilitation workers (Fasoli, 2010; Nerstad, Richardsen, & Martinussen, 2010). In the light of the aforementioned it is of great importance to gain insight to those factors which may contribute to occupational health and well-being, and by implication, productivity outcomes of nursing staff (Hafner et al. 2015).

The research exploring indicators of well-being in nurses tends to focus on nursing staff within hospitals, with nursing staff employed in aged care facilities (i.e. institutions specialising in the provision of care for elderly patients) receiving less attention (Rodwell, Noblet, Demir, & Steane, 2009). This is despite the trend of an aging population and the subsequent increased demand for aged care services (Kennedy, 2005). Consequently, this study attempts to develop a model that depicts a nomological network of positive psychological variables hypothesised to explain variance in the psychological well-being at work of geriatric care staff.

Research on the predictors of changes in well-being incorporates job-related factors, personal resources and work-home interfaces (Sonnentag, 2015) and the legitimacy of these factors as predictors of employee well-being justifies the Job Demands-Resources (JD-R) model as the theoretical underpinning of this study. This study included the job demand of Illegitimate Tasks, the personal resources of Occupational Coping Self-Efficacy and Calling, as well as Job Crafting. All of these variables were hypothesised to influence the well-being of geriatric care staff either dierctly or indirectly.

Boers (2014) recently developed a model focused on explicating the nomological network of variables underlying two constructs of occupational well-being, namely subjective well-being (SWB) and psychological well-being at work (PWBW). Subjective well-being was defined as hedonic well-being (HWB) and eudaimonic well-being (EWB). Hedonic well-being at work was defined as positive affect and negative affect. This study supports Boers's (2014) conceptualisation of occupational well-being and subsequently the same constructs of well-being are included in this study.

This study made use of a non-experimental research design in order to explore the relationships between the various constructs. A convenience sample of n = 206 nursing staff, employed by aged care facilities in Gauteng, completed a composite questionnaire. PWBW was assessed with the Index of psychological well-being at work (IPWBW; Dagenais-Desmarais & Savoie, 2012). HWB was measured with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) whilst EWB was measured with Ryff's (1989) Psychological well-being scale (RPWB). Tims, Bakker

and Derks's (2012) Job Crafting Scale was used to measure the participants' Job Crafting tendencies and their sense of calling was measured with the Multidimensional Calling Measure (MCM; Hagmaier & Abele, 2012). Pisanti, Lombardo, Lucidi, Lazzari and Bertini's (2008) brief Occupational Coping Self-Efficacy Questionnaire for Nurses (OCSE-N) was used to measure the participant's level of OCSE and lastly, the Bern Illegitimate Task Scale (BITS; Semmer, Tschan, Meier, Facchin, & Jacobshagen, 2010) was used to assess the perceived occurrence of illegitimate tasks.

The validity and reliability of the measurement instruments were evaluated through confirmatory factor analysis (CFA) and item analysis. The structural model was fitted using Structural Equation Modeling (SEM) in order to investigate to which extent the constructs successfully explained variance in PWBW. The significance of the two moderation effects was tested with moderated regression analyses.

The results revealed significant relationships between various of the constructs. Both aspects of HWB, namely PA and NA were found to be significant predictors of PWBW. Calling emerged as a significant predictor of both PA and EWB and Illegitimate Tasks positively influenced NA. OCSE had a direct effect on Job Crafting and EWB. PWBW was shown to be positive related to OCSE. EWB, however, did not emerge as a significant predictor of PWBW. Support was not found for the hypothesised interaction effect of Job Crafting on the Calling and EWB relationships, or for the moderating effect of Illegitimate Tasks on the Calling and EWB relationship.

This study contributed to the body of research delineating antecedents of PWBW and the practical value of the findings are condensed into managerial recommendations as well as suggestions for further studies regarding the management of PWBW of geriatric care staff. In conclusion, the results indicate that the model provides a plausible explanation of the network of variables explaining variance in PWBW of geriatric care staff.

OPSOMMING

Die grootste groep werknemers in die gesondheidsorgindustrie is verpleegpersoneel (Giallonardo, Wong, & Iwasiw, 2010) en die navorsing dui dat hulle, in vergelyking met ander gesondheidsorgpersoneel (insluitend fisioterapeute en maatskaplike werkers), die laagste vlakke van werksbetrokkenheid en die hoogste vlakke van uitbranding ervaar (Fasoli, 2010; Nerstad, Richardsen, & Martinussen, 2010). Met inagneming van die bogenoemde is dit van kardinale belang om beter insig te kry in die faktore wat kan bydra tot werknemerwelstand en, by implikasie, die produktiwiteit van verpleegpersoneel (Hafner et al. 2015).

Navorsing oor verpleegpersoneelwelstand is oor die algemeen meer gefokus op verpleegpersoneel in hospitale, as op verpleegpersoneel in bejaardesorgfasiliteite, i.e. instansies was spesialiseer in die versorging van bejaardes (Rodwell, Noblet, Demir, & Steane, 2009). Dit is ten spyte van die groeiende bejaarde populasie and die daaropvolgende toenemende aanvraag vir bejaardesorgdienste (Kennedy, 2005). Hierdie studie poog dus om ‘n model te ontwikkel wat deur ‘n nomologiese netwerk van veranderlikes, variansie in die sielkundige welstand van bejaardesorg verpleegpersoneel verduidelik.

Die “Job Demands-Resources” (JD-R) model dien as die teoretiese fondasie van hierdie studie aangesien voorspellers van werknemerwelstand werksverwante faktore, persoonlike hulpbronne en werk-huis-koppelvlakke in sluit. Die studie sluit die werkseis van Onregverdigbare Take, die persoonlike hulpbronne van Werksverwante Selfdoeltreffendheid en Roeping, en ook die konstruk van “Job Crafting” in. Dit was voorspel dat elk van die bogenoemde veranderlikes die welstand van bejaardesorg verpleegpersoneel direk of indirek sal beïnvloed.

‘n Onlangse model, ontwikkel deur Boers (2014), bied ‘n moontlike verduideliking van veranderlikes onderliggend aan beroepswelstand, met spesifieke verwysing na Subjektiewe Welstand (SW) en Sielkundige Welstand by die Werk (SWW). SW was gedefinieër as Hedoniese Welstand (HW) en Eudimoniese Welstand (EW). HW was verder gedefinieer as Positiewe Emosies (PE) en Negatiewe Emosies (NE). Hierdie studie ondersteun Boers (2014) se konseptualisering van beroepswelstand en dus is dieselfde welstandkonstrukte in hierdie studie ingesluit.

Die verwantskappe tussen die veranderlikes was ondersoek deur die gebruik van ‘n nie-eksperimentele navorsingsontwerp. ‘n Gerieflikheidsteekproef van n = 206 verpleegpersoneel, werksaam by bejaardesorginstansies in Gauteng, het ‘n saamgestelde vraelys ingevul. SWW was gemeet deur die Indeks vir Sielkundige Welstand by die Werk (ISWW) ontwikkel deur Dagenais-Desmarais en Savoie (2012). Die Positiewe en Negatiewe Emosieskedule (PENES; Watson, Clark, & Tellegen, 1988) is gebruik om HW te meet en SW is gemeet met Ryff (1989) se Sielkundige Welstandskaal (RSW). Pisanti, Lombardo, Lucidi, Lazzari en Bertini (2008) se kort Werksverwante Selfdoeltreffendheidsvraelys vir Verpleërs was gebruik om die vlakke van Werksverwante Selfdoeltreffendheid te meet en laastens, was die werknemers se persepsie van Onregverdigbare

Take gemeet deur die Bern Onregverdigbare Take Skaal (BOTS; Semmer, Tschan, Meier, Facchin, & Jacobshagen, 2010). Derks (2012) se “Job Crafting Scale” was gebruik om die verpleegpersoneel se neigings tot werksomvorming te meet.

Die betroubaarheid en geldigheid van die meetinstrument was evalueer deur bevestigende faktorontleding en itemanalise. Die strukturele model is op die data gepas deur middel van strukturele vergelykingsmodellering om te bepaal tot watter mate die konstrukte variansie in SWW verduidelik. Die beduidendheid van die interaksie-effekte was getoets met regressie-analises.

Die resultate het gedui dat verskeie van die konstrukte beduidende voorspellers van welstand is. Beide aspekte van HW, naamlik PE en NE, het ‘n beduidende uitwerking op SWW gehad. Roeping is ‘n beduidende voorspeller van PE en EW, en Onregverdigbare Take het ‘n positiewe uitwerking op NE gehad. Werksverwante Selfdoeltreffendheid het ‘n direkte invloed op Werksomvorming en EW getoon. SWW was postitief verwant aan Werksverwante Selfdoeltreffendheid. Geen beduidende verhouding tussen EW en SWW is gevind nie. Die invloed van die interaksie-effek van Werksomvorming op die verhouding tussen Roeping en SW was nie beduidend nie. Die interaksie-effek van Onregverdigbare Take op die Roeping en SW verwantskap was ook nie beduidend nie.

Die studie dra by tot die navorsing op die voorspellers van SWW. Die waarde van die bevindinge is omskryf in voorstelle vir toekomstige navorsing, asook praktiese voorstelle vir die implementering in bejaardesorginstansies om die SWW van verpleegpersoneel optimaal te beïnvloed. Ter opsomming, die resultate dui aan dat die model ‘n waarskynlike verduideliking bied van die netwerk van veranderlikes wat variansie in bejaardesorgverpleegpersoneel se SWW bepaal.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The effectiveness of an organisation can be measured through its sustainable growth and long-term performance (Swart, Robinson, & Cohen, 2003). A sustainable organisation is one that simultaneously contributes economic, social and environmental benefits to society, known as the triple bottom line (Elkington, 1997), while also ensuring its own enduring sustainability as a profitable entity (Nazneen, 2012). This organisational success does not occur by chance, but results from well-planned interventions, management and stakeholder behaviours, and organisational processes (Bagraim, Cunningham, Potgieter, Viedge, Pieterse-Landman, & Werner, 2011). The concept of sustainability also plays a significant role in determining how an organisation's human resources should be managed (Enhert, 2009).

The human resource management function of an organisation is responsible for the policies, practices and systems that influence employees' behaviour, attitudes and performance (Noe, Hollenback, Gerhart, & Wright, 2010). Sustainable human resource management has become essential to the survival of organisations due to the scarcity of human resources, the aging population and increasing work-related health problems (Enhert & Harry, 2012). Sustainable human resource management should be designed in a manner that reflects equity, development and well-being, thus contributing to the long-term health and sustainability of both employees and other stakeholders (Nazneen, 2012).

As the pressures of daily work life increases due to globalisation and the competitiveness associated with it, organisations are driving for a more productive, flexible workforce with the ability to respond and adjust to the challenges of changing markets and new technologies (Beddington, Cooper, Field, Goswami, Huppert, & Jenkins, 2013). In order to remain competitive, organisations must learn to capitalise on their human resources in order to prosper in a rapidly changing world. Human resource management plays a central role in ensuring the survival, effectiveness and competitiveness of organisations (Noe et al. 2010).

The rapidly changing work environment has led to an increase in pressure placed on employees, resulting in higher levels of workplace stress and unrealistic time pressures (Bevan, 2012; Lewis & Cooper, 2013). The impact of stress on well-being is well-documented (Cooper, 2013) and it is no surprise that health-related problems are becoming more prevalent. Not only does this create economic costs to society at large, but it also has a direct adverse impact on organisations in the form of lost productivity (Hafner, Van Stolk, Saunders, Krapels, & Baruch, 2015). A strong and growing body of evidence indicates that work, health and well-being are closely and significantly related, and need to be addressed together (Black, 2008).

Work stress can adversely impact employee psychological health and economically burden organisations (Pfeffer, 2010). Multiple studies show that inappropriate working environments can exacerbate mental health problems (Clayton, Bambra, Gosling, Povall, Misso, & Whitehead, 2011; Van Stolk, Hofman, Hafner, & Janta, 2014). The healthcare industry is no exception, with a very concerning 36.83 percent of healthcare staff reporting impaired mental well-being (Pelissier, Fontana, Fort, Vohito, Sellier, & Perrier, 2015).

Nursing staff constitute the largest group of employees in the healthcare industry and their role in the quality of care provided is a significant one (Giallonardo, Wong, & Iwasiw, 2010). Evidence suggests that nursing staff experience the lowest levels of job engagement and the highest levels of burnout when compared to other professional healthcare groups, including physiotherapists, child welfare workers and social rehabilitation workers (Fasoli, 2010; Nerstad, Richardsen, & Martinussen, 2010). The concerning state of these well-being indicators leads to adverse consequences at the individual and organisational level, including poor performance and increased turnover (Salanova, Lorente, Chambel, & Martinez, 2011; Xantopoulou, Bakker, Demerouti, & Schaufeli, 2009).

In the light of the aforementioned it is crucial to understand those factors which may contribute to occupational health and well-being, and by implication, productivity outcomes of nursing staff (Hafner et al. 2015).

1.2 Nursing staff and well-being

The nursing profession is characterised by various challenges. These challenges include labour shortages and strained working conditions likely to impact the health and morale of nurses negatively (Garshon, Stone, Zeltser, Faucett, MacDavitt, & Chou, 2007; Gregory, Way, LeFort, Barrett, & Parfrey, 2007), putting them at greater risk of mental illness compared to the general working population (Shields & Wilkins, 2006), and other healthcare professionals (Voltmer, Wingenfeld, Spahn, Driessen, & Schulz, 2013).

The current issue of labour shortages in the nursing profession is well-documented. In the South African context, one of the largest contributing factors to the nursing shortage was the closure of multiple South African nursing colleges in the 1990s. The resulting critical skills shortage seriously impacted the health care system of South Africa. The private healthcare industry stresses the effect of labour shortages on the significant price increases of healthcare services (Watson, 2015). *MediClinic*, one of South Africa's largest private hospital groups, reported that nursing staff's salaries constitute approximately 49% of their operating costs (Watson, 2015), reflecting the core role of nursing in the health care industry.

Regarding the nursing staff shortages in the public sector, the spokesperson for the Democratic Nursing Organisation of South Africa (DENOSA) stated that "... the processes in terms of human

resources are still not responsive to the needs of serving and putting people first. Coupled with this is the issue of resignations as well as the accidental deaths of nurses. It also drags on unacceptably to get a proper replacement on time, leaving the few nurses overburdened and burnt out" (Diale, 2014). However, labour shortages alone are not to blame for the aforementioned trend of burnout among nursing staff. The staff who remain in the workforce face the strained working conditions associated with this profession.

In a recent review of the literature on health outcomes among nurses, Khamisa, Peltzer, and Oldenburg (2013) revealed that high levels of work-related stress, burnout and poor health are common within the nursing profession. Literature suggests that this may be due to the long working hours and frequent direct, personal and emotional contact with a large number of patients that characterises nursing work. Schaufeli and Janczur (1994, p. 19) stated: "Every day the nurse confronts stark suffering, grief and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are by normal standards distasteful, even disgusting, others are often degrading; some are simply frightening". While the aforementioned is true of the characteristics of many nursing occupations, certain types of nursing staff have received more attention in the organisational literature than others.

The research exploring indicators of well-being in nurses tends to focus on nursing staff within hospitals, with nursing staff employed in aged care facilities (i.e. institutions specialising in the provision of care for elderly patients) receiving less attention (Rodwell, Noblet, Demir, & Steane, 2009). This is despite the recognised trend of an aging population and the subsequent increased demand for aged care services (Kennedy, 2005). As the average life expectancy increases, the nursing population is also aging and retiring, resulting in a larger population of elderly individuals requiring care and fewer caregivers to provide said care (Garshon et al. 2007).

Nursing staff turnover has long since been recognised as a problem (e.g. Martin, 1982), with specific reference to long-term care facilities or aged care facilities (e.g. Phillips, 1987). Unlike general healthcare facilities, such as general hospitals, patients in aged care facilities remain dependent on nursing staff for extended time periods, often until death (Phillips, 1987). Many of the patients are physically and/or mentally impaired, frequently requiring help with the activities of daily living from their nursing staff (Karsh, Booske, & Sainfort, 2005). Long-term care is, therefore, unique in its slower pace and longer time span than acute care (Kane, 1988). Karsh et al. (2005) also note that aged care facilities, and implicitly the nursing staff, provide both physical healthcare as well as social support services to their frail patients.

According to Jordan (2010, p. 12), nursing staff in aged care facilities can be defined as "... those members, both licensed and unlicensed, who provide health and personal services under individual state regulation to meet residents' service requirements". For the purposes of the current study, this

definition could be altered to include, under the broad term of “nursing staff”, both licensed and unlicensed staff members who are directly involved in the provision of health and personal services within the constraints of the relevant legislation to meet residents’ care requirements. This definition includes nurses and care workers (also referred to as “nursing assistants”) by profession.

Each of the types of nursing staff, namely nurses and nursing assistants, plays a particular part in providing care to their patients. Nursing assistants are responsible for the routine, daily care tasks which include the bathing and feeding of patients, as well as turning bed-ridden patients in order to avoid bed sores. Nursing assistants can also provide basic wound care and assist with other daily functions such as getting dressed or walking. Nurses are appointed in a supervisory role over nursing assistants and they are qualified to administer basic medical procedures, such as injections.

Caring for the elderly, specifically those individuals with dementia, has been described as physically, emotionally and mentally exhausting (Frazier & Sherlock, 1994). Patient characteristics, such as uncooperative behaviour, restlessness, crying and severe cognitive impairment have been found to affect the physical health and stress levels of nursing staff (Chappell & Novak, 1994). Accordingly, it makes sense that the rising occupational stress levels of aged care staff (Hasson & Arnetz, 2008) are associated with working with the challenging patient populations typical of geriatric care (Brodaty, Draper, & Low, 2003). The often distressed behaviour of elderly patients may serve as a workplace stressor for nursing staff, which, in turn, has an impact on their risk of burnout, general health and work ability (Schmidt, Dichter, Palm, & Hasselhorn, 2012).

This uniquely strained working context of aged care facilities, combined with the global nursing shortage and the increased demand for aged care services, warrants the exploration of this specific subset of the healthcare industry. Poor mental health affects patient safety, quality of care and performance (Sexton, Thomas, & Helmreich, 2000), and profitability of organisations; in this case, specifically aged care facilities (Cooper & Cartwright, 1994). Therefore, it is of paramount importance to seek a scientific understanding of the psychological processes that underlie the work-related well-being of aged care nursing staff.

1.3 Psychological well-being at work

The literature on subjective well-being is dominated by two lines of research with respective conceptualisations of the construct, namely hedonic and eudaimonic well-being. The former mentioned concept views well-being as a subjective experience which focuses on the individual’s feelings of pleasure or happiness. Hedonic Well-Being (HWB) comprises core components including the experience of positive affect, low levels of negative affect, and high levels of life satisfaction (Diener, 2000). The second perspective, Eudaimonic Well-Being (EWB), considers personal growth and self-realisation, authenticity and personal expressiveness, and the pursuit of meaning in life as central to the construct (Ryff, 1995; Waterman, 1993). Thus, subjective well-being refers to an

individual's hedonic experience of feeling good, and to the eudaimonic experience of fulfillment and purpose (Sonnentag, 2015). This desired state of being, called subjective well-being, is increasingly being pursued by organisations and societies (Costanza, Kubiszewski, Giovannini, Lovins, McGlade, & Pickett, 2014).

Organisational research covers both the hedonic and eudaimonic perspectives of well-being. Research from the former mentioned perspective is dominant in the literature, and focuses on affective and psychosomatic well-being at work (Fisher & Noble, 2004; Nixon, Maxxola, Bauer, Krueger, & Spector, 2011). Literature on the latter mentioned perspective is less bountiful than its counterpart, but organisational research incorporates aspects of EWB when addressing themes such as meaning at work (Rosso, Dekas, & Wrzesniewski, 2010) or growth at work (Sonenshein, Dutton, Grant, Spreitzer, & Sutcliffe, 2013).

Organisational research on affective well-being often aims to understand and predict the antecedents and symptoms of well-being. In recent years, well-being research has reflected the increasing interest in the positive psychology paradigm. Whilst earlier research focused primarily on the negative aspects of well-being, with burnout receiving substantial attention, recent studies have increasingly incorporated positive aspects of work-related well-being (Sonnentag, 2015).

Well-being is a dynamic concept that fluctuates and changes on the short-term and over the long-term. This non-stability that characterises many psychological constructs has led to the differentiation between intra-individual change and intra-individual variability, both of which are useful for describing the dynamics of well-being at work (Ram & Gerstorf, 2009). Nesselroade (1991) distinguishes between intra-individual change as "... more or less enduring changes that are construed as developmental", and intra-individual variability as "... relatively short-term changes that are construed as more or less reversible and that occur more rapidly than the former" (p. 215). Therefore, intra-individual change is considered the developmental changes in well-being that occur as a time-dependent process in the context of maturation and aging. Intra-individual variability, on the other hand, regards the substantial variability in well-being that occurs on a short-term basis, i.e. daily fluctuations (Shockley, Ispas, Rossi, & Levine, 2012).

As intra-individual change suggests, an individual's well-being can change with time. For example, building on Warr's (1992) work, Zacher, Jimmieson and Bordia (2014) demonstrate the curvilinear relationship between age and well-being at work. According to this research, well-being decreases from early adulthood until midlife and then it increases again. However, changes in well-being is a function of not only time, but rather it is influenced by multiple personal and environmental factors. Research on the predictors of changes in well-being incorporates job-related factors, personal resources and work-home interfaces (Sonnentag, 2015). Job stressors, job resources and personal resources are amongst some of the most researched constructs in the field of psychological well-

being at work. The legitimacy of these factors as predictors of employee well-being justifies the Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) as the theoretical underpinning of this study.

1.4 Theoretical framework

Traditionally, research in the fields of work stress and occupational health focused on understanding the way in which negative work events affected employees. Accordingly, research focused primarily on the negative aspects of work, with the goal of reducing negative events and their concomitant psychological and economic costs. In recent years, however, a contrasting line of research has emerged, emphasising positive events and exploring ways to capitalise on the beneficial effects of these events (Ilies, Keeney, & Scott, 2011). The aforementioned line of research, operating under the broad concept of "positive psychology" (Donaldson & Ko, 2010), highlights the experience and amplification of positive experiences in promoting health and well-being (Bono, Glomb, Shen, Kim, & Koch, 2013). Positive psychology aims to understand and foster the factors that enable optimal well-being in people (Seligman & Csikszentmihalyi, 2000).

Despite the differences in perspective, models of work stress and positive psychology theories share some similarities (Bono et al. 2013). In both lines of research, resources are considered as central to optimal human functioning. A theoretical framework, deeply embedded in organisational research and structured around the importance of resources, is the frequently cited JD-R model (Demerouti et al. 2001). In addition to the JD-R model, another model with particular relevance to this study, the Steyn-Boers Structural Model of Psychological Well-being at Work, is also discussed in the following section.

1.4.1 The Job Demands-Resources Model

According to Bakker, Demerouti and Sanz-Vergel (2014), the JD-R model combines both the positive and negative outcomes of employee health and well-being into one comprehensive model. Previous models have focused primarily on the negative outcomes of job strain, while the JD-R model also regards the positive outcomes of work-related health and well-being. Implicitly, the model combines two respective lines of research, namely stress research and motivational research, into one overarching model.

In essence, the JD-R model (Figure 1) posits that both job and personal resources predict work engagement, and that this relationship is moderated by the presence of job demands. In the presence of high job demands, together with high job and personal resources, work engagement will be greater than when one of these components is low. Work engagement affects job performance, which, in turn, reinforces work engagement. This feedback loop illustrates how employees can modify their resources through engaging in job-crafting behaviour.

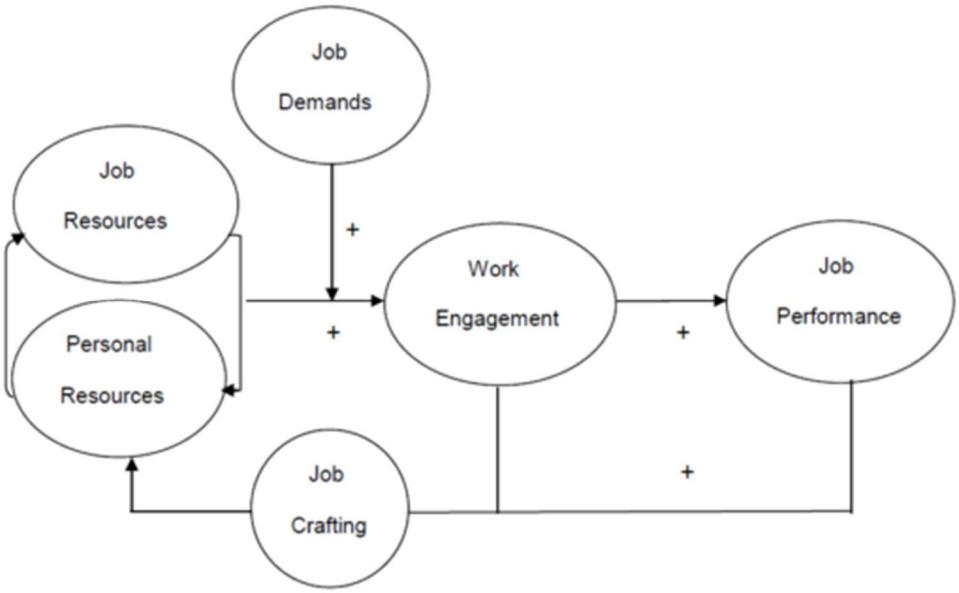

Figure 1 Job Demands-Resources Model of Work Engagement (Bakker, 2011)

Engagement can be defined as "... a persistent, pervasive and positive affective-motivational state of fulfillment in professionals" (Llorens, Schaufeli, Bakker, & Salanova, 2007, p. 3) and consists of three dimensions, namely vigor, dedication and absorption. Vigor refers to high energy levels and mental resilience while working. Dedication is characterised by a strong involvement in one's work, and an experience of significance, enthusiasm and challenge. Absorption refers to being fully concentrated and happily engrossed in work, such that time passes quickly (Bakker, 2011). Work engagement has also been associated with important organisational outcomes, including job performance, job satisfaction and organisational commitment (Halbesleben & Wheeler, 2008; Hallberg & Schaufeli, 2006).

According to Maslach and Leiter (1997), engagement indicates a lack of burnout, which is accepted as an important health-related, individual and organisational concern. They suggest that engagement and burnout are the opposite sides of a worker well-being continuum affected by work circumstances. Work engagement, as a positive indicator of well-being, has a crucial role in developing the human capital and employee well-being of an organisation (Schaufeli & Salanova, 2007).

Along with work engagement, job satisfaction, occupational stress and burnout are important dimensions of the work-related well-being of employees, all which have been studied with reference to the JD-R model (Cropanzano & Wright, 2001). The flexibility of the JD-R model also allows for its application to any job position, irrespective of its nature and work context (Bakker, 2011). As a result of this flexible application, an abundance of literature exists that explores the relationships of various job demands and resources with employee well-being.

It has come to be generally accepted that the well-being of an employee is determined by the complex interaction of a nomological network of constructs, including numerous resources and demands. Unfortunately, however, work-related well-being has often been narrowly operationalised, frequently reduced to mere job satisfaction (Rothmann, 2008). As a result, Daniels (2000) has suggested including the measurement of affective well-being in studies of work-related well-being. Affective well-being is regarded as multidimensional, with the potential of capturing the subtleties in work experiences. A recent model, the Steyn-Boers's (2014) Structural Model of Psychological Well-Being at Work, broadly conceptualised work-related well-being in line with Daniels's (2000) suggestion.

1.4.2 The Steyn-Boers Structural Model of Psychological Well-Being at Work

In a recent attempt to explain how positive psychological constructs influence pscyhological well-being, Steyn (2011) developed the Salutogenic Model of Occupational Well-Being Structural Model. Steyn's model offers one possible explanation for the nomological network of latent variables that influences psychological well-being. This initial model led to the development of subsequent models also aiming to deepen our understanding of the complex constructs and processes underlying occupational well-being.

Building on Steyn's model, Boers (2014) developed a model focused on explicating the nomological network of variables underlying two constructs of occupational well-being, namely Subjective Well-Being (SWB) and Psychological Well-Being at Work (PWBW). SWB was defined as HWB and EWB. HWB at work was defined as Positive Affect (PA) and Negative Affect (NA).

According to Straume and Vitterso (2012), HWB is typically experienced when a goal is reached or when life seems easy, whereas EWB is experienced when goals are reached or challenges are faced. Ryan and Deci (2001) suggested that an optimal conceptualisation of SWB could include both HWB and EWB, as each perspective sheds a unique light on SWB. In addition, Dagenais-Desmarais and Savoie (2012) recently contextualised SWB within the workplace with the development of the Index of Psychological Well-being at Work (IPWBW). These authors argue that traditional measures of HWB and EWB measure context-free SWB, whereas the IPWBW specifically contextualises SWB in the workplace. They proposed that context-free SWB will lead to higher levels of workplace well-being, i.e. PWBW. Accordingly, Boers included this construct in her model, thus "... providing a contemporary and contextualised view of SWB in the workplace" (Boers, 2014, p. 7).

This study supports Boers's (2014) conceptualisation of well-being and subsequently the same constructs of well-being are included in this study. Through the inclusion of these constructs this study endeavours to replicate Boers's results indicating the relationships between SWB, HWB and PWBW. In line with the Boers (2014) model, this study also aims to offer a further explanation of the interrelated network of variables that may explain variance in PWBW.

1.5 The need for a structural model of geriatric nursing staff well-being

An employee's behaviour at work is not a random occurance, but rather the result of the complex interactions of a nomological network of latent variables characterising the individual, the working environment and the interaction between the two. The extent to which this network of variables is understood determines an organisation's ability to purposefully affect the behaviour of its' employees. Along the same line of reasoning, an organisation can only purposefully affect the occupational health and well-being of their employees to the extent that the network of variables underlying the construct is understood.

The human resource function of an organisation is to influence employees' work performance in such a way that it adds value to the organisation. One of the ways in which this objctive is pursued is through the management of employee well-being. Traditionally this process was aimed merely at the prevention and treatment of performance pathology, but recently the focus shifted to both minimising the incidences of work performance pathology and actively promoting employee well-being. It is now recognised that employee well-being interventions should promote positive psychological health actively in order to really contribute to organisational performance.

Organisations are faced with the challenge of helping to ensure that employees' work plays an instrumental role in providing them with a fulfilling, positive life. Reasoning from a salutogenic approach, work does not need to be a painful means of earning the income needed to live life after hours. Instead, it should offer the working individual the opportunity to find meaning and purpose in work. Therefore, this study attempts to explicate the arguments that underlie the PWBW of geriatric nursing staff, incorporating various variables believed to affect psychological well-being.

This pursuit of developing the aforementioned structural model is guided by previous contributions to the field of occupational well-being. With multiple demands and resources shown to affect well-being, the JD-R model is justified as the theoretical underpinning of this research. In addition, the conceptualisation of occupational well-being as found in the study by Boers (2014) is supported and subsequently also included in this research.

1.6 Research question and objectives

In essence, this study strives to answer the following research question: Why does variance in PWBW of aged care/geriatric nursing staff occur? More specifically, which job demands and resources, over and above those already considered in the Steyn (2011) and Boers (2014) models, cause variance in PWBW?

The objectives of this study are to elaborate on the PWBW structural model[1] presented by Boers (2014) by:

- developing a plausible PWBW structural model based on a reasoned, funnel-like argument that explicates the nature of the casual relationships that exist among elements of the JD-R model, between the well-being variables, and among the elements of the JD-R model and the well-being variables, and
- empirically evaluating the fit of the proposed theoretically derived PWBW structural model by first testing the separate measurement model and thereafter the structural model. If an acceptable model fit is achieved, the significance of the path coefficient estimates, as well as modification indices, will be evaluated.

Accordingly, this study aims to propose a nomological network of variables that provides a plausible explanation for the variance in the PWBW of geriatric care staff by utilising the JD-R model and Boers's (2014) conceptualisation of PWBW.

1.7 Conclusion

Employees' psychological well-being at work can have a significant impact on their work performance. Theoretical frameworks from the organisational psychology domain provide some insight into the psychological processes that underly psychological well-being. An abundance of research also gives an indication of the various factors that may influence an individual's level of psychological well-being.

Nursing staff's psychological well-being impacts the quality of care they provide to their patients, and an increased understanding of their psychological well-being at work is thus needed. The present study aims to deepen the understanding of psychological well-being among geriatric care staff by assessing the role of various resources and demands by means of the J-DR model. More specifically, the possible link between various demands, resources and psychological well-being at work, as conceptualised by Boers (2014), is examined. The following chapter explores the possible antecedents of SWB and PWBW, whilst the inclusion of variables in the proposed model is justified with the aid of relevant literature.

[1] The original aim of the study was to capture the hypothesised effects in a structural model and to test the fit of the structural model via structural equation modeling (SEM). The hypothesised interaction effects could, however, not be captured in the structural model. Consequently, a reduced structural model was constructed without the hypothesised interaction effects. An overarching conceptual model, capturing the full range of hypotheses, was also presented. The reduced structural model was tested with SEM and the interaction effects were tested with a series of moderated regression analyses.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter entails an overview of the frameworks that serve as the theoretical underpinning of this study. This includes the frequently cited JD-R model (Demerouti et al. 2001) and the more recent model of PWBW (Boers, 2014). The constructs entailed in this study and the literature supporting its inclusion in the proposed structural model will then be discussed. This discussion aims to clarify the reasoning that underlies the nomological structure of the proposed model of PWBW of aged care nursing staff.

2.2 The Job Demands-Resources Model

The JD-R model (Demerouti et al. 2001) is recognised as one of the leading job stress models. According to Schaufeli and Taris (2014), a likely reason for its popularity is its underlying assumption that employee health and well-being result from a balance between positive and negative job characteristics, respectively resources and demands. The JD-R model is not restricted to any specific demands or resources, implying that any demand and any resource may affect employee health and well-being. Accordingly, there is no single JD-R model which lends to its heuristic nature. The broad scope and flexibility of the model allow it to be tailored to multiple work settings to explore how various demands and resources may influence employee well-being.

The JD-R model was initially developed in an attempt to explain the antecedents of burnout, conceptualised as a condition of emotional and physical exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Jackson, 1986). The early JD-R model proposed two processes for the development of burnout (Demerouti et al. 2001). First, long-term excessive job demands from which employees do not recover adequately eventually results in exhaustion. Second, a lack of resources precludes that job demands are met and work goals reached, leading to disengagement. In addition to these main effects, the model predicts that job resources mitigate the adverse effect of job demands on the symptoms of burnout (Schaufeli & Taris, 2014). Support was found for these assumptions (e.g. Bakker, Demerouti, & Euwema, 2005; Xantopoulou, et al. 2009) and these findings were also successfully cross-validated on three samples of nurses (Hansen, Sverke, & Naswall, 2009), attesting to the robustness of the JD-R model.

Schaufeli and Bakker (2004) revised the JD-R model by including work engagement in addition to burnout, considering both of the aforementioned to be mediators in the relation between job demands and health problems. Hereby, the JD-R model entered the domain of positive psychology as it sought not only to explain burnout, a negative psychological state, but also work engagement, its positive counterpart. Work engagement refers to a positive and fulfilling work-related state of mind that is

characterised by vigor (high levels of energy and mental resilience at work), dedication (a sense of significance, challenge and enthusiasm) and absorption (being focused and happily engrossed in work) (Schaufeli & Bakker, 2004).

The initial and revised versions of the JD-R model only considered characteristics of the work environment. However, as most human behaviour is generally assumed to result from the interaction between personal and environmental factors, personal resources were integrated into the model. Personal resources can be conceptualised as the psychological characteristics or aspects of the self that are generally associated with resilience and that refer to the ability to operate successfully in one's environment (Schaufeli & Taris, 2014). Personal resources are also functional in accomplishing work goals, and they stimulate personal growth and development (e.g. Bakker, Demerouti and Sanz-Vergel, 2014; Xantopoulou et al. 2009).

Bakker (2011) proposed seven foundational elements of the model. These elements, in which the practicality of the model is grounded, successfully summarise the JD-R model.

1. It is assumed that each organisation's working environment is unique.
2. Each working environment and its associated jobs possess their own job demands and resources.
3. There are two psychological processes, occuring simultaneously, related to job demands and resources, namely a health impairment process and a motivational process. Negative consequences, like burnout, are accounted for by the health impairment process when high job demands are paired with low resources. The motivational process accounts for positive outcomes when high resources are paired with high demands.
4. Job resources buffer the effect of job demands on the experience of strain.
5. Job resources become salient when job demands are high and gain motivational potential in difficult circumstances.
6. Employee well-being is likely to result in organisational performance.
7. Engaged employees are likely to engage in Job Crafting in order to actively try to optimise their working environment.

The aforementioned elements effectively summarise the relationships among the aspects central to the model, namely job demands, job resources, personal resources, Job Crafting, engagement, performance and well-being. The following sections provide a concise overview of the components of the JD-R model that are particularly relevant to this study, namely job demands, personal resources, Job Crafting and well-being. Reference is also made to the relationship that these respective components have with well-being, considering its specific relevance to this study.

2.2.1 Job Demands

The initial JD-R model was published in an attempt to understand the antecedents of burnout to which job demands were believed to be of central importance (Demerouti et al. 2001). Demerouti et al. (2001) defined job demands as "... those physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs" (p. 501). Examples of job demands include work overload and illegitimate tasks, but it should be noted that not all job demands are created equal.

Crawford, LePine and Rich (2010) differentiated between two categories of job demands, namely challenges and hindrances. They argued that both types tended to be demanding, but challenges had the potential to promote personal growth and mastery, whereas hindrances could thwart personal growth and goal attainment. Implicitly, challenging demands, might contribute to well-being outcomes, whereas hindering demands were likely to affect well-being adversely. Challenges included demands such as workload and responsibility, whereas hindrances included demands such as role conflict and illegitimate tasks.

The JD-R model posits that when job demands, both challenging and hindering demands, are high, additional effort is required to achieve work goals. This exertion of extra effort is obviously associated with physical and psychological costs like fatigue and irritability. When recovery from these costs is inadequate or insufficient the result will be a state of sustained activation that gradually intensifies physical and mental exhaustion, thereby decreasing well-being (Knardahl & Ursin, 1985).

In order to explore how various job stresssors relate to well-being several indicators of well-being, both positive and negative, have been examined. The majority of studies focusing on negative indicators of well-being at work, mostly emotional exhaustion and psychological distress, found a positive relationship between the stressors and the negative indicators, meaning that the experience of stressors are likely to lead to increased emotional exhausion and distress (Sonnentag & Frese, 2012). Mixed results were found in studies exploring the relationship between job stressors and work engagement, a positive indicator of well-being. Some did not find any evidence for the aformentioned relationship (e.g. Tims, Bakker and Derks, 2013), while others found that when employees experience a high level of job stressors then their work engagement will decrease over time (e.g. Sonnentag, Binnewies and Mojza, 2010).

In essence, job demands are elements of the working situation that can potentially elicit strain reactions of a physiological and psychological nature (Kahn & Byosiere, 1992). Resources, however, carry the potential to counter these negative effects.

2.2.2 Personal Resources

Positive organisational outcomes are determined by both environmental and individual factors (Hobfoll, 1989). Personal resources, cenceptualised as positive self-evaluations that are associated with resilience and an individual's perception of his or her ability to control and successfully impact upon his or her enviroment (Hobfoll, Johnson, Ennis, & Jackson, 2003), represent individual factors with particular salience in influencing psychological well-being (Xantopoulou et al. 2009).

Personal resources are (a) functional for goal achievement, (b) protect from threats and the associated physiological and psychological costs, and (c) stimulate personal growth and development (Judge, Van Vianen, & De Pater, 2004). Positive self-evaluations have been shown to be strongly related to work-related well-being outcomes, possibly because more personal resources lead to more positive self-regard (Judge et al. 2004). The latter, in turn, contributes to high levels of concordance between individuals' goals set and their capabilities. Therefore, it also increases their intrinsic motivation to pursue their goals and ultimately triggers satisfaction (Judge, Bono, Erez, & Locke, 2005).

In the JD-R model, as depicted by Demerouti and Bakker (2001), personal resources can be integrated in various ways, two of which are relevant to this study (Schaufeli & Taris, 2014). First, personal resources are expected to impact well-being in the proposed model directly. Personal resources may impact well-being by decreasing levels of burnout and increasing levels of engagement (Schaufeli & Taris, 2014). Personal resources have the potential to buffer against burnout due to its functionality in meeting the demands that can be associated with burnout. Evidence also supports the notion that personal resources can increase engagement, possibly because it usually stimulates personal growth (Judge et al. 2004). For example, Xantopoulou et al. (2009) found that personal resources, including self-efficacy, predicted work engagement in addition to job resources. Lorente, Salanova, Martinez and Vera (2014) also found that emotional and mental competencies predicted burnout and engagement levels over time.

The aforementioned ways in which personal resources could be integrated into the JD-R model once again illustrates the heuristic nature of the model and the salience of personal resources in explaining variance in employee well-being. Some of the personal resources found to have a relationship with well-being indicators include elements of psychological capital, specifically self-efficacy and optimism, as well as concepts such as organisation-based self-esteem (Sweetman & Luthans, 2010; Simbula, Guglielmi, & Schaufeli, 2011).

Regarding positive indicators of well-being, multiple studies have demonstrated that positive perceptions of resources are shown to predict increased work engagement, a positive well-being indicator, over time (e.g. Tims, Bakker & Derks, 2013). For negative well-being indicators the results are less consistent. Some studies reported that resources predicted a decrease in strain symptoms

(e.g. Akkermans, Brenninkmeijer, Van den Bossche, Blonk & Schaufeli, 2013), while others failed to find a significant link between resources and negative well-being indicators (De Lange, Taris, Kompier, Houtman, & Bongers, 2004). It is evident that the changes are manifested more through an increase of positive well-being indicators, specifically work engagement, than through a decrease in negative indicators (Sonnentag, 2015).

2.2.3 Job Crafting

Employees are not merely passive recipients of organisational and job design; rather, they can modify their jobs proactively to improve the fit with their personal preferences. Job Crafting is a type of job redesign that is proactive in nature and does not regard the formal job specifications as outlined in the job description designed by the organisation (Tims & Bakker, 2010). Wrzesniewski and Dutton (2001) actually suggest that these changes are probably not even noticed by management. Job Crafting is also thought to happen regularly, as opposed to more formal methods of job redesign that have a more long-term focus.

Within a formally designated job, employees often tend to customise their jobs to better fit their motives, strengths and passions. Job Crafting is a means of describing the manner in which employees customise their jobs by actively changing their tasks and interpersonal interactions at work (Berg, Dutton, & Wrzesniewski, 2008). Traditional research on Job Crafting and job crafters suggests, as noted earlier, that job crafters can employ at least three different forms of Job Crafting (Wrzesniewski & Dutton, 2001).

First, job crafters can alter the boundaries of their jobs by taking on more or fewer tasks, broadening or narrowing the scope of their tasks, or changing how the tasks are performed. For example, a nursing staff member may change the format of her patient report sheets in order to make it less repetitive. Second, job crafters may change their relationships at work by altering the nature or extent of their interactions with other people. A nursing care staff member may, for example, take it upon herself to mentor a new colleague in order to have more social connections. Third, job crafters may cognitively change their jobs by altering how they perceive their tasks or by thinking of their tasks as a collective whole as opposed to a set of separate tasks. For example, a nursing care staff member may see her job as a means to improve her frail patients' quality of life rather than merely performing routine tasks like feeding or bathing them.

The aforementioned conceptualisation of Job Crafting regards occasions where employees alter the tasks, relationships or cognitions of their jobs, but more recent literature describes a wider list of specific job characteristics that employees can reshape through engaging in Job Crafting behaviours. In addition to changing their tasks, relations and cognitions, employees can craft their jobs via processes such as skills development, granting themselves more autonomy, or altering the degree of difficulty of a task (Petrou, Demerouti, & Schaufeli, 2015), all of which do not necessarily constitute a

change to the tasks, relations or cognitions pertaining to the job. As all of these approaches to Job Crafting involve initiating changes in the job design, it can be operationalised according to the types of job characteristics suggested in the JD-R model (Demerouti et al. 2001).

According to the JD-R model, work motivation is typically enhanced by job resources, whereas job demands have the potential of impairing employees' health (Demerouti et al. 2001) or enhancing their motivation when perceived as challenges (Prieto, Salanova Soria, Martinez, & Schaufeli, 2008). In line with this stream of literature, Job Crafting can be viewed as "... voluntary self-initiated employee behaviors targeted at seeking resources (i.e. asking manager or colleagues for advice), seeking challenges (i.e. asking more responsibilities), and reducing demands (i.e. eliminating emotionally, mentally, or physically demanding job aspects)" (Petrou et al. 2015, p. 2). Unlike other definitions of Job Crafting that describe the concept as exceptional episodes occuring only a couple of times per year (Lyons, 2008) or a couple of times within an employee's career (Berg, Grant, & Johnson, 2010), the aforementioned definition conceptualises Job Crafting as the daily behaviour of employees.

Petrou et al.'s (2015) definition is in line with how Job Crafting is framed within the JD-R model. According to the JD-R model, employees can craft their jobs by increasing the level of job resources, increasing the level of job demands or decreasing the level of job demands. The second and third dimensions may seem contradictory, but as mentioned previously, some demands are challenging and welcomed by an employee, while others are hindering and stressful to the employee (LePine, Podsakoff, & LePine, 2005). Accordingly, Job Crafting through both seeking challenges and reducing demands may lead to positive outcomes, such as increased performance and well-being (Petrou et al. 2015; Slemp & Vella-Brodrick, 2014).

Van den Broeck, De Cuyper, De Witte and Vansteenkiste (2010) made a distinction between challenging and hindering job demands within the JD-R model in an attempt to explain why some job demands have been found to be related to positive outcomes and others to negative outcomes. Challenging demands require extra effort to meet, but employees react positively to them. Employees view these demands as instrumental to personal growth or gain when they are able to surmount them. For example, time pressure and workload have been found to be correlated positively with work engagement (Sonnentag, 2003).

In contrast, hindering job demands cause seemingly unnecessary stress, thwart personal growth and goal attainment, and hinder optimal functioning (LePine, Podsakoff, & LePine, 2005). Employees may initially attempt to withstand these hindering demands by investing more resources, but when these health-threatening demands are experienced for a prolonged period, they eventually require other coping methods (Tims et al. 2013).

Building on previous literature and the aforementioned distinction between challenging and hindering job demands, Tims, Bakker and Derks (2012) recently distinguished between four Job Crafting dimensions. Two of the dimensions refer to the type of job resources that are crafted, namely structural resources, like variety and autonomy, and social resources, such as social support and feedback. The other two dimensions refer to the level of job demands, namely challenging and hindering job demands. Each of these dimensions of Job Crafting has the potential to influence employees' well-being.

2.2.4 The JD-R Model and Well-being

The JD-R model proposes that employee well-being results from two relatively independent processes (Schaufeli & Bakker, 2004). First is the health impairment process, which refers to the process whereby high demands and low resources lead to burnout. Burnout then, in turn, mediates the relation between job demands and employee health and well-being through the gradual draining of mental resources. Second, the motivational process emphasises the inherently motivational qualities of job resources. Job resources are assumed to stimulate work engagement through the achievement of work goals or through the satisfaction of basic needs. This ultimately fosters positive organisational outcomes, such as performance. So, engagement is assumed to mediate the relation between job resources and organisational outcomes.

Since the development of the model numerous studies have found support for the prediction of employee well-being by means of the JD-R model. Some of these supporting studies include those done by Bakker, Boyd, Dollard, Gillespie, Winefield and Stough (2010); Bakker et al. (2014); Prieto et al. (2008); Schaufeli and Bakker (2004); and Schaufeli, Bakker and Van Rhenen (2009). Among some of the first studies conducted on the JD-R model was a study on health care staff by Schaufeli and Bakker (2004), which provided strong evidence for the assumptions of the revised model.

The JD-R model has also been tested extensively in the healthcare sector, with a multitude of studies that have been conducted on nursing staff (e.g. Hansen, Sverke & Naswall, 2009; Laschinger, Borgogni & Consiglio, 2015, and Laschinger, Grau, Finegan & Wilk, 2012). The relationships of both positive and negative indicators of well-being with various job demands, job resources, personal resources and Job Crafting have been shown, indicating the relevance of the JD-R model in exploring the network of variables influencing employee work-related well-being. The conceptualisation of work-related well-being utilised in this study is founded in the Steyn-Boers model of PWBW, which is discussed in the following section.

2.3 The Steyn-Boers model of Psychological Well-Being at Work

In 2011, Steyn developed a Salutogenic Model of Occupational Well-being with the aim of elucidating the nomological network of variables that influences occupational well-being. Occupational well-being was defined by the constructs of psychological health and satisfaction with work-life. Steyn (2011)

referred to psychological health as an individual's ability to carry out normal 'healthy' functions of daily life in the absence of the manifestation of any psychiatric problems, while satisfaction with work-life referred to an individual's general assessment of his or her work-life quality according to self-imposed standards. Operating in the paradigm of positive psychology, Steyn's (2011) study was the first in a series of studies aiming to explicate the constructs underlying the variance in occupational well-being (Boers, 2014).

Boers (2014) acknowledged the unique insights that Steyn's (2011) study had contributed to the well-being paradigm through the investigation of the positive psychological antecedents of occupational well-being, namely optimism, self-efficacy and meaningfulness. However, she also identified some limitations in Steyn's (2011) study.

Boers (2014) cited Steyn's (2011) narrow definition of occupational well-being as the first limitation of the study. Boers argued that a more comprehensive conceptualisation and operationalisation of well-being would be of more practical value. As a second limitation it was noted that Steyn (2011) found no significant paths between self-efficacy and any of the other variables included in the model. This finding contrasted general research results exploring the relations between self-efficacy and well-being. With reference to both the strengths and limitations of Steyn's (2011) model, Boers (2014) expanded the model to develop the Steyn-Boers Structural Model of Psychological Well-being at Work.

Boers's expanded model (2014) was developed in an attempt to explicate the nomological network of variables that underlies two contemporary constructs entailed in the occupational well-being literature, namely SWB and PWBW.

In Boers's study, SWB was defined as encompassing both HWB and EWB. HWB views well-being as a subjective experience, focusing on an individual's feelings of pleasure or happiness (Diener, 2000). Accordingly, HWB was broken down into the constructs of PA and NA. EWB regards well-being as an individual's experience of fulfilment and purpose (Ryff, 1995; Waterman, 1993). PWBW, described as well-being contextualised in the work domain (Dagenais-Desmarais & Savoie, 2012), was included as the ultimate exogenous variable in Boers's study. It is Boers's aforementioned conceptualisation of PWBW that is central to this current study.

2.4 Introduction to the Current Study

Employee turnover in the nursing home industry is a worrisome issue, with ample evidence that turnover rates for care staff in nursing homes range between 55% and 75% (Castle, 2006). According to the same author, certified nursing assistants, or care workers as they are called in South Africa, have the highest turnover rate, often approaching 100%. These workers constitute the largest

segment of this workforce and the group delivering the largest percentage of direct care, estimated at 80 to 90 percent, making them crucial to the provision of elderly care (Galloro, 2001).

Fitzpatrick (2002) cites this high rate of turnover as one of the confounding problems facing long-term care facilities. Employee turnover increases not only the financial burden of elderly care (Seavey, 2004), but it also compromises the quality of care provided (Castle, Engberg, Anderson, & Men, 2007). Results of Tilden, Thompson, Gajewski, and Bott's (2012) recent study in 85 nursing homes indicate that staff turnover directly relate to the quality of care provided. The direct costs of turnover include those associated with advertising and recruitment, orientation and training, forced employment of temporary workers and increased injuries (Seavey, 2004). In addition, the indirect costs, for example loss of residents to other facilities, add to the economic impact of turnover. However, most importantly, the quality of care provided to residents deteriorates as turnover increases due to reduced employee morale, loss of experienced and knowledgeable workers, and deterioration of organisational culture (Jones & Gates, 2007; Stone & Dawson, 2008).

In a longitudinal study conducted to evaluate the job factors and work attitudes associated with turnover among certified nursing assistants, it was found that those employees who left their jobs had lower levels of job satisfaction and emotional well-being, measured by a brief emotional distress scale (Rosen, Stiehl, Mittal, & Leana, 2011). This is in line with the results from multiple other studies indicating that diminished levels of emotional and mental health of nurses have led to greater turnover intent (e.g. Flinkman, Leino-Kilpi and Salantera, 2010; Leiter & Maslach, 2009; Meeusen, Van Dam, Brown-Mahoney, Van Zundert & Knape, 2011). O'Brien-Pallas, Tomblin Murphy, Li, and Hayers (2010) have also noted that high nursing turnover at the unit level can threaten the well-being of the remaining nurses, as they found it to be associated with deterioration in their mental health and job satisfaction.

In essence, the factors most commonly associated with nursing staff turnover are indicators of well-being. Implicitly, furthering our understanding of the factors that influence psychological well-being at work of care staff could enable the development of interventions aimed at reducing turnover and its associated costs. Therefore, this current study aims to develop a structural model depicting a nomological network of variables that explain variance in the construct of PWBW, specifically for geriatric care staff. The development of this model is grounded in the theoretical foundation of the JD-R model (Demerouti et al. 2001) and the conceptualisation of PWBW, as proposed by the Steyn-Boers Model of PWBW (Steyn, 2014). The constructs believed to influence PWBW are discussed in the following sections alongside the respective arguments for their inclusion in the study. The possible underlying relationships that these constructs may have with one another are also discussed, as well as the associated hypotheses proposed by this study.

2.5 Subjective well-being and psychological well-being at work

The rise of positive psychology (Seligman & Csikszentmihalyi, 2000) shifted the focus of organisational psychology toward positive psychological states as opposed to the previously dominant disease model that focused on negative psychological states. SWB, often referred to as happiness by laymen, started receiving increased attention during this shift towards the positive paradigm.

The term "subjective well-being" was first introduced by Diener (1984) as a means of identifying a field of psychology that attempted to understand people's evaluations of their quality of life, including both their cognitive judgements and their affective reactions. The cognitive aspect regards an individual's perceptions about his or her satisfaction with his or her life in general, and within specific domains, such as his or her work-life. The affective aspect refers to the individual's feelings, moods and emotions. Affect is positive when pleasant feelings, emotions and moods are experienced, and negative when they are unpleasant (Kahneman, Diener, & Schwarz, 1999). SWB, therefore, encompasses emotions and moods in addition to evaluations of one's general life satisfaction as well as satisfaction with specific areas of one's life (Diener, 2000).

SWB is often conceptualised as HWB and EWB, or alternatively, an integration of the two concepts. The hedonic approach largely equates well-being to happiness or HWB. This approach suggests that well-being is indicated through PA, NA and life satisfaction (Andrews & McKennell, 1980; Campbell, Converse, & Rodgers, 1976). In essence, HWB entails subjective happiness and the experience of pleasure versus displeasure, broadly construed to include all judgements of the good and bad elements of life (Steyn, 2014).

Eudaimonia, however, regards the idea of striving towards excellence, based on one's own unique potential (Ryff & Singer, 1998). More specifically, it can be defined as "... the feelings accompanying behaviour in the direction of, and consistent with, one's true potential" (Waterman, 1984, p. 16). Eudaimonic approaches also emphasise that well-being is an ongoing process, not an end state (Ryan & Deci, 2001). Waterman (1993) posits that, whereas happiness is defined hedonically, the eudaimonic conception of well-being suggests that people strive to live in accordance with their true self. Thus, whereas HWB is conceptualised mainly as the subjective experience of feeling good, EWB refers mainly to living a good and meaningful life (Sonnentag, 2015).

The debate regarding how SWB is ultimately constituted is ongoing, but there exists general consensus that both HWB and EWB offer valuable theoretical and practical perspectives. Evidence from numerous studies indicates that SWB is probably best conceptualised as a multidimensional phenomenon that includes aspects of both HWB and EWB.

Waterman (1993) was among the first to find support for this notion. He suggested that EWB occurred when people's life activities were most congruent with their deeply held values and they

were holistically engaged in this purpose. It was argued that under these circumstances individuals would exist as who they really were, feeling intensely alive and authentic, a state which was termed "personal expressiveness". Waterman (1993) found that personal expressiveness correlated strongly with measures of HWB, but was disctinct experiences nonetheless. For instance, personal expressiveness was more related to being challenged and exerting effort, whereas HWB was more related to being relaxed, problem-free and happy.

McGregor and Little (1998) analysed a diverse set of mental health indicators and also found two factors, one reflecting happiness and the other reflecting meaningfulness. This study replicated the results of an earlier study that had asked people to rate features of their desired state of living, and found that both happiness and meaning were implicated (King & Napa, 1998). These researchers showed that, in the pursuit of personal goals, feeling happy and accomplished may be disconnected from finding meaning and acting with integrity (Boers, 2014). Subsequently, prominent researchers in the well-being domain have suggested that an optimal conceptualisation of SWB would integrate these two perspectives, as each sheds a unique light on the construct (Keyes & Magyar-Moe, 2003; Keyes, Shmotkin, & Ryff, 2002; Lent, 2004; Ryan & Deci, 2001). It is in line with this reasoning that Boers (2014) included both the hedonic and eudaimonic approaches to well-being in the proposed structural model of PWBW.

According to Dagenais-Desmarais and Savoie (2012), it is inadequate to only use context-free measures to determine employees' psychological functioning and well-being. They consider work as a specific life domain that offers individuals the opportunity to utilise their full potential while embracing the associated imposed responsibilities and expectations. Campbell et al. (1976) have found that general SWB correlates moderately with SWB in specific life domains. Research provides mixed results for the relationship between job satisfaction and life satisfaction as two components of HWB. Reports that cross-sectional correlations between job and life satisfaction range from r = .19 to r = .49, indicate that the one is not merely the contextualised transposition of the other. Therefore, in accordance with Boers (2014), this study supports the unique, yet related conceptualisation of PWBW over general, context-free SWB.

Dagenais-Desmarais and Savoie (2012) were the first researchers to develop a conceptual framework specifically devoted to PWBW. They utilised an inductive approach, and identified a sound and parsimonious five-dimension structure for the PWBW construct. The first dimension, being Interpersonal Fit at Work, entails the perception of experiencing positive relationships with the individuals with whom one interacts at work. The second entails Thriving at Work, which refers to the perception of accomplishing a significant and interesting job that enables feelings of fulfillment. Feelings of Competency at Work, the third dimension, regard the perception of possessing the necessary aptitudes to perform one's job efficiently and to master one's tasks. Fourth is individuals' Perceived Recognition at Work, referring to the perception of being appreciated within the

organisation for their work and for their personhood. The fifth and final dimension is the Desire for Involvement at Work, which is the will to involve oneself in contributing to the organisation's functioning and success. Dagenais-Desmarais and Savoie (2012) noted that these five dimensions were not separate constructs, but rather an overarching construct that interacted with one another to reflect a larger theme, namely PWBW.

PWBW incorporates aspects of job satisfaction and PA. Fredrickson's (2001) Broaden-and-Build theory suggests that positive emotions have the potential to increase well-being, as it broadens an individual's thought-action repertoire, which encourages him or her to discover new lines of thought or action. Otherwise stated, positive emotions produce patterns of thought that are flexible, creative and receptive, thereby enlarging the cognitive context and enabling resource gain spirals.

Dagenais-Desmarais and Savoie (2012) found a correlation of .526 between PWBW and PA, supporting the notion that these two constructs are distinct, but related. Boers (2014) found support for the argument that increased PA will assist employees in accumulating more resources and lead to experiencing more PWBW.

This study aims to replicate the evidence for this relationship. In line with the Broaden-and-Build theory (Fredrickson, 2001) it is argued that higher levels of PA will lead to an upward spiral of resource accumulation, which will result in the care staff experiencing higher levels of PWBW. Research by Frederickson has been replicated by others, and consistently shows that positive emotions fuel psychological and physical well-being (e.g. Keltner & Bonanno, 1997; Stein, Folkman, Trabasso, & Richards, 1997) as well as trigger upward spirals towards emotional well-being (Fredrickson & Joiner, 2002). It has, therefore, been argued that positive emotions transform individuals for the better, making them healthier, more socially integrated, knowledgeable, effective and resilient (Fredrickson, 2004).

For example, the positive emotion of joy increases the urge to play (Fredrickson & Joiner, 2002), which increases socioemotional skills. In turn, this emotion may assist in building better relationships at work, leading to increased experience of Interpersonal Fit at Work (a sub-dimension of PWBW). The positive emotion of interest creates the urge to explore (Fredrickson & Joiner, 2002), which may increase the care staff's Desire for Involvement at Work (also a sub-dimension of PWBW). Therefore, it is argued that, if a care staff member experiences positive emotions at work, the enlargement of his or her cognitive context may lead to increased feelings of Interpersonal Fit at Work, Thriving at Work, Feelings of Competency at Work, Perceived Recognition at Work And a Desire for Involvement at Work.

Therefore it is hypothesised that PA will be positively and significantly related to PWBW.

Hypothesis 3[2]: PA has a significant positive linear effect on PWBW.

Dagenais-Desmarais and Savoie (2012) also found a correlation of -.357 between PWBW and NA, suggesting the existence of a negative relationship between the two constructs. When the authors included PA into the regression model as a predictor of PWBW in addition to NA, they did not obtain support for the relationship between negative affect and PWBW. Nevertheless, Boers (2014) hypothesised that NA will have a significant negative effect on PWBW. Even though Boers (2014) did not find evidence for this path in her model that also included PA, this current study attempts to replicate the initial notion by once again drawing upon the Broaden-and-Build theory (Fredrickson, 2001).

It can be argued that, in contrast to positive emotions, negative emotions narrow people's thought-action repertoires (e.g. fight or flight). This leads to downward spirals in affect, in turn leading to ever-worsening negative emotions and narrowed thinking. Care staff who experience high levels of NA are thus expected to report lower levels of Interpersonal Fit at Work, Thriving at Work, Feelings of Competency at Work, Perceived Recognition at Work and a Desire for Involvement at Work. Accordingly, it is hypothesised that NA will have a significant negative relationship with PWBW.

Hypothesis 4: NA has a significant negative linear effect on PWBW.

Dagenais-Desmarais and Savoie (2012) note that the construct of PWBW shares certain similarities with the key EWB dimensions. They investigated the convergent and divergent validity of the PWBW and EWB constructs, and found a correlation of .500 between the two. As correlations of .60 and less may be interpreted as support for discriminant validity (Kline, 1998), it can be accepted that these two constructs do not overlap to such an extent that they measure exactly the same thing. Boers (2014) noted some of the similarities illustrating the eudaimonic themes that underly the conceptualisation of the PWBW construct. For example, the EWB sense of mastery and competence in managing the environment (i.e. Envionmental Mastery) could be related to the PWBW perception of possessing the necessary ability to effectively master one's job tasks (i.e. Feelings of Competency at Work). Similarly, an employee experiencing satisfying relationships at work (i.e. EWB's Positive Relations at Work) is likely to perceive greater levels of PWBW's Interpersonal Fit at Work. In line with this reasoning Boers (2014) argued that EWB would have a positive influence of PWBW. Surprisingly, she did not find a significant path between these two constructs.

In an attempt to further investigate this finding, it is hypothesised in this study that EWB positively influences PWBW. The conceptual overlap between the constructs of EWB and PWBW leads us to argue that care staff who report experiencing higher levels of EWB are likely to experience higher

[2] The numbering of the hypotheses starts at 3, as hypotheses 1 and 2 involves testing the exact fit and close fit of the proposed measurement and structural models (discussed in chapter 3).

levels of PWBW. For example, if a care staff member experiences Positive Relations, an element of EWB, at work, then she is likely to also experience Interpersonal Fit at Work, an element of PWBW, which is also characterised by the quality of one's interpersonal relationships.

If she feels that she is managing her life situation effectively, which regards the EWB element of Environmental Mastery, then it is likely that she is also experiencing the PWBW dimension of Competency at Work, as both of these regard the individual's perception of her ability to meet her demands. If the care staff member experiences a sense of Purpose In Life, it is likely that she will experience the associated sense of fulfillment and meaning, which is also reflected in the PWBW dimension of Thriving at Work. Accordingly, it is hypothesised in this study that EWB positively influences PWBW.

Hypothesis 5: EWB has a significant positive linear effect on PWBW.

2.6 Occupational Coping Self-efficacy

The authors of the JD-R model made a call to researchers to expand on the body of research, specifically regarding personal resources in the JD-R model (Demerouti & Bakker, 2011). It was suggested that the role of personal resources in the model received very little attention even though they had been found to be particularly beneficial to health and organisational outcomes (Xantopoulou et al. 2009). The results of a study conducted on nursing staff by Lavoie-Tremblay, Trèpanier, Fernet and Bonneville-Roussy (2013) also highlight the importance of investigating a variety of resources for the promotion of nursing staff well-being. They stated that emotional resources and demands seem to be particularly prominent because it was found to buffer the effects of strain and promote well-being.

In line with the argument made by the aforementioned studies, this study also emphasises the role of personal resources in the JD-R model and in predicting well-being. Personal resources of a state-like nature are included, as they can be developed within the workforce in order to improve employee well-being. Occupational Coping Self-Efficacy (OCSE) is one such personal resource included in this study.

The general construct of self-efficacy refers to the belief that an individual has in his/her ability to execute a task successfully and accordingly obtain the desired outcome (Bandura, 1997). Beliefs of self-efficacy are likely to influence the level and persistence of efforts to adopt a behaviour. Individuals are more likely to adopt a behaviour if they perceive themselves capable of the behaviour and believe that the outcome of such behaviour will have a desired effect (Pisanti, Van der Doef, Maes, Lombardo, Lazzari, & Violani, 2015). According to Urbani, Smith, Maddux and Smaby (2002), self-efficacy is not considered a trait, but rather beliefs about the ability to coordinate abilities and skills in order to attain desired goals in particular domains or circumstances. This is in line with the

view of a self-efficacy continuum ranging from generalised self-efficacy (Schwarzer, Mueller, & Greenglass, 1999) to more specific types of self-efficacy.

Literature indicates that general measures of self-efficacy are less useful than specific self-efficacy measures in predicting behaviour outcomes (Urbani et al. 2002). According to Bandura (2001), self-efficacy beliefs are domain-specific, meaning that they are very likely to differ depending on the context to which they are related. Job self-efficacy is a specific self-efficacy that concerns employees' beliefs of their capability to fulfill their job tasks adequately, as opposed to the more general self-efficacy that forms part of the concept of psychological capital. Job self-efficacy has been considered by various occupational stress studies (e.g. Borgogni, Dello Russo, Miraglia & Vecchione, 2013, Mazzetti, Schaufeli & Guglielmi, 2014). These studies have shown significant associations between this specific self-efficacy and psychological well-being indicators. A less researched, and more specific job self-efficacy is OCSE.

An individual's OCSE refers to his/her self-appraisals of his/her ability to cope with environmental demands at work successfully. This is characterised by two issues (Pisanti et al. 2015). First, it is more specific than job self-efficacy, as it focuses on individuals' beliefs about their ability to deal with situational stressors (Bandura, Taylor, Williams, Mefford, & Barchas, 1985). Second, it refers to those coping abilities in relation to the specific stressors encountered at work, such as work overload. Therefore, it is in line with the reasoning that self-efficacy beliefs should be tailored to the particular domain of interest (Salanova, Peiro, & Schaufeli, 2002).

Bandura's (1986) social cognitive theory emphasises the relevance of self-efficacy beliefs. Efficacy beliefs can determine whether people will invest effort and the duration of their persistence in their effort when faced with aversive experiences. Individuals with high coping self-efficacy beliefs are likely to approach challenging situations in an active and persistent way, as opposed to those with lower levels of coping self-efficacy beliefs who tend to direct greater energy to managing emotional distress (Bandura, 1986). With specific reference to the occupational domain, Schwarzer and Knoll (2003) has found that the stronger one's perceived efficacy, the more proactive and persistent one's efforts will be.

According to the findings of a study performed by Pisanti, Lombardo, Lucidi, Lazzari, and Bertini (2008), nurses have two basic and distinct coping self-efficacy beliefs. First, beliefs regarding occupational burden, and second, beliefs regarding relational difficulties in the workplace. These two beliefs occur simultaneously in order to shape adjustment to perceived occupational stress. This means that nurses' perception of their ability to cope with their tasks, as well as their workplace relationships, respectively influences their perception of their experience of stress. This, in turn, has the potential to influence other well-being outcomes.

2.6.1 Occupational Coping Self-Efficacy and Well-being

OCSE beliefs involve an individual's beliefs about his/her ability to cope with occupational stressors. Schwarzer and Knoll (2003) argues that the stronger an employee's perceived efficacy to cope with occupational stressors, the more proactive and persistent his/her efforts will be in dealing with the demands. Through engaging in these proactive coping behaviours individuals may be more effective in preserving resources and overcoming demands. Job Crafting is a particularly salient form of proactive behaviour and is discussed in the following section.

Literature in the occupational domain indicates that coping self-efficacy has been associated with lower levels of strain and higher adaptive coping skills. For instance, employees with high levels of coping self-efficacy have been found to engage in proactive coping behaviour (Schwarzer & Knoll, 2003) rather than avoiding stressors (Kraij, Garnefski, & Maes, 2002). Pisanti et al. (2008) also found that OCSE mediated the relationship between job strain and employee burnout. The significant negative relationship between OCSE and burnout may suggest that higher OCSE may assist in protecting nurses from burnout and thereby foster emotional well-being (Laschinger et al. 2015).

Employees who struggle to build confidence in their ability to meet their job demands are more likely to experience burnout and a sustained response to chronic emotional and interpersonal work stressors, likely to result in decreased mental health (Maslach & Leiter, 1997; Laschinger & Grau, 2012; Laschinger, Grau, Finegan, & Wilk, 2010; Peterson, Demerouti, Bergström, Åsberg, & Nygren, 2008; Rudman & Gustavsson, 2011). In a study focusing on new graduate nurses entering the workforce, Laschinger et al. (2015) corroborated the aforementioned by noting that the nurses may struggle to build confidence in meeting their job demands, which often leads to burnout and subsequently, poor mental health.

In a recent study, Pisanti et al. (2015) explored the relationships between OCSE and multiple well-being indicators among nurses. They found that higher levels of OCSE were consistently related to higher well-being and lower distress, even after controlling for the effect of various job demands and resources. OCSE was associated negatively and significantly to all distress variables included in the study, namely emotional exhaustion, depersonalisation, psychological distress and somatic complaints.

Boers (2014) reported a significant path between self-efficacy and EWB with a path coefficient of .228. It was argued that if one had the confidence to believe that one could accomplish a task successfully, i.e. self-efficacy beliefs, then one would be more motivated to engage in that task persistently until one thrived in it, i.e. EWB.

It can be argued that if a care staff member experiences high levels of OCSE she might experience better EWB through increased levels of Purpose In Life, Autonomy, Personal Growth, Environmental

Mastery and Self-Acceptance (as dimensions of EWB). Belief in her ability to cope at work might affect her levels of Environmental Mastery positively, as this also regards the perception of the ability to deal with demands effectively. Believing in her ability to cope at work may also have a positive impact on her level of Self-Acceptance (i.e. the knowledge and acceptance of themselves, including awareness of personal limitations), another dimension of EWB. If she has high OCSE beliefs regarding the relational demands of her work, it may also reflect positively on her level of Positive Relations with Others. In line with this reasoning, this current study posits that geriatric care staff with higher levels of OCSE will experience higher levels of EWB.

Hypothesis 6: OCSE has a significant positive linear effect on EWB.

According to Ryan and Deci (2001), well-being is an ongoing process, rather than an end state. Hobfoll's (1989) Conservation of Resource (COR) theory posits that resources are central to the ongoing process of well-being and that individuals strive to obtain, retain, protect and foster the resources that they value. These resources refer to any object, personal characteristic or energy that is valued in itself or as a means to attain or protect another valuable resource. Hobfoll (2001) states that those individuals with more resources are less vulnerable to resource loss and more capable of gaining more resources. Individuals invest their current resources in order to obtain more resources, leading to resource gain spirals.

PWBW, as well as its respective subdimensions, can be considered as valuable resources that may enable such resource gain spirals. It is argued here that experiencing PWBW may lead to the accumulation of resources, specifically OCSE. For instance, if a care staff member feels that she possesses the necessary skills to perform her job effectively, i.e. the PWBW dimension of FCW, it is likely that her belief in her ability to cope at work, i.e. OCSE, may increase. Similarly, if she feels that others are recognising and appreciating her contribution at work (i.e. PRW), then her levels of OCSE may also be impacted positively. Along this reasoning it is argued that care staff's reported levels of OCSE will be influenced by their levels of PWBW.

Hypothesis 7: PWBW has a significant positive linear effect on OCSE.

In their concluding remarks, Pisanti et al. (2015, p. 10) note that "... individuals with higher levels of occupational coping self-efficacy are more likely to interpret occupational stressors as challenging situations". As a result they are more likely to engage proactively in behaviour that allows them to deal with their work situation effectively. In line with this reasoning it can be argued that care staff with high levels of OCSE beliefs are more likely to engage in Job Crafting, a proactive behaviour.

Hypothesis 8: OCSE has a significant positive linear effect on Job Crafting.

2.7 Job Crafting

Job Crafting, as explained in section 2.2.3, is included in this study due to its established role in the JD-R model and its impact on well-being, as discussed hereafter.

2.7.1 Job Crafting and Well-being

The notion that changes in job characteristics or job redesign affect employee well-being is not new. For example, decades ago the effect of a job redesign intervention on the well-being of employees was examined by Hackman, Pearce and Wolfe (1978). The authors measured the employees' job satisfaction following the redesign of their jobs due to technological innovations. They found that the employees whose jobs were enriched through the redesign experienced increased levels of job satisfaction and those whose jobs were "de-enriched" showed decreased levels of job satisfaction.
In a more recent study by Schaufeli et al. (2009), they found that increases in both structural and social resources contributed to changes in employee well-being. The authors conducted a longitudinal survey by means of the JD-R model to explore how changes in job demands and resources affected burnout and work engagement, both indicators of well-being.

As hypothesised, they found that increasing job demands and decreasing job resources predicted burnout, while increases in resources predicted engagement. Therefore, by adapting their job demands and resources through job crafting behaviour, employees could influence their levels of burnout and work engagement, and ultimately impact their well-being. Schaufeli et al. (2009) also found support for a positive gain spiral where initial engagement predicted an increase in job resources which, in turn, further increased work engagement. This might have been because engaged employees were more likely to craft their jobs to increase their resources, which then contributed to increased engagement.

In their recent study, Petrou et al. (2015) examined the effects that Job Crafting could have on employee job performance and on their well-being, as indicated by their exhaustion levels. They specifically considered the processes of seeking resources, seeking challenges and reducing demands as aspects of Job Crafting. They found that seeking resources positively predicted task performance ($\beta = .11$, $p < .05$), but not exhaustion ($\beta = -.03$, $p = .43$). Seeking challenges was also found to predict exhaustion negatively ($\beta = -.07$, $p < .05$), but not task performance ($\beta = -.04$, $p = .43$). Reducing demands positively predicted exhaustion ($\beta = -.08$, $p < .05$), but not task performance ($\beta = -.01$, $p = .84$). Finally, exhaustion positively predicted reducing demands ($\beta = .18$, $p < .001$) and negatively predicted task performance ($\beta = -.19$, $p < .001$). These findings provided support for the notion that job crafting behaviour could influence indicators of both well-being and performance.

Research conducted by Nielsen and Abildgaard (2012) indicated associations among Job Crafting and increased job satisfaction and engagement, as well as lower burnout. Building on this support for a positive association between Job Crafting and employee well-being, Slemp and Vella-Brodrick

(2014) conducted a similar study. They extended Nielsen and Abildgaard's (2012) findings by using a more comprehensive conceptualisation of well-being that incorporated both eudaimonic and hedonic views of well-being, as measured by Keyes's (2007) mental health continuum. They also noted that there was no underlying motivational theory about how Job Crafting might lead to employee outcomes, like well-being. Hence, they also aimed to extend theory on Job Crafting by examining the underlying mechanisms by which it predicted employee well-being.

The self-determination theory suggests that the satisfaction of the universal needs for autonomy, competence and relatedness leads to an ongoing sense of growth, fulfillment and well-being (Deci & Ryan, 2000). In accordance with this theory, activities that further the satisfaction of these needs will likely contribute to increased well-being. The authors (Deci & Ryan, 2000) argued that Job Crafting constitutes a form of activity that may increase well-being through the satisfaction of these needs. Their results indicated that the extent to which employees are engaged in Job Crafting predicted the extent to which their psychological needs at work were satisfied, which in turn predicted their level of well-being.

In this study it is posited that Job Crafting might affect EWB through its impact on the various subdimensions of EWB. For instance, it is argued that individuals who do not feel that their jobs provide them with a sense of meaning, fulfillment or purpose (EWB) are likely to engage in Job Crafting in an effort to enable personal growth and achieve the desired sense of meaning, which could contribute to increased levels of Purpose in Life and Personal Growth, both of which are dimensions of EWB. Job Crafting of a relational nature can lead to increased levels of the EWB dimension of Positive Relations with Others. Through this reasoning, it is proposed that Job Crafting has the potential to affect EWB.

Hypothesis 9: Job Crafting has a significant positive linear effect on EWB.

2.8 Calling

While work is a mechanism to obtain basic human needs, it can also serve a deeply personal function, depending on how employees identify with or define themselves by their work (Elangovan, Pinder, & McLean, 2010). This personal view towards work can be referred to as an employee's work orientation (Davidson & Caddell, 1994). Literature on work orientation suggests that people identify strongly with their work roles and evaluate their occupations through a cognitive process to determine whether they are fulfilling a greater sense of personal purpose (Newness, 2013). Cognitive appraisals that employees make regarding their work have been categorised as a job, career or calling (Davidson & Caddell, 1994), each reflecting the possible role that work plays in employees' lives.

According to Davidson and Caddell's (1994) work orientation framework, employees with a job work orientation consider their work simply as a means to the end of fulfilling financial obligations.

Employees with a career work orientation are typically concerned with their own personal advancement at work, being motivated by status and fulfillment of ego needs. Lastly, employees who maintain a calling work orientation believe that the work tasks in which they engage fulfill their life's purpose and they will experience a personal void if they can no longer serve in this capacity. Studying the latter mentioned construct of Calling has recently received attention from various disciplines, possibly because researchers are recognising the implication an employee's work view has on performance, satisfaction and well-being outcomes (Newness, 2013).

The operational definition of Calling has evolved over the years, but in a recent review of the literature Duffy and Dik (2013) suggested that calling is best conceptualised as a career that is integral to the life meaning of an individual, is prosocial in nature and can arise from either an internal or external summons. Calling is also linked to positive work and well-being outcomes, especially when individuals are living out their Calling (Duffy & Dik, 2013). Implicitly, the experience of Calling carries value for both the individual and the organisation.

Hall and Chandler (2005) make a compelling argument for why Calling is expected to have a positive relationship with job performance as an obvious organisational advantage. They posit that if an individual experiences a Calling it is deeply connected to his/her sense of self and thus the person is expected to strive to exceed performance expectations in order to self-actualise. The person's high level of performance will then be internalised as part of his/her self-esteem, creating a cyclical pattern of increased performance. Support for this hypothesised relationship between Calling and performance has since been found (Lobene & Meade, 2013; Newness, 2013).

Hagmaier and Abele (2012) found occupational group differences in responses to a Calling measurement scale. The authors developed and validated the Multidimensional Calling Measure (MCM), which comprised three dimensions, each measured by a different subscale. The three dimensions included a Transcendent Guiding Force (subscale MCM-TGF), Sense and Meaning and Value-driven Behavior (subscale MCM-SMVB) and Identification and Person-Environment-Fit (subscale MCM-IP). The MCM was administered on a sample of 204 employed German adults working in a wide range of occupations, including doctors, teachers, nurses and mechanists. Endorsement of all three subscales of the MCM differed significantly among the occupational domains. Employees in the health and education domains consistently scored higher (MCM-TGF: M = 3.32; SD = 1.29; MCM-SMVB: M = 4.64, SD = 1.12; MCM-IP: M = 4.56, SD = 1.09) than employees from the business and economy domains (MCM-TGF: M = 2.65; SD = 1.38; MCM-SMVB: M = 3.37, SD = 1.22; MCM-IP: M = 3.97, SD = 1.32).

In essence, Hagmaier and Abele's (2012) results indicate that people working in the healthcare and education industries experience higher levels of Calling than employees in the business and economy

sectors. This finding is in line with the notion that Calling occurs more often in occupations with a high share of social interactions (Davidson & Caddell, 1994).

A study was conducted to explore the reasons why healthcare providers chose their professions (Curlin, Serrano, Baker, Carricaburu, Smucker, & Chin, 2006). In discussing their findings, the authors drew upon Herzberg's (1966) Motivators or factors that took into account and responded to an employee's need for personal growth and self-actualisation. Motivators led employees to value their work as an end in itself. Otherwise stated, it could allow the enactment of work as a Calling rather than merely a job (Wrzesniewski & Dutton, 2001; Hall & Chandler, 2005). Healthcare staff strongly emphasised the subjective and internal rewards of their work as their motivators. For example, with regard to the meaning of the work, one healthcare provider stated, "It fulfills a need" and "I just get a lot of self-satisfaction from it" (p. 953). In essence, the authors found that health care providers "... make sense of their work by reference to subjective and intrinsic values that are realized by enacting their work as a form of calling" (p. 956).

Prater and McEwen (2006) conducted a study on a sample of 202 nursing students and found similar evidence regarding their reasons for entering the profession. According to their findings, a very significant majority of the participants felt that they were led by God or that being in nursing was within a divine plan. Their descriptions of how they perceived Calling were closely tied to literature in the same domain. The participants reported that the call to nursing gave them pupose, direction and reason for their choice, which is in line with the conceptualisation of Calling. Prater and McEwen (2006) also found that almost half of the participants indicated that the primary reason for wanting to enter the nursing profession was to help and/or care for people.

In a recent study by Duffy, Douglass and Autin (2015), they found support for the hypothesis that living out one's Calling was related to increased levels of life meaning and job satisfaction, which in turn led to elevated life satisfaction. Their results built upon the work of previous studies that had examined the link between Calling, life meaning and life satisfaction (e.g. Duffy, Manuel, Borges & Bott, 2011, Steger, Pickering & Shin, 2010). With meaning in life central to the construct of EWB (Ryff, 1995; Waterman, 1993) and life satisfaction forming part of HWB (Diener, 2000) it could be assumed that Calling would influence an individual's subjective well-being. Evidently, Nam and Kwon (2013) found that a sense of Calling significantly influenced nurse happiness.

Nursing staff have been found to be less committed to a specific hospital, but rather seek an environment where they can experience optimal meaning in their work, which is a facet of Calling (Shacklock & Brunetto, 2012). Van Zyl, Deacon and Rothmann (2010) confirm that the calling orientation can be attributed to people knowing that they have an impact on others' lives. As the nursing profession has a strong impact on the lives of others, nurses may be more likely to perceive their work as a Calling (Van Zyl et al. 2010).

2.8.1 Calling and Well-being

The construct of Calling, defined as the realisation of one's full potential in the world of employment, that is guided by a transcendent force and associated with a sense of meaning (Hunter, Dik, & Banning, 2010) has received increased attention in organisational research. This is due to the growing evidence indicating the positive consequences of Calling on an individual's well-being and health (Dik & Duffy, 2009; Bunderson & Thompson, 2009).

According to Hall and Chandler's (2005) calling model of career success, people are not merely called to be at work, but rather called to act and engage in their work. Engagement, in turn, is a predictor of life satisfaction, an element of HWB (Seligman, 2011). Hagmaier and Abele (2015) have found that Calling does not only affect a person's current life satisfaction, but also his or her life satisfaction measured months later.

As mentioned above, the concept of Calling is one that has been linked to various well-being indicators, such as job satisfaction, life satisfaction and life meaning (Duffy et al. 2011; Duffy, Allan, Autin, & Bott, 2013), but few have attempted to situate Calling into an existing theory of well-being (Allan & Duffy, 2013). The construct has been shown to carry relevance for predicting well-being in nurses, although researchers have found mixed results for the relationship. Duffy, Allan, and Bott (2012) found that the presence of a Calling was correlated weakly with life satisfaction and moderately with meaning in life, whereas Nam and Kwon's (2013) results indicated that a sense of Calling was among the most salient factors influencing nurse happiness, as measured with the Level of Happiness Index, which regarded individuals' general level of happiness with various life domains, including their job and life satisfation (Chu, 2005). General feelings of happiness, i.e. PA and life satisfaction are both elements of HWB.

Therefore, it is proposed that care staff who experience a sense of Calling at work are likely to experience more positive feelings and emotions, and fewer negative feelings and emotions at work.

Hypothesis 10: Calling has a significant positive linear effect on PA.

Hypothesis 11: Calling has a significant negative linear effect on NA.

The emphasis of Calling has shifted recently from religious means and ends to a focus on personal fulfillment and meaning (Steger, Pickering, & Shin, 2010). This perspective recognises people's need for an overarching sense of meaning and purpose, and a desire to contribute to the greater good through their work (Dik & Duffy, 2009). In line with this pursuit of meaning through Calling, people tend to believe that work should provide meaning and that finding such meaning carries the same importance as aspects such as salary (Ryff & Singer, 1998). Evidently, it can be argued that Calling

contributes to experiences of purpose and meaning in work, which may lead to increased levels of the EWB dimension of Purpose In Life.

In addition, the discrepancy theory (Michalos, 1985) posits that called people are generally more satisfied because they experience both "outer congruence", defined as a person-environment fit, and "inner" congruence, defined as the fit between an individual's ideal and actual self. The experience of such congruence at work may have a positive impact on her experience of the EWB dimension of Autonomy, as this regards whether individuals feel that they are living in accordance with their true self or personal convictions. Therefore, it is hypothesised that employees who experience a sense of Calling in their work are likely to experience greater EWB.

Hypothesis 12: Calling has a significant positive linear effect on EWB.

2.9 Illegitimate Tasks

With regard to nursing, Peplau (1992) noted that "... (t)he behaviour of the nurse-as-a-person interacting with the patient-as-a-person has significant impact on the patient's well-being and the quality and outcome of nursing care" (p. 14). This means that nursing tasks that require more extensive nurse-patient interaction are more central to the occupation.

Aiken, Clarke, Sloane and Sochalski (2001) provided a descriptive look at the frequency with which nursing tasks were performed in a sample of 43 329 nurses. The nurses reported frequently having to perform both indirect care tasks that did not require nurse-patient interaction, as well as direct care tasks that did require said interaction. Gabriel, Diefendorff and Erickson (2011) adapted the task list used by Aiken et al. (2001) in order to assess indirect and direct care nursing activities. The indirect care nursing tasks, which did not require intensive patient contact included reviewing diagnostic test results, charting and patient history reviews. The direct care nursing tasks, which involved more face-to-face contact with patients, involved providing personal care like bathing, feeding and comforting and/or talking with patients.

With specific reference to nursing tasks in long-term care facilities Alvare, Dugan and Fuzy (2005) list the following duties as central to the profession: feeding residents; assisting residents with toileting and elimination needs; helping residents move safely around the facility; keeping residents' living areas neat and clean; encouraging residents to eat and drink; caring for supplies and equipment; helping dress residents; and helping residents with personal hygiene.

Similarly, non-nursing tasks have been conceptualised to include tasks that are not related to direct patient care or which do not require specific nursing skills (Al-Kandari & Thomas, 2008), as well as tasks that are below the nursing staff members' scope of practice (Bruyneel, Baoyue, Aiken, Lesaffre, Van den Heede, & Sermeus, 2012). Non-nursing tasks can generally be divided into the following

nine categories (Van Tonder, 1988; Aiken et al. 2001; Bruyneel et al. 2012): delivering and retrieving food trays; housekeeping duties; transporting patients; ordering supplies; obtaining equipment; discharge referral and transport arrangements (routine administration); routine phlebotomies (drawing blood); filling in for off-hours non-nursing services; and clerical duties.

In 1988, Van Tonder found that 46.3% of a professional nurse's time was spent on non-nursing tasks in a nine-hour shift. This was the last study conducted on non-nursing tasks in South Africa until the recent study by Bekker, Coetzee, Klopper, and Ellis (2014). These authors found that certain non-nursing tasks caused nurses to feel dissatisfied with their jobs. These tasks included cleaning patients' rooms and equipment, filling in for non-nursing services after hours, and obtaining supplies or equipment.

A recent investigation performed by Gabriel et al. (2011) examined the relationship between nurses' satisfaction with their daily task accomplishment as a job demand and the changes in their PA and NA. A distinction was also made between their direct patient care tasks and their indirect patient care tasks. Satisfaction with direct patient care task accomplishment significantly predicted both PA and NA, whereas indirect patient care task accomplishment uniquely predicted only NA.

The latter relationship may be explained due to the fact that indirect patient care tasks are not central to the nursing work role ethos (Bolton, 2000). This is because employees have socially constructed definitions of their work roles with some tasks being more directly important to a sense of role accomplishment and to the individual's self-concept (Ashforth & Kreiner, 1999). Similar to indirect patient care tasks are tasks of an illegitimate nature that are also expected to be strongly related to the NA of nursing staff.

Individuals tend to strive to maintain a positive self-image and it is this premise that forms the foundation of the Stress-as-Offense-to-Self (SOS) theory (Semmer, Jacobshagen, Meier, & Elfering, 2007). The theory argues that threats to an individual's self-image is at the core of many stressful experiences and that aspects of an individual's work may contain self-threatening social messages. The SOS theory posits that certain tasks send self-threatening messages and the concept of Illegitimate Tasks stems from this reasoning.

Illegitimate Tasks represent a specific task-related stressor that constitutes a threat to the self. Task-related stressors have the potential to threaten the self in various ways. Primarily, they may impede performance with specific reference to too high, unclear or conflicting demands or performance constraints (Sonnentag & Frese, 2013). Failing to reach performance standards may threaten the self, as many people's identity is linked to their occupations (Ashforth, Harrison, & Corley, 2008). However, tasks may carry relevance beyond reaching performance goals in the form of social signals or messages (Pierce & Gardner, 2004). For example, being granted autonomy may be perceived as

a message of trust in one's competence, whereas being provided with inadequate resources may be perceived as a lack of appreciation (Semmer & Beehr, 2013). Social messages may also be contained in the intrinsic characteristics of tasks. Some tasks can carry a positive message in terms of prestige, for example heart surgery, or it can be negative in terms of stigma, for example cleaning bathrooms viewed as "dirty work".

Semmer, Jacobshagen, Meier, Elfering, Beehr, Kalin and Tschan (2015) posit that tasks may also carry social messages that are not tied to their characteristics in terms of intrinsic aspects, or task design, but rather tied to the role constellations. According to them, a task may be perceived as completely acceptable in essence, yet contain a demeaning social message in certain circumstances. Tasks of this nature, which do not conform to what can be appropriately expected from an employee in terms of her role, are perceived as illegitimate. Illegitimate Tasks send an implicit message of disrespect that represents a potential threat to the self.

Tasks are perceived as illegitimate to the extent that employees believe that it should not be expected from them. The core aspect of perceiving a task as illegitimate is that employees believe that they should not be required to perform the task (Semmer, McGrath, Beehr, Dalton, Johansen, Ross, Boesen, Theorell, Burrows, Stanley & Chrousos, 2005). This judgement of illegitimacy can be made, based on the perception that the task is unreasonable or unnecessary. A task is considered unreasonable if it falls outside the range of the employee's occupational role. For example, a nurse may consider a task as unreasonable if she perceives the task as a service as opposed to a nursing activity, like opening the window for a patient who has recovered enough to do it by him-/herself (Sabo, 1990). Tasks are considered unreasonable if they are not in line with certain aspects of one's role, like one's level of experience, authority or expertise; for example, a newly graduated nurse being left in charge of an entire ward.

On the other hand, tasks that are considered unnecessary can also be seen as illegitimate. For example, data that needs to be recaptured because the computer systems are incompatible may be considered to be unnecessary. Therefore, unreasonable and unnecessary tasks share commonality in the fact that the employee believes that he/she should not be expected to perform them, and therefore considers them to be illegitimate (Björk, Bejerot, Jacobshagen, & Harenstam, 2013).

In essence, the same task may be considered to be legitimate or illegitimate based on the context. Tasks are not illegitimate due to their intrinsic qualities, but rather because of the contextual place, time or situation (Semmer et al. 2007). Being required to perform a task that should be done by someone else, i.e. an unreasonable task, or a task that is seen as a waste of time, i.e. an unnecessary task, signals a lack of respect for the person who is expected to do it. The legitimacy or illegitimacy of a task is related to whether the task constitutes part of the employee's core function or support function. Opening the window for a frail patient implies caring, which is part of the nurse's

core function, and therefore it is less likely to be perceived as illegitimate. However, being required to perform the same task for a recovered patient no longer constitutes part of the nurse's core function and could be perceived as illegitimate.

Motowidlo, Packard, and Manning (1986) included non-nursing tasks among stressful events for nurses while Gabriel et al. (2011) showed that direct care tasks were more strongly associated with task accomplishment satisfaction than indirect care tasks. In another study, only 10% of core tasks (e.g. direct care tasks) were perceived as illegitimate, but almost 65% of secondary tasks (e.g. indirect care tasks) were perceived as illegitimate (Semmer et al. 2015). Tasks may be considered legitimate as long as they support rather than hamper core activities (Semmer et al. 2015).

2.9.1 Illegitimate Tasks and Well-being

Illegitimate Tasks, as job stressors, have recently been found to impact employee well-being (Semmer et al. 2015). According to Semmer et al. (2015), Illegitimate Tasks is an aspect of job design that deserves more attention. Such tasks are described as tasks that are perceived as illegitimate to the extent that employees think that it cannot be reasonably expected from them to perform these tasks.

People's professional roles tend to become part of their identity (Ashforth et al. 2008) and implicitly, part of their self. The social identity theory suggests that people are likely to value their professional roles, defend them against negative evaluations and make favourable comparisons (Meyer, Becker, & Van Dick, 2006). Affirmation of one's professional identity is likely to induce pride and self-esteem, whereas threats to that identity are likely to be stressful (Warr, 2007). Along this reasoning of Illegitimate Tasks as stressors, it is expected that they should be associated with negative affective reactions. These reactions may, in turn, lead to more enduring symptoms of strain like burnout, irritability and low self-esteem (Sonnentag & Frese, 2013).

Stocker, Jacobshagen, Semmer, and Annen (2010) showed Illegitimate Tasks to be correlated with lower job satisfaction and increased feelings of resentment. Individuals were also found to have higher levels of cortisol, a stress indicator, as well as feeling less healthy than usual when they had more Illegitimate Tasks (Kottwitz, Meier, Jacobshagen, Kalin, Elfering, Hennig, & Semmer, 2013). Björk et al. (2013) showed associations among Illegitimate Tasks and feelings of stress and job dissatisfaction. Daily fluctuations in Illegitimate Tasks were also found to effect anger and depressed mood in addition to self-esteem and job satisfaction (Eatough, Meier, Igic, Elfering, Spector, & Semmer, 2015).

The inclusion of Illegitimate Tasks in this model of PWBW is justified by the aforementioned research substantiating that Illegitimate Tasks have significant relations with various indicators of well-being, specifically the HWB elements of life satisfaction and NA. Accordingly, this study hypothesises that

nursing staff who experience more Illegitimate Tasks will experience higher levels of NA and lower levels of PA.

Hypothesis 13: Illegitimate Tasks has a significant positive linear effect on NA.

Hypothesis 14: Illegitimate Tasks has a significant negative linear effect on PA.

2.10 Moderating effects

Prater and McEwen (2006) have posited that the underlying motivators for becoming a nurse are more likely to be intrinsic rather than external. This argument is in line with the results of their nursing study in which 75% of the participants have attributed their desire to becoming nurses to their caring, compassionate and empathetic nature. Curlin et al. (2006) suggest that, due to the salience of intrinsic motivations, healthcare providers can improve their motivation and satisfaction to the extent to which their environment provides them with opportunities to craft their work into a Calling. Wrzesniewski and Dutton (2001) also note that employees with intrinsic motivations typically engage in more extensive Job Crafting. In essence, an employee's sense of Calling might motivate him/her intrinsically to craft the job in order to align it with his/her Calling.

Similarly, employees may feel that the sense of purpose and meaning is missing from their formal job description, but instead of pursuing a completely different job they may choose to adjust their current job (Berg, Grant, & Johnson, 2010). They may do this by shaping the parameters of their job by engaging in job crafting behaviour (Newness, 2013). By crafting their jobs to align it more accurately with their Calling, the sense of purpose and meaning may be increased, which may ultimately affect their EWB.

It can, therefore, be argued that whether a person engages in Job Crafting and the extent to which he or she does, will have an impact on the relationship between Calling and EWB. Otherwise stated, it is argued that a care staff member who experiences a sense of Calling in her work will experience greater levels of EWB if she actively engages in job crafting behaviour to tailor her job to her preferences. Accordingly, it is hypothesised that Job Crafting moderates the relationship between Calling and EWB.

Hypothesis 15: The interaction effect between Calling and Job Crafting (Calling*Job Crafting) positively influences EWB.

One of the central assumptions of the JD-R model is the salient role of resources in reducing job demands, and the associated physiological and psychological costs (Bakker, Demerouti & Euwema, 2005; Tremblay & Messervey, 2011). The model also proposes that job resources particularly influence positive outcomes when job demands are high (Bakker & Demerouti., 2008). However,

Crawford, LePine and Rich (2010) argue that, while challenging demands have the potential to promote personal growth and future gain, hindering demands are likely to thwart personal growth and goal attainment.

As hypothesised earlier, employees who experience a sense of Callling in their work are expected to experience greater levels of EWB, but the interference of a hindering demand may deminish the strength of this relationship. Illegitimate Tasks, as a hindrance, is expected to impact the relationship between Callling and EWB of care staff. A care staff member may feel called to her profession and find meaning in caring for her patients. This will impact her levels of EWB, but if she is required to consistently perform tasks that are unrelated to caring she may be less likely to feel that she is living out her purpose, and accordingly, her levels of EWB can be impacted negatively. Therefore, it is hypothesised that employees' experiences of Illegitimate Tasks will moderate the strength of the relationship between Callling and EWB of care staff.

Hypothesis 16: The interaction effect between Calling and Illegitimate Tasks (Calling*Illegitimate Tasks) negatively influences EWB.

2.11 Summary

This chapter provides an overview of the constructs included in this study. The theoretical arguments justifying the inclusion of Illegitimate Tasks, Callling, OCSE and Job Crafting in a nomological network of variables believed to offer a plausible explanation of the variance in the underlying psychological processes of PWBW of geriatric care staff were explicated. The model depicting this theoretical argument was developed, using the JD-R model as a framework. In addition to the JD-R model, the Steyn-Boers model of PWBW's conceptualisation of PWBW was also utilised in the development of the model.

This structural model will be tested in order to determine whether it does indeed offer a legitimate explanation for the variance of geriatric care staff's PWBW.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Striving to find valid and credible explanations of natural phenomena represents the epistemic ideal of science (Babbie & Mouton, 2001). In pursuit of this ideal, chapter 2 provided a systematic and reasoned theoretical argument in response to the research initiating question posed in chapter 1. The aforementioned literature, and accompanying hypotheses, culminated into a PWBW conceptual model, presented in this chapter, in answer to the research initiating question. The predictions made by the substantive hypotheses represented in the model had to be empirically tested in order to establish their validity. The PWBW conceptual model (Figure 3.1) can be considered valid to the extent that the reduced structural model (Figure 3.2) fits the available empirical data and the multiple regression analysis (conducted to test the interaction effects entailed in the conceptual model) return satisfactory results. However, the claim of validity and credibility depends greatly on the methodology used to arrive at the verdict. This chapter, therefore, provides a detailed description of the methodological choices that were made and the rationale underlying these choices that contribute to serving the epistemic ideal of science through objectivity and rationality.

In light of the above, this chapter delineates a) the substantive research hypotheses; b) the research design; c) the statistical hypotheses; d) the sampling size and procedure; e) the measurement instruments chosen to operationalise the latent variables; f) the statistical techniques used to empirically evaluate the psychometric integrity of each measurement instrument; g) the psychometric integrity of each instrument as well as providing a depiction of the overarching measurement and structural model of the PWBW of aged care nursing staff.

3.2 Research Purpose

The largest group of employees in the health care industry consists of nursing staff and they play a significant role in the quality of care provided to patients (Giallonardo, Wong, & Iwasiw, 2010). Evidence suggests that nursing staff experience alarmingly low levels of work engagement and high levels of burnout which leads to adverse consequences including decreased performance and increased turnover (Fasoli, 2010; Salanova, Lorente, Chambel, & Martinez, 2011). Khamisa, Peltzer, and Oldenburg (2013) also note that high levels of work related stress, burnout and poor health are common within the nursing profession. The aforementioned sheds light on the need to understand the factors that might influence nursing staff's work related well-being (Hafner, van Stolk, Saunders, Krapels, & Baruch, 2015).

Nursing staff employed within aged care facilities has received less attention within the well-being literature than those employed by hospitals, despite the unique challenging nature of caring for

geriatric patients. The uniquely strained working context of aged care facilities can be attributed to the long duration of patient care, the frail nature of the patients, as well as their distressed behaviour which might serve as stressors and accordingly impact on nursing staff performance and well-being (Schmidt, Dichter, Palm, & Hasselhorn, 2012).

In addition to affecting the profitability of organisations, poor mental health of nurses can adversely impact patient safety, quality of care provided and the performance of nursing staff (Sexton, Thomas, & Helmreich, 2000) within aged care facilities. This warranted the exploration of factors that might explain variance in the work-related well-being of nursing staff, which served as the purpose of this current research.

3.3 Research aims, questions and objectives

This study aimed to propose a nomological network of variables that provides a plausible explanation for the variance in the PWBW of geriatric care staff. The proposed model was developed at the hand of the JD-R model, which served as the theoretical underpinning of the study, and PWBW was conceptualised according to Dagenais-Desmarais and Savoies (2012) Index of PWBW. Improved understanding of the psychological processes that underlie PWBW could provide organisations, specifically aged care facilities in this case, with increased insight regarding the factors that influence their employees' well-being. This information could, in turn, be used to tailor well-being interventions and increase its effectiveness in affecting employee well-being.

Framed within the context of the JD-R model, the following research question has been formulated: Why does variance in the PWBW of aged care / geriatric nursing staff occur? Further broken down the research question could read: Does Calling and OCSE adequately explain variance in SWB and ultimately PWBW through the mediating, and/or moderating constructs of Illegitimate Tasks and Job Crafting?

The research question(s) was addressed through attempting to achieve the following research objectives:

- develop a conceptual model that depicts the complex dynamics of the variables proposed to explain variance in the psychological processes underlying PWBW,
- test the reduced structural model fit with LISREL,
- evaluate the significance of the hypothesised paths in the model,
- examine modification indices in order to determine recommended changes to the model,[3] as well as
- test the interaction effects in the conceptual model with moderated regression.

[3] The model modifications suggested by the results were not empirically tested in this study, but are discussed as recommendations for future research in chapter 5

3.4 Substantive research hypotheses

This study aimed to determine whether multiple elements of the JD-R Model, including specific job demands, personal resources and Job Crafting, can be used to differentiate amongst aged care nursing staff's levels of PWBW. The theoretical arguments from the literature study resulted in the inclusion of the following JD-R model variables, namely Job Crafting, OCSE, Calling, and Illegitimate Tasks, as well as the following well-being factors, namely HWB; i.e. PA and NA, EWB and PWBW. The resultant conceptual model is presented in Figure 3.1.

The overarching substantive research hypothesis (H_{01} and H_{02}) of this study stated that the proposed reduced structural model (Figure 3.2) provides a plausible explanation of the variance in the PWBW of aged care nursing staff. This hypothesis was broken down into the following 14 path-specific research hypotheses:

Hypothesis 3[4]: PA (η_3) has a significant positive linear effect on PWBW (η_1).
Hypothesis 4: NA (η_2) has a significant negative linear effect on PWBW (η_1).
Hypothesis 5: EWB (η_4) has a significant positive linear effect on PWBW (η_1).
Hypothesis 6: OCSE (η_6) has a significant positive linear effect on EWB (η_4).
Hypothesis 7: PWBW (η_1) has a significant positive linear effect on OCSE (η_6).
Hypothesis 8: OCSE (η_6) has a significant positive linear effect on Job Crafting (η_5).
Hypothesis 9: Job Crafting (η_5) has a significant positive linear effect on EWB (η_4).
Hypothesis 10: Calling (ξ_1) has a significant positive linear effect on PA (η_3).
Hypothesis 11: Calling (ξ_1) has a significant negative linear effect on NA (η_2).
Hypothesis 12: Calling (ξ_1) has a significant positive linear effect on EWB (η_4).
Hypothesis 13: Illegitimate Tasks (ξ_2) has a significant positive influence on NA (η_2).
Hypothesis 14: Illegitimate Tasks (ξ_2) has a significant negative influence on PA (η_3).

It was not possible to test the hypothesised interaction effects within the PWBW structural model. Initially, the interaction effects were included in the structural model, but the model failed to converge. It is possible that the model failed to converge because the number of parameters to be estimated were too high, given the sample size (n = 206). Consequently, the two hypothesised interactions effects (indicated in the conceptual model) were tested with two moderated multiple regression analyses, conducted via SPSS version 22.0. In order to estimate these effects with multiple regression the method of mean centering was used (Cohen, 1978; Cronbach, 1987). This method (discussed in more detail in section 4.6) is useful when the predictor variables in an equation is too highly correlated (Little, Bovaird, & Widaman, 2006), as was the case for these particular regressions. The interaction effects were thus included in the overall conceptual model, but not in the structural

[4] The numbering of the path-specific hypotheses starts at 3 as the first hypotheses regards the overarching substantive research hypotheses (H_{01} and H_{02})

model. These two hypotheses were also not assigned the LISREL notation, utilised for the aforementioned hypotheses. These two hypotheses are:

Hypothesis 15: The interaction effect between Calling and Job Crafting (Calling*Job Crafting) has a significant positive linear effect on EWB.

Hypothesis 16: The interaction effect between Calling and Illegitimate Tasks (Calling*Illegitimate Tasks) has a significant positive linear effect on EWB.

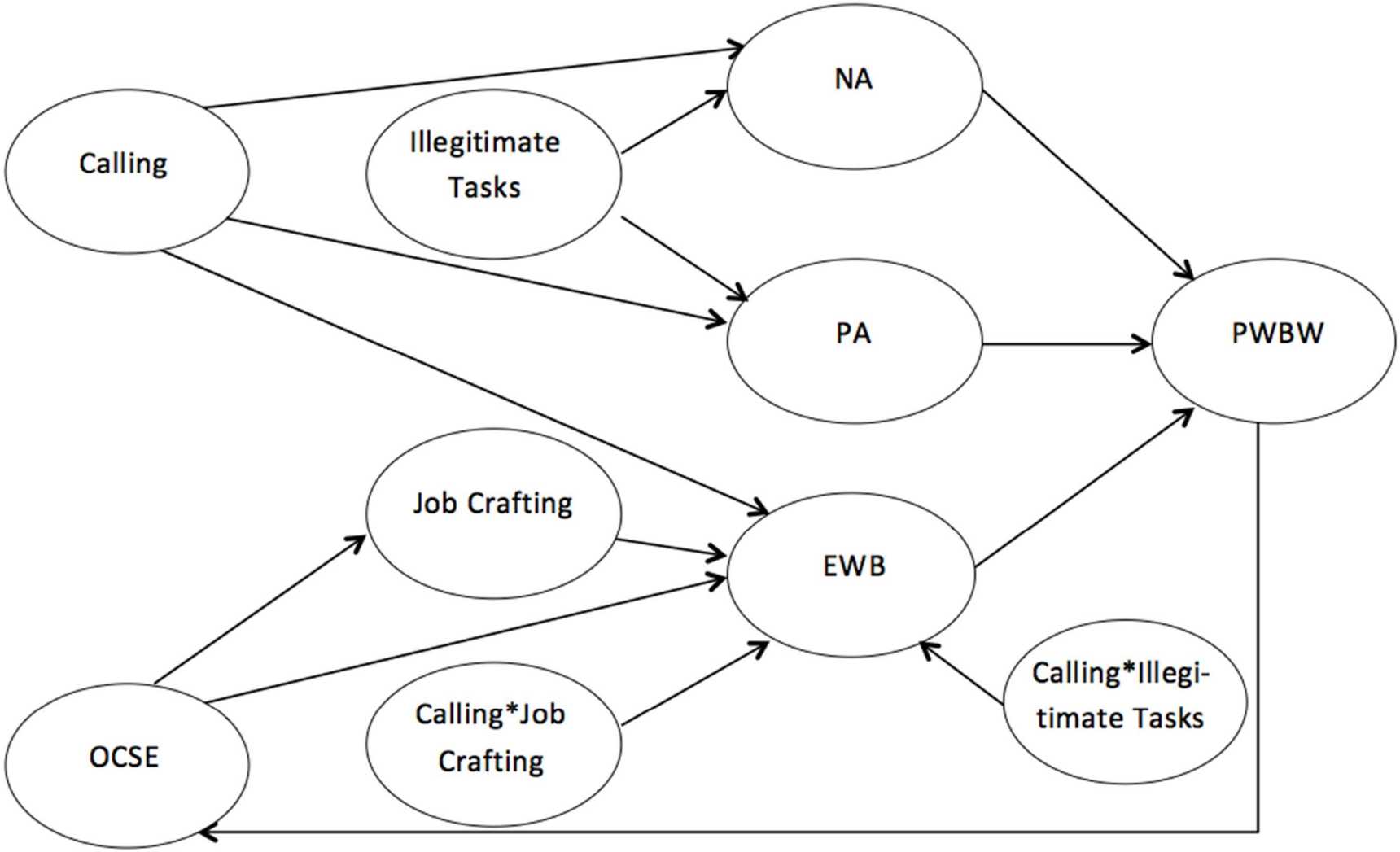

Figure 3.1 Proposed conceptual model of the PWBW of geriatric care staff

3.5 Statistical hypotheses for the reduced structural model

Statistical hypotheses are formulated according to the logic underlying the research design and the nature of the statistical analyses. The proposed PWBW structural model (Figure 3.2) contains multiple endogenous and exogenous latent variables and causal paths between these variables. The statistical hypotheses were formulated according to structural equation modelling (SEM) convention associated with LISREL (Jöreskog & Sörbom, 1996).

In order to evaluate how well the reduced structural model reproduces the obtained data, the model was tested against an exact fit and close fit null hypothesis. An exact fit would infer that the proposed structural model provides a precise reproduction of the psychological processes that underlies the PWBW of geriatric nursing staff. Otherwise stated, an exact fit indicates that the model perfectly explains the co-variance between the suggested indicator variables. Accordingly, this is what the following exact fit null hypothesis (hypothesis 2a[5]) claimed.

H_{02a} exact fit: RMSEA = 0
H_{a2a} exact fit: RMSEA > 0

It should, however, be noted that it is highly unlikely that a structural model will achieve an exact fit. Therefore, a more realistic aim is that of achieving close fit (hypothesis 2b), which takes the error of approximation into account. When the significance of the error of approximation within the population is equal to, or less than a p-value of .05, the model can be interpreted as a close reproduction of reality.

H_{02b} close fit: RMSEA ≤ 0.05
H_{a2b} close fit: RMSEA > 0.05

The overarching research hypothesis was dissected into 14 path-specific research hypotheses. Twelve of these hypotheses were included in the reduced structural model and therefore, 12 path coefficient statistical hypotheses were formulated and tested via SEM (Table 3.1). The remaining 2 hypotheses could not be tested via SEM and accordingly, multiple regression analyses were conducted which did not require the formulation of statistical hypotheses according to the LISREL convention.

[5] The overarching substantive research hypothesis is dissected into an exact fit and close fit null hypothesis for the measurement model (H_{01a} and H_{01b}) and the structural model (H_{02a} and H_{02b}). The hypotheses are numbered in this sequence as the measurement model results are presented before the structural model results.

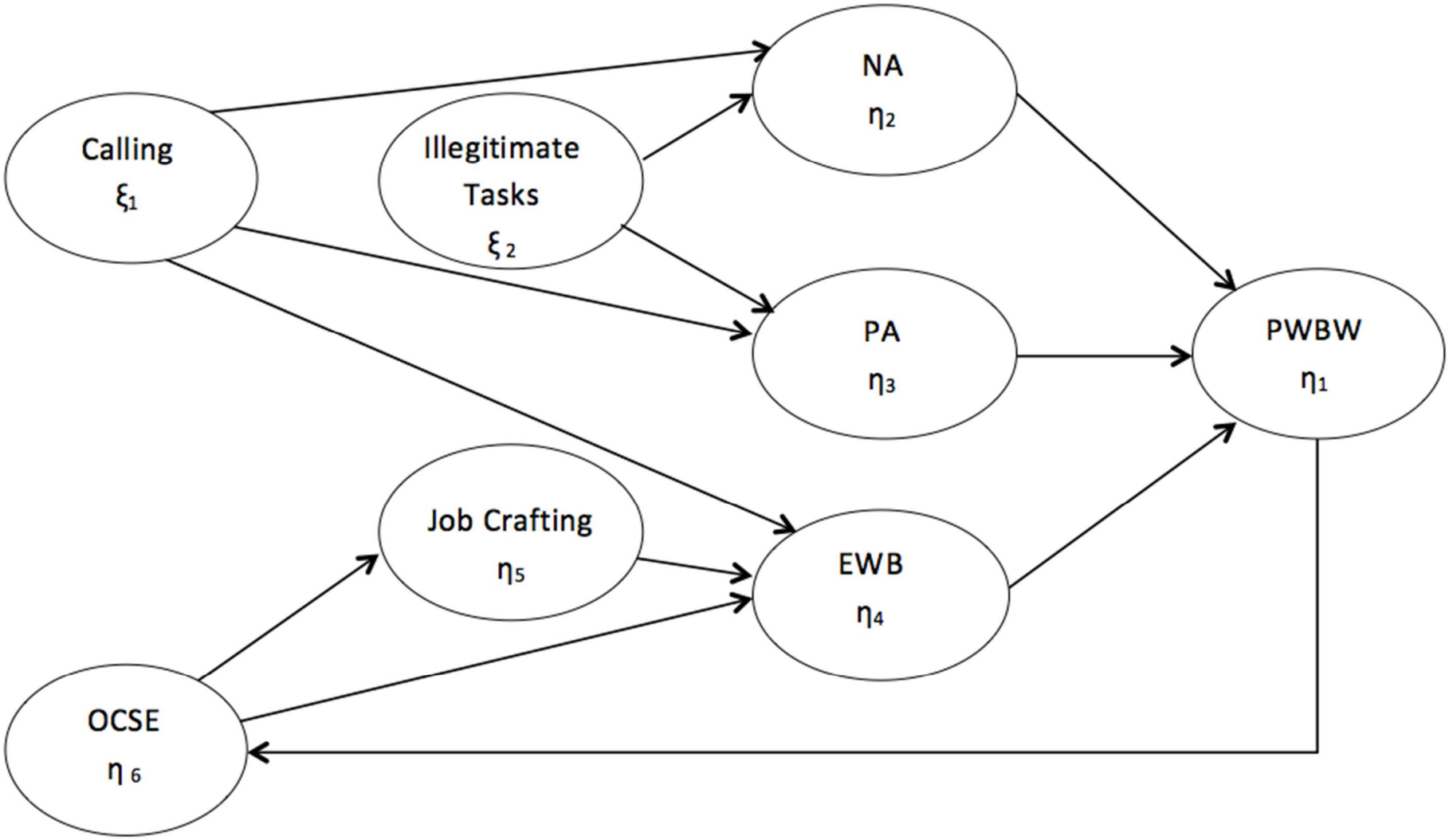

Figure 3.2. Structural model of PWBW of geriatric care staff

Hypothesis 3: PA has a significant positive linear effect on PWBW.

H_{03}: $\beta_{13} = 0$

H_{a3}: $\beta_{13} > 0$

Hypothesis 4: NA has a significant negative linear effect on PWBW.

H_{04}: $\beta_{12} = 0$

H_{a4}: $\beta_{12} < 0$

Hypothesis 5: EWB has a significant positive linear effect on PWBW.

H_{05}: $\beta_{14} = 0$

H_{a5}: $\beta_{14} > 0$

Hypothesis 6: OCSE has a significant positive linear effect on EWB.H_{06}: $\beta_{46} = 0$

H_{a6}: $\beta_{46} > 0$

Hypothesis 7: PWBW has a significant positive linear effect on OCSE.

H_{07}: $\beta_{61} = 0$

H_{a7}: $\beta_{61} > 0$

Hypothesis 8: OCSE has a significant positive linear effect on Job Crafting.

H_{08}: $\beta_{56} = 0$

H_{a8}: $\beta_{56} > 0$

Hypothesis 9: Job Crafting has a significant positive linear effect on EWB.

H_{09}: $\beta_{45} = 0$

H_{a9}: $\beta_{45} > 0$

Hypothesis 10: Calling has a significant positive linear effect on PA.

H_{010}: $\Upsilon_{31} = 0$

H_{a10}: $\Upsilon_{31} > 0$

Hypothesis 11: Calling has a significant negative linear effect on NA.

H_{011}: $\Upsilon_{21} = 0$

H_{a11}: $\Upsilon_{21} < 0$

Hypothesis 12: Calling has a significant positive linear effect on EWB.

H_{012}: $\Upsilon_{41} = 0$

H_{a12}: $\Upsilon_{41} > 0$

Hypothesis 13: Illegitimate Tasks has a significant positive linear effect on NA.

H_{013}: $\Upsilon_{22} = 0$

H_{a13}: $\Upsilon_{22} > 0$

Hypothesis 14: Illegitimate Tasks has a significant negative linear effect on PA.

H_{014}: $\Upsilon_{32} = 0$

H_{a14}: $\Upsilon_{32} < 0$

Table 3.1.
Path coefficient statistical hypotheses

Hypothesis 3	**Hypothesis 4**	**Hypothesis 5**	**Hypothesis 6**
H_{03}: $\beta_{13} = 0$	H_{04}: $\beta_{12} = 0$	H_{05}: $\beta_{14} = 0$	H_{06}: $\beta_{46} = 0$
H_{a3}: $\beta_{13} > 0$	H_{a4}: $\beta_{12} < 0$	H_{a5}: $\beta_{14} > 0$	H_{a6}: $\beta_{46} > 0$
Hypothesis 7	**Hypothesis 8**	**Hypothesis 9**	**Hypothesis 10**
H_{07}: $\beta_{61} = 0$	H_{08}: $\beta_{56} = 0$	H_{09}: $\beta_{45} = 0$	H_{010}: $\Upsilon_{31} = 0$
H_{a7}: $\beta_{61} > 0$	H_{a8}: $\beta_{56} > 0$	H_{a9}: $\beta_{45} > 0$	H_{a10}: $\Upsilon_{31} > 0$
Hypothesis 11	**Hypothesis 12**	**Hypothesis 13**	**Hypothesis 14**
H_{011}: $\Upsilon_{21} = 0$	H_{012}: $\Upsilon_{41} = 0$	H_{013}: $\Upsilon_{22} = 0$	H_{014}: $\Upsilon_{32} = 0$
H_{a11}: $\Upsilon_{21} < 0$	H_{a12}: $\Upsilon_{41} > 0$	H_{a13}: $\Upsilon_{22} > 0$	H_{a14}: $\Upsilon_{32} < 0$

3.6 Research Design

Ideally, the overarching substantive research hypothesis and the path-specific research hypotheses should be tested in a way that provides unambiguous empirical evidence for, or against, the hypotheses. The method through which the validity of the hypotheses is tested is referred to as the study's research design.

Multiple factors need to be considered when deciding which research design would be the most appropriate for the study. First, it needs to be considered whether or not the exogenous latent variables in the hypothesised structural model can be experimentally manipulated. Second, the number of exogenous and endogenous variables need to be considered and third, it needs to be considered whether or not causal linkages between the endogenous latent variables in the structural model are hypothesised. Should causal paths between exogenous variables be hypothesised then these complex explanatory hypotheses can be tested as an integrated whole via structural equation modelling (SEM).

In explanatory research, when the researcher does not have manipulative control over at least one of the independent variables then an *ex post facto* research design is used. This is usually either because the constructs are already manifested or because they inherently cannot be manipulated (Kerlinger & Lee, 2000). The inability of the researcher to manipulate the independent variable is a major limitation of the *ex post facto* design as the degree of unambiguousness of the empirical findings depends on the research design's ability to control variance. However, as the majority of

research problems in the social sciences do not lend themselves to experimental enquiry, *ex post facto* research designs are considered appropriate.

As the exogenous variables in this study could not be manipulated, as well as the fact that the model contains more than one endogenous variable that are affected by more than one exogenous latent variable and causal relations were hypothesised between the variables, an *ex post facto* correlational design was deemed appropriate for testing the PWBW structural model via SEM.

Upon using an *ex post facto* correlation design with the use of SEM as the statistical analysis technique the researcher calculates the covariance between the observed variables included in the study, this is known as the observed covariance matrix. In order to reproduce the observed covariance matrix as accurately as possible the estimates for the freed comprehensive LISREL model are obtained (Diamantopoulos & Siguaw, 2000). The comprehensive LISREL model refers to the combined measurement and structural models, where the measurement model specifies the hypothesised relations between the indicator and latent variables and the structural model describes the hypothesised relations between the various latent variables. If the fitted model fails to accurately reproduce the observed covariance matrix, it can be concluded that the hypothesised structural model does not provide a plausible explanation for the observed covariance matrix. However, a high degree of fit between the observed and estimated covariance matrices would only imply that the psychological processes entailed in the structural model provides only one plausible explanation for the observed covariance matrix (Theron, 2012).

3.7 Sampling

The current study attempted to increase our understanding of why variance in PWBW occurs amongst nursing staff employed by aged care facilities in the South African context. Implicitly the target population for this study was all nursing staff, including nurses, sisters and care workers, employed by aged care facilities in South Africa. The ideal would be to study the entire target population, but due to limited resources researchers generally use sampling as a solution to this unattainable ideal. The purpose of sampling is to select a portion of individuals from the population as representatives of the particular target population (Kerlinger & Lee, 2000).

Non-probability sampling was utilised in this study. More specifically a convenience sampling method was employed. This refers to a sampling procedure of using individuals who are readily available to the researcher (Kerlinger & Lee, 2000). Kerlinger and Lee (2000) describe convenience sampling as the weakest form of sampling, but add that it is the most frequently used sampling procedure and does not necessarily deserve its bad reputation.

The concerned population was nursing staff employed by aged care facilities in South Africa. The data was gathered from aged care facilities in the Gauteng Province. The sample of aged care

facilities was chosen based on their willingness to cooperate and their accessibility to the researcher. Nursing staff from a total of 4 aged care facilities was included in the sample. The included aged care facilities are managed by the same executive management team. The sample consisted of 206 nursing staff members, including care workers and nurses by profession.

This sample size was deemed appropriate, considering the statistical method of SEM that was used to test the fit of the proposed model. Gorsuch (1983) suggests that in order to produce reliable estimates using SEM, at least five participants per construct or a minimum of 100 individuals should be included in the data analysis. According to Bagozzi and Yi (2012) SEM requires a sample size of not less than 100, and preferably above 200, whilst Hair, Black, Balbin, Anderson and Tatham (2006) recommend that a typical appropriate sample size is greater than 200, but not exceeding 400.

3.8 Research Participants

The participants that were invited to participate in this study were all currently employed by South African owned aged care facilities within the Gauteng Province. Participants that occupied positions included under the definition of nursing staff[6] were invited to participate.

3.9 Data Collection

Upon receiving ethical clearance to conduct the research, the executive management team of the four aged care facilities was approached to formally invite the employees at the facilities to participate in the study. After the management team provided permission that their employees may be approached to participate in the study, they provided specific time slots in which the data was systematically gathered. All employees who met the inclusion criteria, i.e. those employed as registered nurses, staff nurses, auxiliary nurses or care workers, were encouraged to participate, but participation remained completely voluntary. At each facility a room was made available were the participants could complete the questionnaire without interruption. The researcher distributed the hard copy questionnaires to the participants, explained the purpose of the study and assisted them in completing the demographic information. The researcher remained in the room in order to ensure standardised testing conditions and assist the participants with queries. Participants returned the completed questionnaires by dropping it in a collection box. The survey was anonymous and included sections that addressed informed consent (appendix a) and demographic information, in addition to the questionnaires measuring the various constructs.

[6]This includes both licensed and unlicensed staff members who are directly involved in the provision of health and personal services, within the constraints of the relevant legislation, to meet residents' care requirements. This definition includes registered nurses, staff nurses, auxiliary nurses and care workers by profession.

3.10 Ethical Considerations

Research participants were specifically made aware of the voluntary nature of participating in this study. Individuals were informed about, and had to agree with, various aspects of the study in order for them to make an informed decision regarding their participation. This was done in accordance with the Ethical Rules of Conduct for Practitioners Registered under the Health Professions Act (Act no. 56 of 1974) Annexure 12, which requires communication of the objective and purpose of the study; what participation in the study entailed; the potential risks, discomforts or benefits associated with the research; how the research results are to be used; the identity of the researchers and what their affiliation is; where additional inquiries regarding the research could be addressed; their rights as participants and where additional information concerning their rights could be obtained.

The aforementioned issues were addressed in an informed consent document which was submitted to the Research Ethics Committee (REC) Human Research (Humanities) of Stellenbosch University in the process of obtaining ethical clearance to conduct the research. Ethical clearance was granted by the REC (appendix b) upon inspection of the required documents, thereby confirming that all ethical concerns were sufficiently addressed by the researcher.

3.11 Data Analysis

The type of research questions addressed in a study usually determines the data analyses techniques used. The following sections elaborate on the various quantitative techniques of data analysis that was employed in this study, namely item analysis and SEM, particularly confirmatory factor analysis (CFA).

3.11.1 Missing Values

Missing values tend to arise due to non-response of participants (Mels, 2006) and before the data could be analysed these values needed to be addressed. The method by which missing values are imputed depends on the number of missing values as well as the nature of the data, particularly whether the data shows a multivariate normal distribution. There are various methods to treat missing values, which include list-wise deletion, pair-wise deletion, imputation by matching, multiple imputations, and full information maximum likelihood.

Investigation of these aforementioned methods led to the conclusion that imputation by matching seemed like the most suitable method to apply in this study. Imputation by matching involves substituting real values for missing values. The substitute values are derived from one or more other cases that show a similar response pattern over a set of matching variables (Enders & Bandalos, 2001). This method is employed when the assumption of multivariate normality for the data is not met, as was the case in this research. Section 3.12.2 provides a discussion of the process of imputation by matching used to treat this study's missing values.

3.11.2 Item Analysis

Each variable in the proposed structural model was measured by a specific instrument. The purpose of these instruments was to measure an individual's standing on each respective construct. The items contained in the questionnaires act as stimuli to elicit participants' responses in terms of their behaviour regarding the underlying construct being measured. Therefore, the item responses record the behaviour that underlies the construct and makes it observable. Items can, however, be poor in eliciting responses.

In order to identify and eliminate possible items that do not contribute to an internally consistent description of the latent dimensions comprising the relevant construct, item analysis was performed. Item analysis was also used to establish whether the items successfully reflected the intended variable. Poor items, i.e. items that did not contribute to the internal consistency of the relevant latent dimension, were considered for elimination from the scale.

The basket of evidence that was considered during the item analysis included the following measurement theory item statistics: (a) the item-total correlation, (b) the squared multiple correlation, (c) the change in subscale reliability if the item were to be deleted, and (d) the inter-item correlations. SPSS version 22.0 was utilised to perform the item analyses.

3.11.3 Confirmatory Factor Analysis (CFA)

In addition to item analysis, this study also made use of factor analysis. According to Williams, Brown and Onsman (2010) factor analysis has three prominent uses. First, it reduces a large number of variables into a smaller set of variables, referred to as factors. Second, it establishes underlying dimensions between measured variables and latent constructs, thus allowing for the formation and refinement of theory. Third, it provides construct validity evidence of self-report scales. There are two major classes of factor analysis, namely exploratory factor analysis (EFA) and CFA. CFA was utilised in this study. CFA was primarily used in this study with the purpose of testing the original factor structures of the various constructs on the sample. In the instances that CFA returned concerning results EFA was performed in order to gain clarity on the factor structures.

According to Williams, Brown, and Onsman (2010, p.3) CFA is a form of SEM that allows the researcher to test a proposed theory that has certain "assumptions and expectations based on priori theory regarding the number of factors and which factor theories or models best fit." This means that CFA is used to evaluate the quality of the measurements, in terms of the obtained data, in order to test how well the measured variables represent a smaller number of constructs (Hair, Black, Balbin, Anderson, & Tatham, 2006). CFA therefore requires that the researcher specify not only the number of factors that exist within a set of variables, but also the relationships between the observed variables and factors, before the results can be computed (Steyn, 2011). CFA is usually performed only after the underlying structure has been determined by prior analyses, typically by performing EFA, based

on theoretical arguments (Brown, 2015). In essence, CFA serves the purpose of corroborating pre-defined factor structures. In this study CFAs were conducted to test the original factor structures of the respective measurement instruments. Only once this factor structure is confidently accepted can the researcher continue to evaluate the research questions (Boers, 2014).

The process of CFA requires a mathematical operation to minimise the difference between the sample and the model-implied variance-covariance matrices, i.e. a fitting function. Maximum likelihood (ML) is the fitting function most widely used in applied CFA. The underlying principle of ML is finding the model parameter estimates that maximise the probability of observing the available data if the data were collected from the same population again (Moore, 2012).

The use of ML requires some key assumptions about the data to be met (Moore, 2012). First, the sample size is large enough. All efforts were made to obtain a sample of appropriate size (n = 206) in this study. The second requirement relates to the variable type, stating that the indicators of the factors have been measured on continuous scales. All of the factors included in this study were measured using ordinal scales. For the purposes of this study however, the items from all the questionnaires were specified to be continuous[7] for all CFA analyses. Third, the indicator variables follow a multivariate normal distribution. In order to ensure that this assumption is not violated, the normality of the various subscales' indicator variables was inspected. Robust maximum likelihood (RML; Tabachnick & Fidell, 2001) was employed if the null hypothesis of multivariate normality was rejected. The normality of all of the instruments utilised in this study was inspected and in every instance the last mentioned assumption was violated and the null hypothesis rejected. Consequently, RML was employed to derive the parameter estimates for each instrument.

The acceptability of the CFA model was evaluated by examining three major aspects of the results (Moore, 2012). First the overall goodness-of-fit of the model was examined. Goodness-of–Fit (GOF) statistics addresses the extent to which the model-implied relationships are equivalent to the relationships seen in the sample data. Widely accepted indices of GOF, relevant to this study, include the Satorra-Bentler chi-square, the standardised Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Non-Normed Fit Index (NNFI), and the Standardised Root Mean Residual (SRMR) all of which are elaborated on in this section. Hair et al. (2006) suggest that appropriate cut-off values for the aforementioned GOF indices should be determined by using the model characteristics, such as sample size and the number of observed variables in the model. Table 3.2 depicts the fit indices considered appropriate for a sample of less than 250 observations (as is the case of this research with n = 206).

[7] In using maximum likelihood estimation, no severe distortion of the parameter, standard error and chi-square estimates are observed where a) ordered scales are specified to be continuous and b) where variables are moderately skewed/kurtotic (Muthen & Kaplan, 1985). Thus, all items in this study could be treated as continuous.

Table 3.2.
Suggested cut-off values of fit indices demonstrating Goodness-of-Fit given differential model complexity

	N<250		
GOF statistics	**m ≤ 12**	**12 < m < 30**	**m ≥ 30**
CFI/NNFI	>.97	>.95	>.92
SRMR	Could be biased upward, use other indices	≤ .08	<.09
RMSEA	<.08	<.08	<.08
Models in this study that comply with the different criterion	PANAS MCM N-OCSE BITS	IPWBW JCS	Ryff's PWB Scale Measurement Model Structural Model

Note: m = number of observed variables; N applies to number of observations per group when applying CFA to multiple groups simultaneously; CFI = comparative fit index; NNFI = non-normed fit index; PANAS = Positive and Negative Affect Scale: MCM = Multidimensional Calling Measure; N-OCSE = Occupational Coping Self-Efficacy of Nurses; BITS = Berns Illegitimate Tasks Scale, IPWBW = Index of Psychological Well-being at Work; JCS = Job Crafting Scale; Ryff's PWB Scale = Ryff's Psychological Well-Being Scale; Measurement Model = Measurement model of the PWBW of aged care nursing staff; Structural Model = Structural model of the PWBW of aged care nursing staff.

(Hair et al. 2006)

a) Satorra – Bentler scaled chi square (S-Bχ2)

The Satorra-Bentler chi-square statistic incorporates a scaling correction aimed at improving the chi-square approximation of goodness-of-fit test statistics in small samples, large models and in non-normal data. Calculation of this statistic occurs when robust estimation techniques are employed. Data that departs significantly from multivariate normality requires calculation of the Satorra-Bentler scaled chi square statistic (S-Bχ2) in order to provide an improved estimate of the fit of a model (Satorra & Bentler, 2001).

b) Standardised root mean residual (SRMR)

The SRMR is the standardised square root of the mean of the squared residuals. Otherwise stated is it the average value of the residuals between individual observed and estimated covariance and variance terms. The average SRMR value is 0, thus both positive and negative residuals can occur (Hair et al. 2006). Better fit is represented by lower SRMR values, whilst worse fit is indicated by higher SRMR values. In research with a sample size of less than 250 respondents (as is the case in this research study), and with the number of observed variables ranging between 12 and 30 (which applies to most of the measurement models in this study), a cut-off value of .08 is generally accepted to indicate good model fit (Hair et al. 2006).

c) The root mean square error of approximation (RMSEA)

The RMSEA is a dependable representation of how well the model fits not only the involved sample, but also the population. This statistic avoids issues regarding sample size by analysing the difference between the model, with optimally chosen parameter estimates, and the population covariance matrix (Hooper, Coughlan, & Mullen, 2008). A RMSEA value of 0 indicates the best fit, with the fit decreasing as the RMSEA value increases. Generally, RMSEA values below .08 are indicative of acceptable fit, with values below .05 suggesting a very good fit (Hair et al. 2006).

d) Comparative fit index (CFI) and non-normed fit index (NNFI)

The closer the CFI and NNFI values are to unity (i.e. a value of 1.00); the better the fit of the particular model. Hair et al. (2006) recommend that CFI and NNFI values of .92 or higher provide a strong suggestion of a well-fitting model for a sample with less than 250 observations, and more than 30 observed variables. However, these cut-off values for good fit may change if less observed variables are present in the specified model (Table 3.2).

3.12 Measurement Instruments

In order to evaluate the fit of the PWBW structural model, the latent variables comprising the proposed model had to be operationalised. Diamantopoulos and Siguaw (2000) noted that if the quality of the measurement instruments is drawn into question, then any evaluations of the relationships presented in the structural model will prove problematic. Consequently, measures of the various exogenous and endogenous variables contained in the model were identified and the literature on the psychometric properties of the respective instruments was reviewed.

The subsequent sections present the aforementioned literature, which served to determine the psychometric integrity of the indicator variables, which were used to operationalise the latent variables in the proposed model. This includes evidence supporting the validity and reliability of the respective measurement instruments. The successes with which the indicator variables represent the involved latent variables were empirically evaluated via item analysis, CFA and, where necessary, EFA.

Item analyses were performed to determine whether the items comprising each respective measure reflected a common underlying variable and whether the items sensitively differentiated between the different states of the variable being measured. Poor items were flagged and considered for deletion. Where the CFA results for a model suggested poor fit between the observed data and the original theoretical model, EFA was performed to investigate the CFA results further.

3.12.1 Data Preparation

The entirety of the raw data was captured in a comprehensive excel spreadsheet before being imported into SPSS. Random cross-checks of the completed questionnaires with the captured data were done to ensure the accuracy of the data set. All negatively coded items contained in the composite questionnaire were recoded.

3.12.2 Missing Values

The presence of missing values was due to some participants' random non-responses to the hardcopy questionnaire. Missing values needed to be addressed before the data could be analysed. The missing values were treated using the method of multiple imputation, as described in section 3.11.1.

The composite questionnaire consisted of 125 items and the sample consisted of 206 individuals. Therefore, the final data set consisted of 25 750 potential item responses of which 263 values were missing. The 263 missing values comprised only 1.02% of the total data set. Imputation by matching can only be used to treat missing values if the total missing values comprises less than 30% of the total amount of observations. With 1.02% being significantly lower than 30% this condition was met and imputation by matching was employed to treat the missing values. The distribution of missing values across the items of the various measurement models and across the items of the composite questionnaire is depicted in Table 3.3 and Table 3.4 respectively.

Table 3.3
Distribution of missing values across measurement model scales

Instrument	Number of missing values
PANAS (10 item scale)	28
Ryff's Well-being Scale (42 item scale)	89
Index of Psychological Well-being at Work (25 item scale)	54
Multidimensional Calling Measure (9 item scale)	13
Job Crafting Scale (21 item scale)	54
Occupational Coping Self-efficacy – Nurses (9 item scale)	14
Bern Illegitimate Tasks Scale (9 item scale)	11

Table 3.4
Distribution of missing values across measurement model items

PANAS10	PANAS28	PANAS36	PANAS41	PANAS51	PANAS62	PANAS73	PANAS87
PANAS90	PANAS100	RWBS14	RWBS20	RWBS32	RWBS44	RWBS50	RWBS62
RWBS71	RWBS81	RWBS90	RWBS101	RWBS116	RWBS122	RWBS133	RWBS143
RWBS151	RWBS160	RWBS172	RWBS186	RWBS191	RWBS204	RWBS211	RWBS220
RWBS233	RWBS245	RWBS254	RWBS263	RWBS272	RWBS282	RWBS291	RWBS301
RWBS317	RWBS326	RWBS332	RWBS343	RWBS350	RWBS361	RWBS372	RWBS380
RWBS392	RWBS400	RWBS410	RWBS421	IPWBW14	IPWBW22	IPWBW32	IPWBW41
IPWBW57	IPWBW62	IPWBW72	IPWBW81	IPWBW93	IPWBW101	IPWBW111	IPWBW122
IPWBW133	IPWBW142	IPWBW152	IPWBW151	IPWBW171	IPWBW185	IPWBW192	IPWBW202
IPWBW210	IPWBW224	IPWBW232	IPWBW242	IPWBW250	MCM11	MCM20	MCM34
MCM42	MCM52	MCM61	MCM72	MCM81	MCM90	JCS11	JCS21
JCS31	JCS43	JCS51	JCS65	JCS72	JCS80	JCS92	JCS101
JCS116	JCS121	JCS135	JCS142	BITS90	JCS155	JCS163	JCS176
JCS183	JCS193	JCS201	JCS212	OCSE-N10	OCSE-N21	OCSE-N35	OCSE-N40
OCSE-N50	OCSE-N63	OCSE-N73	OCSE-N82	OCSE-N90	BITS10	BITS23	BITS32
BITS41	BITS52	BITS60	BITS71	BITS82	BITS90		

Enders and Bandalos (2001) note that the primary limitation of using imputation by matching is that imputation will only occur if there exists an observation that has complete data on the set of matching variables. If a case has missing values after imputation it will be deleted by default, thus presenting a problem for samples of limited size. However, this did not pose a problem in this research and imputation by matching was consequently deemed appropriate to treat the data's missing values. The 263 missing values were imputed and all 206 cases were retained in the imputed sample.

3.12.3 Psychological Well-being at Work (PWBW)

Dagenais-Desmarais and Savoie (2012) developed the IPWBW with the intention of describing individuals' subjective experience at work, which is comprised mainly of eudaimonic dimensions of well-being. The five dimensions of the IPWBW include IFW, TW, FCW, PRW, and DIW. Their analysis showed that the five dimensions represent a higher-order construct of PWBW. The IPWBW makes use of a 5-point Likert response scale, ranging from 0, i.e. disagree, to 5, i.e. completely agree. This study used the shorter 25 item version of the scale, as opposed to the longer 80 item scale.

Dagenais-Desmarais and Savoie (2012) demonstrated that the IPWBW shows adequate internal consistency, at both the scale and factor level. The Cronbach's Alpha for the whole questionnaire was α=.964 and the Alpha coefficients at the dimension level were found to be similarly high, suggesting a strong internal consistency among the dimensions. The authors also found support for the IPWBW's convergent and divergent validity. Specifically, PWBW and its dimensions were found to be positively correlated with similar constructs assessed at the same time, namely, context-free psychological well-being ($.26 \leq r \leq .54$), positive affect ($.35 \leq r \leq .53$), and satisfaction with life ($.25 \leq r \leq .40$). Dagenais-Desmarais and Savoie (2012) note that these correlations can be interpreted as medium to large and accordingly, the IPWBW shows some moderate convergence with context-free measures of PWB.

Boers (2014) investigated the psychometric properties of the IPWBW on a South African sample. The results of the item analyses indicated that all of the subscales demonstrated acceptable reliability coefficients. Respectively the coefficients were as follows: IFW = .909, TW = .949, FCW = .835, PRW = .918, and DIW = .841 (Boers, 2014). In addition to the very favourable internal consistency reflected by these scores, the item analysis for the total scale also showed very good reliability with a coefficient of .960 (Boers, 2014).

3.12.3.1 Descriptive statistics and item analysis

Item analyses were conducted using the scales reliability procedure of SPSS version 22.0, with the goals of i) examining the reliability of the indicators of the latent variables; ii) investigating the homogeneity of each subscale; and iii) screening for poor items before calculating the composite item

parcels representing each variable (Prinsloo, 2013)[8]. The results of these analyses for the five subscales of the IPWBW, i.e. IFW, TW, FCW, PRW and DIW, are presented in Table 3.5. The results for the overall IPWBW scale are depicted in Table 3.6.

Table 3.5
The means, standard deviation and reliability statistics for the IPWBW subscales

IPWBW subscale	Number of items	M	SD	α
IFW	5	20.98	3.43	.70
TW	5	21.59	3.79	.78
FCW	5	22.60	2.92	.70
PRW	5	19.78	4.41	.77
DIW	5	21.40	3.27	.66

Note: IFW = Interpersonal Fit at Work; TW = Thriving at Work; FCW = Feelings of Competency at Work; PRW = Perceived Recognition at Work; Desire for Involvement at Work

Table 3.6
The means, standard deviation and reliability statistics for the IPWBW scale

IPWBW scale	M	SD	α
PWBW	106.35	15.19	.90

The results of the item analysis indicated that four of the five subscales' reliability coefficients exceed the .70 cut-off value for an acceptable reliability coefficient (Nunnally, 1978). With a Cronbach alpha of .66 the DIW subscale showed only moderate reliability.

The inter-item correlation matrix of the IFW subscale (α = .70) revealed very modest correlations ranging from .13 (item 6) to .45 (item 16) with squared multiple correlations ranging from .19 (item 21) to .34 (item 11). Despite these modest values, none of the items on this subscale, if deleted, would have resulted in a significant increase in the subscale's reliability. The TW subscale revealed an acceptable alpha of .78 and its' inter-item correlations ranged from a slightly higher .25 (item 22) to .54 (item 12). Similar to the inter-item correlations, the squared multiple correlation for item 22 was the lowest (.30) and that of item 12 was the highest of the range (.38). All of the items were retained as the removal of none of them would have led to an increase of the subscale's alpha. With an internal consistency coefficient of .70 the FCW subscale also complied with Nunnally's (1978) guidelines. Item 8 returned the lowest (.18) and the highest (.42) inter-item correlation values of this subscale. The lowest squared multiple correlation was .15 (item 3) and the highest was .30 (item 18). All of the items fell within a similar range and the results indicated that all of them should be retained. For the PRW subscale (α = .77) item 24 returned the lowest inter-item correlations (.25) and squared multiple correlation (.21), but these results were not out of sync with the other items. All items for this subscale were also retained in the item pool. Lastly, the DIW subscales, which showed an internal consistency of .66, returned inter-item correlations ranging from .14 (item 25) to .38 (item 10) and squared multiple correlations ranging from .16 (item 25) to .25 (item 20). Once again, no items could be identified that, if deleted, would result in a higher Cronbach alpha for this subscale.

[8] This procedure, with these goals, was followed for all of the instruments.

In conclusion, all items were retained for further analysis as no excessively poor items were identified by the results obtained for the five IPWBW subscales.

3.12.3.2 Confirmatory Factor Analysis

3.12.3.2.1 Measurement model specification and data normality

The CFA on the set of indicator variables of the IPWBW was performed using structural equation modelling (SEM) with LISREL 8.8 (Jöreskog & Sörbom, 2002)[9]. The measurement model was specified to consist of 25 observed variables (X's), five unmeasured latent factors (ξ's; i.e. the IFW, TW, FCW, PRW and DIW constructs) with single-headed arrows from the ξ's to X's representing the proposed regression of the observed variable onto the latent factors (λs)[10].

The univariate and multivariate normality of the indicator variables for the IPWBW was investigated with PRELIS (Jöreskog & Sörbom, 1996)[11] and the results are depicted in Table 3.7. The null hypothesis of multivariate normality was rejected (skewness and kurtosis: $\chi 2 = 3368.42$, $p = .00$). Consequently, Robust Maximum Likelihood (RML) estimation was employed to derive the model parameter estimates. This technique enables the calculation of more appropriate fit indices in LISREL through the computation of an asymptotic covariance matrix via PRELIS.

Table 3.7
Test of Multivariate Normality (IPWBW)

Skewness			**Kurtosis**			**Skewness & Kurtosis**	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
272.96	54.42	.00	1001.79	20.18	.00	3368.42	.00

3.12.3.2.2 Evaluation of the measurement model

The current measurement model represents the relationship between the five respective PWBW subscales and its manifest indicators. The objective of the CFA was to determine whether the operationalisation of the aforementioned five latent variables were successful. The operationalisation of the scales could be regarded as successful if the measurement model successfully reproduced the observed covariance matrix. Otherwise stated, the model fits the data well if factor loadings are statistically significant ($p < .05$) and sufficiently large ($\lambda > .40$), and if the error variances are sufficiently small (Brown, 2015).

The results of the single group CFA for the measurement model of the IPWBW are reported in Table 3.8. The exact fit of the IPWBW measurement model was tested by evaluating the S-B$\chi 2$ statistic. A Satorra-Bentler Scaled chi-square value of 451.00 with 265 degrees of freedom and $p = .00$ was

[9] The CFAs for all subsequent instruments were also performed using SEM with LISREL 8.8.
[10] The measurement models of all subsequent instruments were specified in the same manner, with their respective number of observed variables and latent factors.
[11] The normality of all subsequent instrument's indicator variables was also investigated with PRELIS.

achieved. Accordingly, the null hypothesis of exact fit (RMSEA = 0) was rejected (p < .05). The assumption of exact fit is highly unlikely, thus the rejection of the exact fit null hypothesis was expected.

The null hypothesis of close fit, as tested in LISREL, is indicated in Table 3.8 as the P-Value for Test of Close Fit (RMSEA < .05) = .07. The close fit null hypothesis was not rejected (p > .05) and it was concluded that the measurement model obtained close fit. According to Hair et al. (2006), for a sample consisting of less than 250 observations with less than 12 observed variables, as in this case, the CFI and the NNFI should be higher than .97 and the RMSEA should be smaller than .08. The CFI / NNFI values of .97 and the RMSEA value of .06 indicated good model fit according to the prior mentioned guidelines. The SRMR value (< .08) further underscored this conclusion.

Table 3.8
Goodness of fit statistics for the IPWBW measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
730.30*	450.99*	265	1.70	.97	.97	.08	.07	.06 (.05; .07)	.07

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

All the factor loadings were statistically significant at t ≥ |1.64|. From the lambda-X completely standardised solution it was evident that the factor loadings ranged from .42 (item 25 = DIW) to .71 (item 9 =PRW), with the exception of one factor loading (item 3 = FCW) being below .40, with a factor loading of .36. In conclusion, the results seemed to indicate that good model fit was achieved for the IPWBW measurement model.

3.12.4 Hedonic Well-being

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a widely-used self-report measure used to assess the two broad affective domains of HWB, namely PA and NA. According to Watson et al. (1988) both PA and NA represent largely independent constructs, ranging from low to high levels of emotional experience. Low NA scores describe a state of calmness and serenity, as opposed to high NA scores that suggest subjective distress and unpleasant engagement. Low PA scores reflect sadness and lethargy, whereas high PA scores reflect high energy, full concentration, and pleasurable engagement.

The results from the initial validation studies of the PANAS have demonstrated adequate internal consistency reliability, test-retest reliability, and convergent and discriminant validity (Watson, Clark, & Tellegen, 1988). Several short forms of the PANAS exist. Kercher (1992) developed a 10-item short form that was later modified by Thompson (2007) in order to enhance the content validity and to establish an English short form for international contexts. This version demonstrated temporal stability, internal reliability, and invariant item loadings (Thompson, 2007). This study utilised this 10-item short form of the PANAS.

The response scale of the PANAS is a 5-point Likert scale, ranging from 1 (very slightly or not at all) to 5 (extremely). PA items use words such as interested, strong and proud, whereas NA items use words like guilty, scared and hostile. The psychometric properties of the PANAS have been well researched and its reliability and validity has consistently been confirmed (Crawford & Henry, 2004). Internal consistency estimates range from good to excellent for both the PA (α = .83 - .90) and NA subscales (α = .85 - .90) according to Petrie, Chapman, and Vines (2013). These authors also showed that the two scales are minimally correlated with each other (r = -.05 to -.35), suggesting that two separate constructs are indeed being measured. They also reported good internal consistency for both the PA (α = .89) and the NA subscales (α = .92). Similarly, Boers (2014) found acceptable reliability coefficients for both subscales on a South African sample, with PA = .88 and NA = .84.

3.12.4.1 Descriptive statistics and item analysis

Item analyses were conducted on both subscales of the PANAS (i.e. PA and NA) and these results are presented in Table 3.9. The PA subscale produced a reliability coefficient of .69 which is considered reasonable, although it falls slightly below the accepted cut-off value of .70 (Nunnally, 1978). With a Cronbach Alpha of .72, the NA subscale demonstrated acceptable reliability.

Table 3.9
The means, standard deviation and reliability statistics for the PANAS subscales

PANAS subscale	Number of items	M	SD	α
Positive Affect	5	20.44	3.91	.69
Negative Affect	5	19.82	3.86	.72

The inter-item correlation matrix of the PA subscale revealed modest correlations ranging from .15 (item 10) to .46 (item 8) with low squared multiple correlations ranging from .20 to .30. Item 10 was flagged as a possible poor item as it also returned the lowest squared multiple correlation (.09). The results revealed that the scales' reliability would increase to .70 should item 10 be deleted. However, given the relatively small increase in alpha and the already limited number of items in the scale, it was decided to not delete the item and preserve the integrity of the original scale. Similar inter-item correlations were observed for the NA subscale, ranging from .20 (item 6) to .54 (item 9), with squared multiple correlations ranging from a slightly higher .21 to .39. All of the items were retained as their deletion would not have increased the scale's internal consistency. In conclusion, all 10 items of the PANAS were retained for further analysis.

3.12.4.2 Confirmatory Factor Analysis

3.12.4.2.1 Measurement Model Specification and Data Normality

The null hypothesis of multivariate normality was rejected (skewness and kurtosis: $\chi 2 = 442.90$, $p = .00$) (Table 3.10). Consequently, RML estimation was employed to derive the model parameter estimates.

Table 3.10
Test of Multivariate normality (PANAS)

Skewness			**Kurtosis**			**Skewness & Kurtosis**	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
26.81	19.27	.00	149.59	8.47	.00	442.90	.00

3.12.4.2.2 Evaluation of the measurement model

The current measurement model represents the relationship between the PA and NA constructs and its manifest indicators.

The CFA results of the PANAS measurement model are reported in Table 3.11. The exact fit of the model was tested by evaluating the S-B$\chi 2$ statistic for which a value of 41.03 with 34 degrees of freedom and $p = .00$ was achieved. As expected the null hypothesis of exact fit (RMSEA = 0) was once again rejected ($p < .05$). With the P-Value for Test of Close Fit (RMSEA < .05) = .81, the close fit null hypothesis was not rejected ($p > .05$) and it was concluded that the measurement model obtained close fit (Table 3.11). Further to this, for a sample consisting of less than 250 observations with less than 12 observed variables (Hair et al. 2006), as in this case, the CFI should be higher than .97 and the RMSEA and SRMR should be smaller than .08 (Hair et al. 2006). The CFI value of .98, the RMSEA value of .03 and the SRMR value of .05 indicated good model fit according to the prior mentioned guidelines. The NNFI value of .98 also fell above the recommended value of .97, further corroborating good model fit.

Table 3.11
Goodness of fit statistics for the PANAS measurement model

X2	S-B$\chi 2$	df	S-B$\chi 2$/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
45.36	41.03	34	1.21	.98	.98	.07	.05	.032 (.00; .06)	.81

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

All the factor loadings were statistically significant at $t \geq |1.64|$. The lambda-X completely standardised solution showed that the factor loadings ranged from .44 (item 1 = Upset) to .77 (item 9 = Afraid), with the exception of one factor loading (item 10 = Active) being below .40 with a loading of .30. In conclusion, the results seem to indicate that good model fit was achieved for the PANAS measurement model.

3.12.5 Eudaimonic Well-being

EWB was measured in this study with Ryff's (1989) Psychological Well-Being scale (RPWB). This measure probes the following dimensions of EWB:

1. Purpose in Life: the extent to which respondents feel that their lives has meaning, purpose and direction;
2. Autonomy: whether respondents viewed themselves to be living in accordance with their own personal convictions;
3. Personal Growth: the extent to which respondents feel they are making use of their personal talents and potential;
4. Environmental Mastery: how well they feel they are managing their life situation;
5. Positive Relations with Others: the depth of connection that they have with significant others; and
6. Self-Acceptance: their knowledge and acceptance of themselves, including awareness of personal limitations.

Ryff (2014) notes that the scale length of the instrument has been of interest. The initial measurement scales included 20 items for each of the 6 dimensions, thus 120 items in total. These scales have since been reduced to 14-item scales (Schmutte & Ryff, 1997), and even a very extreme reduction in length to 3 items per scale (Ryff & Keyes, 1995). Even though the 3-item version still supported the 6-factor model of well-being, there were psychometric problems with the individual scales (low alpha coefficients), suggesting that the reduction had been excessive. Ryff (2014) suggested the use of, at minimum, a 7-item scale to ensure quality assessment of the constructs. This study made use of a 10-item version (per sub-dimension) of the RPWB.

In a subset (n = 117) of the original validation sample Ryff (1989) found the following test-retest reliability coefficients: Purpose in Life = .82; Autonomy = .88; Personal Growth = .81; Environmental Mastery = .81; Positive Relations with Others = .83; and Self-Acceptance = .85. Ryff (1989) also demonstrated the internal consistency coefficients for the subscales in the original validation study. The respective coefficients were .90 for Purpose in Life, .86 for Autonomy, .87 for Personal Growth, .90 for Environmental Mastery, .91 for Positive Relations with Others, and .93 for Self-Acceptance. Since this initial validation study, more than 25 publications have evaluated the foundational evidence of scale reliability and validity. The majority of these studies found support for the 6-factor structure of EWB as measured by the RPWB (Ryff, 2014).

Tested on a South African sample, the Ryff's PWB scale obtained sufficient reliability with a Cronbach alpha of .93 (Boers, 2014). The coefficients for the respective subscales were as follows: Autonomy = .74, Environmental Mastery = .78, Personal Growth = .72, Positive Relations with Others = .78, Purpose in Life = .77, and Self-Acceptance = .84.

3.12.5.1 Descriptive statistics and item analysis

The results of the item analyses conducted on the EWB subscales and on the overall EWB scale are presented in Tables 3.12 and 3.13.

The results revealed that very low reliability coefficients were obtained for all the sub-scales, indicating that the internal consistency of the scale in this sample has been severely compromised. The inter-item correlation matrix of the Autonomy subscale revealed very low values ranging from .01 (item 19) to .18 (item 37) and the results showed that the subscale's reliability (α = .25) would not be increased with the deletion of any of the items. This subscale returned very modest squared multiple correlations (.04 to .12), but item 19 had the lowest value (.01) again. Boers (2014) also flagged item 19 as a poor item and deletion of the item resulted in a significantly improved alpha for the subscale, but this current results indicated that deletion of this item would only have resulted in a marginal change in the subscale's internal consistency (Δ = .04) and consequently it was retained in the item pool.

The Environmental Mastery subscale obtained an even lower reliability result, with α = .15. This scale's inter-item correlations ranged from .00 for item 8 to .37 for item 2, with squared multiple correlations ranging from .05 for item 32 to .17 for item 2. None of the items' correlations were excessively low compared to the others and the results indicated that the subscale's internal consistency coefficient would not be significantly affected by the removal of any items.

The Cronbach alpha (α = .45) of the Personal Growth subscale was slightly higher than the aforementioned subscales. However, this result was still considerably below the norm for acceptable reliability (0.70; Nunnally, 1978). Inter-item correlation values (.00 to .24) and squared multiple correlation values (.09 to .17) for this subscale revealed that none of the items were out of sync with the others, all showing similar ranges. However poor, all of the items were retained as the removal of any of them would not have improved the subscales' reliability.

The results of the Purpose in Life subscale, showed a similar trend (α = .39) with inter-item correlations and squared multiple correlations ranging from .00 (item 11) to .29 (item 29) and .05 (item 41) to .19 (item 29), respectively. The aforementioned matrices were scrutinised to determine whether any of the items were out of sync with the rest, but none could be identified. Again, the scales' alpha would not have increased significantly with the deletion of any of the items and accordingly all items were retained.

The item analysis results for the Positive Relations subscale revealed α = .49, which is better than the other subscales', but still fell below the .70 benchmark (Nunnally, 1978). Item 10 returned the lowest (.01) and highest (.37) inter-item correlation value. The squared multiple correlations of the subscale ranged from .07 (item 40) to .18 (item 16). The subscale's internal consistency would not have

increased even slightly with the removal of any items and therefore all items were kept in the item pool.

The last subscale, Self-Acceptance, showed a reliability coefficient of .46 and inter-item correlations ranging from .00 (item 24) to .31 (item 18). The subscale's squared multiple correlations ranged from .06 (item 42) to .19 (item 30). The results revealed that the aforementioned correlations of all of the items fell within a similar range and that the internal consistency of the subscale would not be significantly increased should any items be deleted.

Table 3.12
The means, standard deviation and reliability statistics for the Ryff's EWB subscales

Ryff's EWB subscale	Number of items	M	SD	α
A	7	28.80	4.54	.25
EM	7	30.13	4.04	.15
PG	7	31.57	4.87	.45
P	7	32.44	4.45	.38
PR	7	31.11	4.99	.49
SA	7	30.37	5.16	.46

Note: *A = Autonomy; EM = Environmental Mastery; PG = Personal Growth; P = Purpose; PR = Positive Relationships; SA = Self-Acceptance*

Table 3.13
The means, standard deviation and reliability statistics for the Ryff's EWB scale

Ryff's EWB scale	M	SD	α
EBW	127.09	17.60	.76

Note: *EBW = Eudaimonic Well-being*

Interestingly, the overall EWB scale produced an acceptable reliability coefficient of α = .76 and consequently CFA was conducted on the instrument.

3.12.5.2 Confirmatory Factor Analysis

3.12.5.2.1 Measurement Model Specification and Data Normality

The results of the test for univariate and multivariate normality (Table 3.14; skewness and kurtosis: $\chi 2 = 1042.30$, $p = .00$) for the indicator variables led to the rejection of the null hypothesis of multivariate normality and RML estimation was employed in order to derive the parameter estimates.

Table 3.14
Test of Multivariate normality (Ryff's EWB scale)

Skewness			Kurtosis			Skewness & Kurtosis	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
545.20	29.85	.00	2010.75	12.31	.00	1042.30	.00

3.12.5.2.2 Evaluation of the measurement model

The EWB measurement model converged, but was rendered inadmissible as inspection of the completely standardised phi matrix revealed multiple inter-item correlations in the phi matrix falling above the allowable limit of 1.00. Moreover, the preliminary LISREL output produced the following warning message in the unstandardised solution: "W_A_R_N_I_N_G: *PHI is not positive definite"*. This message pointed toward the presence of excessive multicollinearity, indicating that certain variables were deemed to be too highly correlated.

As the solution was found to be inadmissible it was decided to test a bi-factor model of the EWB construct. According to Chen, West, and Sousa (2006) a bi-factor model is potentially applicable "when there is a general factor that is hypothesized to account for the commonality of the items" (p. 190). A bi-factor model allows for the representation of the factor structure of an instrument measuring a general construct comprised of multiple highly related factors. Specifically, it is used if each of these factors are believed to account for unique variance in the construct over and above the general factor. It was argued that the testing a EWB bi-factor model could result in a more accurate representation of the factor structure, because it takes into account the loadings on the respective items, as well as loadings on the higher order EWB construct. Consequently, the EWB bi-factor measurement model was fitted to the data.

The EWB bi-factor model converged, but once again the model was rendered inadmissible due to the presence of multicollinearity. Two inter-item correlations in the completely standardised phi matrix showed values above 1.00, with a coefficient of 1.19 between Autonomy and Environmental Mastery and a coefficient of 1.06 between Personal Growth and Purpose. This underscored the fact that the solution was inadmissible and that the results could not be reported. However, based on these results, once again suggesting high inter-correlations between the respective latent dimensions, the dimensions of Autonomy and Environmental Mastery were collapsed to form one sub-dimension namely AEM (Autonomy and Environmental Mastery) and Personal Growth and Purpose were collapsed to form the sub-dimension PGP (Personal Growth and Purpose).

Consequently, an adapted EWB bi-factor model was fitted, consisting of four sub-dimensions namely AEM, PGP, Positive Relations with Others and Self-Acceptance. The results of the CFA performed on the adapted EWB bi-factor model is presented in Table 3.15a. The S-B $\chi 2$ statistic was evaluated in order to test for the exact fit of the model and a value of 1087.14 with 771 degrees of freedom ($p < .00$) was obtained. Accordingly, the exact fit null hypothesis (RMSEA = .00) for the EWB bi-factor model was rejected ($p < .05$). The close fit null hypothesis (RMSEA < .05) was also rejected with p (close) = .92 – indicating that close fit was achieved.

For a model with more than 30 observed variables Hair et al. (2006) recommend a CFI and NNFI value greater than .92, a SRMR value smaller than .09 and a RMSEA value of less than .08.

According to these guidelines the SRMR (.07) and RMSEA (.05) values of this model are indicative of good fit. The NNFI (.89) and CFI (.90) marginally missed the suggested benchmark values. Of the 42 factor loadings 4 were not statistically significant (t ≤ 1.64), namely items 18, 19, 26 and 41. It was evident from the completely standardised lambda-X solution that the loadings ranged from .16 (item 41) to .59 (item 29), with the exception of two insignificant outliers namely item 19 and 26 with respective loadings of .00 and .02. It was decided to delete these two items from the item pool due to their insignificant and very low factor loadings.

Table 3.15a
Goodness of fit statistics for the adapted EBW bi-factor measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
1228.82*	1087.14*	771	1.37	.89	.90	.15	.07	.05 (.04; .05)	.92

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

The final adapted EWB bi-factor model which was tested consisted of the 4 collapsed factors (minus items 19 and 26) and the higher order EWB factor. The results of the CFA for the final adapted EWB measurement model are reported in Table 3.15b. The exact fit of the final adapted EWB measurement model was tested by evaluating the S-Bχ2 statistic and a value of 948.25 with 694 degrees of freedom and p = .00 was achieved. Accordingly, the null hypothesis of exact fit (RMSEA = 0) was rejected (p < .05).

The close fit null hypothesis was tested and is indicated as the P-Value for Test of Close Fit (RMSEA < .05) = .98. The close fit null hypothesis was not rejected (p > .05) and it was concluded that the measurement model obtained close fit. The CFI (.92) met the cut-off value of .92 and NNFI (.91) fell just short of it. The RMSEA value (.04) and SRMR value (.07) indicated good model fit with values less than .08 (Hair et al. 2006).

Table 3.15b
Goodness of fit statistics for the adapted EBW measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
1078.77*	948.25*	694	1.37	.91	.92	.14	.07	.04 (.04; .05)	.98

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

Consequently, a further series of item analyses were conducted on the final adapted EWB measurement model (Table 3.16 and 3.17). An acceptable alpha coefficient (.73) for the total score was achieved.

Table 3.16
The means, standard deviation and reliability statistics for the adapted EWB subscales

Ryff's EWB subscale	Number of items	M	SD	α
AEM	12	52.70	6.54	.46
PGP	14	64.01	8.14	.63
PR	7	31.11	4.99	.50
SA	7	30.37	5.16	.46

Note: *AEM = Autonomy & Environmental Mastery; PGP = Personal Growth & Purpose; PR = PR = Positive Relationships; SA = Self-Acceptance*

Table 3.17
The means, standard deviation and reliability statistics for the adapted EWB scale

Adapted Ryff's EWB scale	Number of items	M	SD	α
EWB	4	179.53	18.49	.73

Note: Adapted EWB bi-factor model consisting of 4 collapsed factors (minus two items)

The combined AEM subscale still revealed a modest Cronbach alpha of .46 and low inter-item correlations ranging from .00 (item 8) to .37 (item 20). The subscale's squared multiple correlations ranged from .07 (item 25) to .27 (item 2). None of the items revealed correlations that were excessively low compared to the other items and no additional items were deleted from the scale. The combined PGP subscale showed a reliability coefficient of .63. Investigation of the scale's inter-item correlations, ranging from .00 (items 35 and 41) to .52 (item 29) indicated that no items were out of sync with the others. The subscale's squared multiple correlations ranged from .13 for item 3 to .39 for item 29, and all items were retained.

The results of the reliability analyses on the Positive Relations subscale and the Self-Acceptance subscales remained the same as in the original model (see Table 3.16).

It is an established fact that language proficiency can significantly impact the reliability of a measurement instrument (Moyo & Theron, 2011). Paterson and Uys (2005) note that method bias may result when participants respond to test items in their second language and the presence of this bias will decrease the instruments validity and reliability (Foxcroft & Roodt, 2005). It is thus argued here that the problematic psychometric properties of the EWB instrument on the sample was due to the fact that the great majority of the sample indicated English as their second, or in some cases even their third, language (the measures were completed in English). Refer to Table 4.2 for a depiction of the sample's demographic details. This instrument (the EWB scale) was the only one in the composite questionnaire that contained multiple negatively keyed items, which is likely to have caused the psychometric problems due to restricted language proficiency in the second / third language (Barnette, 2000; DiStefano & Motl, 2006), an issue that was not observed with the other measures in this study as none of them contained any negatively keyed items. This issue is discussed in greater depth in section 5.3 which elaborates on the limitations of this study.

3.12.6 Job Crafting

The research participants' Job Crafting tendencies was measured with the Job Crafting Scale (JCS) (Tims, Bakker, & Derks, 2012). The instrument has four subscales, each representing one of the four

dimensions of Job Crafting, with a total of 21 items. The subscales include the dimensions of Increasing Structural Job Resources (5 items), Decreasing Hindering Job Demands (6 items), Increasing Social Job Resources (5 items), And Increasing Challenging Job Demands (5 items). All of the items are measured on a 5-point Likert scale, ranging from never at 1, to often at 5.

Tims et al. (2012) conducted an EFA on the scale with a sample of n = 375 individuals and found support for the four-factor structure. The reliability coefficients for the respective subscales were as follows: Increasing Structural Job Resources = .82, Decreasing Hindering Job Demands = .79, Increasing Social Job Resources = .77, And Increasing Challenging Job Demands = .75 (Tims et al. 2012, p. 177). In a more recent study, conducted on a South African sample, Van der Westhuizen (2014) combined the four subscales and found a very satisfactory Cronbach alpha of .87 for the overall JCS and an average inter-item correlation of .26, indicating very good reliability for the overall scale.

3.12.6.1 Descriptive statistics and item analysis

Initially, the Increasing Structural Job Resources subscale (consisting of 5 items) produced a reliability coefficient of .56 which was below the recommended value of .70 (Nunnally, 1978) for acceptable internal consistency. This indicated that the items do not seem to respond to the systematic differences in the latent variable in a unified manner, although all the items were designed with the intention of measuring the same variable. Inspection of the inter-item correlation matrix revealed that item 5 returned values (.07 to .16) lower than those returned by the other items (.26 to .53). This item produced squared multiple correlations ranging from .16 to .46. The results revealed that the deletion of item 5 would have incurred a substantial increase in the initial alpha (Δ=.11), resulting in a Cronbach alpha of .67. Accordingly, item 5 was deleted from the item pool. After deletion of item 5 the inter-item correlations ranged from .26 to .53, and the squared multiple correlations ranged from .17 to .35. Table 3.18 contains the item statistics for this subscale (α = .67) after the deletion of item 5, along with the item analyses results of the other three JCS subscales. Table 3.19 depicts the results of the item statistics for the overall JCS.

Table 3.18
The means, standard deviation and reliability statistics for the JCS subscales

Subscale	Number of items	M	SD	α
Increasing Structural Job Resources	4	21.07	3.09	.67
Decreasing Hindering Job Demands	6	20.79	5.02	.68
Increasing Social Job Resources	5	18.12	5.33	.82
Increasing Challenging Job Demands	5	17.57	4.35	.69

Table 3.19
The means, standard deviation and reliability statistics for the JCS

Scale	Number of subscales	M	SD	α
JCS	4	74.33	12.09	.62

The inter-item correlation matrix of the Decreasing Hindering Job Demands (α = .68) revealed modest correlations ranging from .12 to .52, however item 6 produced a correlation of .01. Even though this item also returned the lowest squared multiple correlation (.22) it was not considered out of sync with the range of the other items (ranging from .28 to .33). Inspection of the results revealed that deletion of this item would result in only a slight increase of the subscales' alpha (Δ = .01). It was therefore decided not to delete the item from the item pool. The Increasing Social Job Resources subscale showed sufficient internal consistency (α = .82) with a value exceeding .70 (Nunnally, 1978). The results revealed inter-item correlations ranging from .30 to .58, with a similar pattern of ranges for the squared multiple correlations (.34 to .47). None of the items, if deleted, would have resulted in a significant increase of this subscale's reliability. The last subscale, Increasing Challenging Job Demands, obtained a reliability of .69. Inspection of the subscales' inter-item correlations (ranging from .15 for item 18 to .49 for item 17) and squared multiple correlations (ranging from .18 for item 19 to .34 for item 17) did not reveal any items that were out of sync with the others.

The overall JCS obtained a Cronbach alpha of .62, which is below the desired value of .70 but, taking into account the basket of results of the different subscales, it was deemed to be acceptable.

3.12.6.2 Confirmatory Factor Analysis

3.12.6.2.1 Measurement Model Specification and Data Normality

The results of the PRELIS analysis indicated that the null hypothesis of multivariate normality had to be rejected (skewness and kurtosis: $\chi 2=407.28$, p=.00; Table 3.20) and once again RML estimation was used to derive the parameter estimates.

Table 3.20
Test of Multivariate normality (JCS)

Skewness			**Kurtosis**			**Skewness & Kurtosis**	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
89.57	18.04	.00	539.12	9.05	.00	407.28	.00

3.12.6.2.2 Evaluation of the measurement model

The JCS measurement model represents the relationship between the 4 Job Crafting dimensions and its respective indicators.

The results of the JCS measurement model's CFA are reported in Table 3.21. The exact fit of the JCS measurement model was tested by evaluating the S-B$\chi 2$ statistic and a value of 338.46 with 164 degrees of freedom (p = .00) emerged. Consequently implying that the exact fit null hypothesis (RMSEA = 0) should be rejected (p < .05).

For the JCS model close fit was not obtained as the close fit null hypothesis was rejected with p = .00 (p < .05). In addition, the CFI = .90 and the NNFI = .89 fell below Hair et al.'s (2006) suggested value (.95) for a model with 20 observed variables. However, the model's RMSEA = .07 fell below the accepted cut-off value (< .08), and the SRMR = .08 also met Hair et al.'s (2006) criteria (≤.08).

Table 3.21
Goodness of fit statistics for the JCS measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
394.87	338.46	164	2.06	.89	.90	.13	.08	.07 (.06; .08)	.00

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

All the factor loadings were statistically significant (t ≥ 1.64) and ranged from .39 to .77, with the exception of one factor loading (item 6 on the Decreasing Hindering Job Demands subcale) which obtained a loading far below .40 (.14). This item was also flagged as a poor item based on the results of the reliability analysis (section 3.12.6.1). Irrespective of the aforementioned results it was decided to retain the item in order to preserve the integrity of the subscale. This decision was justified by the items' statistically significant, albeit lower than desired, factor loading and the fact that the deletion of the item would not have significantly increased the scale's internal consistency coefficient. In conclusion, the results seem to indicate that reasonable model fit was achieved for the JCS measurement model.

3.12.7 Calling

This study made use of the Multidimensional Calling Measure (MCM; Hagmaier & Abele, 2012) to measure the construct of calling. The MCM consists of three subscales, namely a) Transcendent Guiding Force (TGF), b) Sense and Meaning and Value-Driven Behaviour (SMVB), and c) Identification and Person-Environment-Fit (IP). The TGF category refers to the experience of a call received by a higher force or an internal voice that guides the individual and provides security and certainty about what to do (Hagmaier & Abele, 2012). The second category's Value-Driven Behaviour element regards the moral and ethical values that impact an employee's work-related behaviour. The Sense and Meaning element regards the personal significance of an individual's work in terms of providing purpose and meaning to their lives. Research has shown that these respective elements converge into one single factor, as the experience of sense is triggered by values and value-driven behaviour leads to the experience of sense (Hagmaier & Abele, 2012; Schnell, 2004). The third category's Identification element relates to whether the employee feels that they can realise their full potential by performing the job, whilst the Person Environment-Fit element regards the fit between the individual abilities and preferences and the requirements of the job. The convergence of these two elements into one factor may be interpreted as such that identification can only be achieved when there is a person-environment-fit (Hagmaier & Abele, 2012; Kennedy, 2005).

The MCM demonstrated satisfactory test-retest reliability with values ranging from r = .68 to .72 and the internal consistencies of the three subscales were as follows $\alpha_{MCM\text{-}TGF}$ = .81, $\alpha_{MCM\text{-}SMVB}$ = .72, $\alpha_{MCM\text{-}IP}$ = .82, with a sum score of α = .82 (Hagmaier & Abele, 2013; as cited in Hagmaier & Abele, 2015). The MCM is deemed appropriate for this study not only because of its sound psychometric properties, but also because it conceptualises calling as a multidimensional construct and assess the different facets of calling with emphasis on the realisation of one's calling in the world of employment. Furthermore, the MCM has also been found to correlate with well-being outcomes, e.g. job satisfaction, life satisfaction and burnout, which is of relevance to this study (Hagmaier & Abele, 2012, 2013).

3.12.7.1 Descriptive statistics and item analysis

The results of the item analyses conducted on all four subscales of the MCM as well as on the overall MCM are presented in Tables 3.22 and 3.23. The IP subscale produced an acceptable reliability coefficient of .71 (Nunnally, 1978). Evaluation of the subscales' inter-item correlation matrix revealed moderate inter-item correlations (.26 to .64) and squared multiple correlations (.20 to .50). The results revealed that the deletion of item 1 would have resulted in a slight increase of the subscales' Cronbach alpha (Δ = .07). As the scale had already obtained sufficient reliability and consists of only 3 items, if was decided to retain item 1.

The SMVB subscale's alpha (0.66) fell slightly below the desired cut-off value of .70 (Nunnally, 1978). However, inspection of the item statistics results indicated no poor items. That is, no item, if deleted would have resulted in an increase of this reliability coefficient. Roszkowski and Soven (2010) note that the internal consistency coefficient of a scale is weakened if the scale is comprised of a limited number of items. Therefore, it could be argued that the lower than desired alpha obtained for this subscale could be due to its limited number of items (m = 3). The subscales' inter-item correlations ranged from an acceptable .33 to .47, with squared multiple correlations ranging from .18 to .28.

The reliability coefficient for the TGF subscale exceeded the desired value (.70, Nunnally, 1978) at .77. The inter-item correlation matrix revealed values ranging from .40 to .77 with squared multiple correlations ranging from .20 to .60.

Table 3.22
The means, standard deviation and reliability statistics for the MCM subscales

Subscale	Number of items	M	SD	α
TGF	3	15.95	4.49	.77
SMVB	3	15.95	2.12	.66
IP	3	15.80	2.04	.71

Note: *TGF = Transcendent Guiding Force; SMVB = Sense, Meaning & Value-driven Behaviour; IP = Identification & Person-Environment Fit*

Table 3.23
The means, standard deviation and reliability statistics for the MCM

Scale	Number of items	M	SD	α
MCM	3	46.85	5.90	.75

The overall MCM obtained a Cronbach alpha of .75, indicating an acceptable reliability for the instrument as a whole.

3.12.7.2 Confirmatory Factor Analysis

3.12.7.2.1 Measurement Model Specification and Data Normality

The multivariate normality of the indicator variables of the MCM are reported in Table 3.24. The null hypothesis of multivariate normality was rejected (skewness and kurtosis: $\chi 2=1713.51$, p=.00) and the parameter estimates were derived by employing RML estimation.

Table 3.24
Test of Multivariate normality (MCM)

Skewness			**Kurtosis**			**Skewness & Kurtosis**	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
64.98	37.70	.00	234.26	17.09	.00	1713.51	.00

3.12.7.2.2 Evaluation of the measurement model

The MCM measurement model represented the relationships between the TGF, SMVB, and IP and its manifest indicators.

The CFA results of the MCM are reported in Table 3.25. The S-B$\chi 2$ statistic was evaluated in order to test the exact fit of the MCM model and a value of 29.81 with 24 degrees of freedom and p = .19 was obtained. Therefore, the exact fit null hypothesis (RMSEA = 0) was rejected (p < .05).

The MCM model achieved close fit as indicated by the P-Value (RMSEA < .05) = .73 in Table 3.25. The close fit null hypothesis was therefore not rejected (p > .05). According to Hair et al. (2006) a model with less than 12 observed variables tested on a sample of fewer than 250 should obtain RMSEA and SRMR values smaller than .08 and CFI and NNFI values greater than .97. Therefore, the CFI (.99) and NNFI values (.99) achieved by the MCM model is indicative of good model fit. The RMSEA (.03) and SRMR values (.08) provided further evidence of good model fit.

Table 3.25
Goodness of fit statistics for the MCM measurement model

X2	S-B$\chi 2$	df	S-B$\chi 2$/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
73.07	29.81*	24	1.24	.99	.99	.08	.08	.03 (.00; .07)	.73

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

The lambda-X completely standardised solution returned statistically significant factor loadings, ranging from .50 to .88. In conclusion, the basket of results seemed to indicate that good model fit was achieved for the MCM measurement model.

3.12.8 Occupational Coping Self-efficacy

Pisanti, Lombardo, Lucidi, Lazzari and Bertini (2008) developed the brief Occupational Coping Self-Efficacy Questionnaire for Nurses (OCSE-N) which was used in this study to measure the occupational coping self-efficacy levels of the research participants.

In the Pisanti et el., (2008) study a large sample of nurses (n = 1383) completed the OCSE-N, the Coping Inventory for Stressful Situations Short Form, and the Maslach Burnout Inventory (1986). Following a randomised split of the data, EFA was conducted on the data from group 1 (n = 691) and CFA, within the framework of SEM, was conducted on the group 2 data (n = 692). The factor analysis results revealed two different, but correlated factors (r = .52) that described the nurses' self-appraisals of their ability to cope with occupational demands. These factors are coping self-efficacy to cope with the Occupational Burden (α = .77) and coping self-efficacy to cope with the Relational Burden (α = .79), which together provides an OCSE score. This two-factor structure was tested against an alternative one-factor structure and the former was confirmed as the best solution.

Pisanti et al. (2008) also noted that the correlation patterns between the OCSE-N, and both coping and burnout variables, supported the criterion-related validity of the OCSE-N. The final version of the OCSE-N consists of nine questions, with the answers presented on a 5-point Likert scale where 1 indicates 'not at all easy to cope with' and 5 means 'totally easy to cope with'.

3.12.8.1 Descriptive statistics and item analysis

Item analyses were performed on both subscales of the OCSE-N. The results of these aforementioned analyses are presented in Tables 3.26 and 3.27.

The Occupational Burden subscale produced a reliability coefficient of .69 which fell just below the recommended cut-off value of .70 (Nunnally, 1978). Evaluation of the subscales' inter-item correlation matrix revealed moderate inter-item correlations, ranging from .23 to .43, with the squared multiple correlations ranging from .23 to .26.

Similarly, the Relational Burden subscale's Cronbach alpha also fell just below the desired cut-off of .70 (Nunnally, 1978) with a value of .69. The results revealed that the deletion of item 2 would have resulted in an increase of the subscale's reliability coefficient (Δ = .02) resulting in α = .71. However, as the scale already consisted of only four items it was decided to retain the item and protect the integrity of the scale. The lowest inter-item correlation value (.24) and squared multiple correlation value (.12) produced by item 2 did not fall far below the inter-item correlation range (.25 to .69) and the squared multiple correlation range (.17 to .51) of the other items. This served as further reason to retain the item.

Table 3.26
The means, standard deviation and reliability statistics for the OCSE-N subscales

Subscale	Number of items	M	SD	α
Occupational Burden	5	16.90	4.57	.69
Relational Difficulties	4	14.05	4.05	.69

Table 3.27
The means, standard deviation and reliability statistics for the OCSE-N

Scale	Number of subscales	M	SD	α
OCSE-N	2	30.95	8.03	.85

The overall OCSE-N scale obtained a Cronbach alpha of .85 indicating an acceptable reliability for the overall instrument. Consideration of the entire basket of evidence led to the conclusion that the instrument demonstrated sufficient reliability.

3.12.8.2 Confirmatory Factor Analysis

3.12.8.2.1 Measurement Model Specification and Data Normality

The results from the multivariate normality test of the indicator variables are reported in Table 3.28 and led to the rejection of the null hypothesis of multivariate normality (skewness and kurtosis: $\chi 2=99.38$, p=.00). Accordingly, RML estimation was employed.

Table 3.28
Test of Multivariate normality (OCSE-N)

Skewness			Kurtosis			Skewness & Kurtosis	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
9.93	7.49	.00	117.26	6.58	.00	99.38	.00

3.12.8.2.2 Evaluation of the measurement model

The current measurement model represents the relationship between the OCSE-N subscales and its manifest indicators. Table 3.29 depicts the OCSE-N measurement model's CFA results. As expected the exact fit null hypothesis (RMSEA = 0) was rejected ($p < .05$) with a S-B$\chi 2$ value of 85.05 ($p = .00$) with 26 degrees of freedom.

The close fit null hypothesis, indicated by the P-Value for Test of Close Fit (RMSEA < .05) = .00 (Table 3.29) was also rejected ($p < .05$). Accordingly, it was concluded that the measurement model did not obtain close fit. With a value of .07 the SRMR commented positively on the OCSE-N model fit, but the CFI and NNFI values fell below the benchmark values of acceptable fit (.97) with respective values of .93 and .91. The RMSEA (.11) exceeded the .08 cut-off value, further corroborating mediocre model fit (Hair et al. 2006).

Table 3.29
Goodness of fit statistics for the OCSE-N measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
118.91	85.05	26	3.27	.91	.93	.14	.073	.11 (.08; .13)	.00

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

All the factor loadings were statistically significant (t ≥ 1.64) with values ranging from .45 to .74. Based on the comprehensive basket of results it was concluded that the OCSE-N measurement model achieved only reasonable model fit.

3.12.9 Illegitimate Tasks

The Bern Illegitimate Task Scale (BITS) was used to assess the research participants' perceived occurrence of Illegitimate Tasks. The BITS (Semmer, Tschan, Meier, Facchin, & Jacobshagen, 2010) consists of 8 items on two subscales, which respectively regards the occurrence of Unnecessary Tasks and the occurrence of Unreasonable Tasks. The answers are captured in a Likert-type format, ranging from 1 (never) to 5 (frequently).

Semmer et al. (2010) reported on the results of two studies on the BITS, indicating that the total scale obtained an internal consistency of α = .83 in the first study, and α = .88 in the second. Stocker, Jacobshagen, Semmer and Annen (2015) found similar results regarding the internal consistency of the instrument with α = .75 for Unreasonable Tasks, α = .84 for Unnecessary Tasks, and α = .85 for the total scale. They also reported that the two subscales are appropriately correlated with each other (r = .65, p < .00). In a more recent study, on a South African sample, the total scale obtained a Cronbach's alpha of .86, indicating high internal consistency reliability (Abrahams, 2014). Acceptable reliability was also reported for the BITS, with an average inter-item correlation coefficient of .44.

3.12.9.1 Descriptive statistics and item analysis

The results of the item analyses performed on the BITS subscales are presented in Table 3.30. The Unnecessary Tasks subscale produced a reliability coefficient of .70, which was considered acceptable (Nunnally, 1978). Evaluation of the subscales' inter-item correlation matrix revealed moderate inter-item correlations, ranging from .16 to .47, with the squared multiple correlations ranging from .21 to .28. No poor items were identified and all of the items were kept in the item pool.

The Unreasonable Tasks subscale's alpha (.76) also exceeded the desired .70 cut-off (Nunnally, 1978). Inspection of the item statistics revealed that no poor items could be identified and the scale's reliability would not have increased if any of the items were to be deleted. The range of inter-item correlations (.29 to .62) and squared multiple correlations (.27 to .46) were also considered acceptable.

The reliability coefficient for the overall BITS (Table 3.31) fell slightly below the desired value, at .68. Even though the overall scale's alpha fell slightly below the .70 cut-off value, the scale was still deemed acceptable upon consideration of the entire basket of results.

Table 3.30
The means, standard deviation and reliability statistics for the BITS subscales

Subscale	Number of items	M	SD	α
Unnecessary Tasks	5	15.67	4.04	.70
Unreasonable Tasks	4	11.23	4.19	.76

Table 3.31
The means, standard deviation and reliability statistics for the BITS

Scale	Number of items	M	SD	α
BITS	9	26.91	7.17	.68

3.12.9.2 Confirmatory Factor Analysis

3.12.9.2.1 Measurement Model Specification and Data Normality

The multivariate normality results for the indicator variables (Table 3.32) generated through PRELIS led to the rejection of the null hypothesis of multivariate normality (skewness and kurtosis: $\chi 2=51.12$, p=.00). Consequently, the model parameter estimates were derived by employing RML estimation.

Table 3.32
Test of Multivariate normality (BITS)

Skewness			Kurtosis			Skewness & Kurtosis	
Value	Z-score	P-value	Value	Z-score	P-value	Chi-square	P-value
7.82	4.84	.00	122.03	5.26	.00	51.12	.00

3.12.9.2.2 Evaluation of the measurement model

The BITS measurement model represents the relationship between the two subscales and its manifest indicators. The results of the CFA for the BITS measurement model are reported in Table 3.33. The exact fit of the BITS measurement model was tested by evaluating the S-B$\chi 2$ statistic and a value of 69.28 with 26 degrees of freedom and p = .00 was achieved. As expected, the null hypothesis of exact fit (RMSEA = 0) was thus rejected ($p < .05$).

The close fit null hypothesis was rejected with a p-value of .01 ($p < .05$) and it was concluded that the measurement model did not obtain close fit. The CFI (.94) and NNFI (.92) values fell slightly short of the .97 benchmark (Hair et al. 2006). For a model of this complexity, values of less than .08 for the SRMR and RMSEA is recommended (Hair et al. 2006). As evident from Table 3.33 the SRMR value (.07) met this benchmark value but the RMSEA (.09) did not.

Table 3.33
Goodness of fit statistics for the BITS measurement model

X2	S-Bχ2	df	S-Bχ2/ df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
87.22	69.29*	26	2.67	.92	.94	.11	.07	.09 (.07; .12)	.01

Note: *X^2 = Chi-square; S-BX^2 = Satorra-Bentler Scaled Chi-square; NNFI = non-normed fit index; CFI = comparative fit index; RMR = root mean square residuals; SRMR = standardised root mean residual; RMSEA = root mean square error of approximation *p < .05.*

All the factor loadings in the lambda-X completely standardised solution were statistically significant (t ≥ 1.64) and ranged from .53 to .75. In conclusion, the results seem to indicate that only reasonable model fit was achieved for the BITS measurement model.

3.13. Summary of the psychometric integrity of the measurement instruments

A consolidated summary of the item analyses conducted on the respective instruments used in this study are presented in Table 3.34.

Table 3.34
A summary of the reliability results of the composite questionnaire latent variables

Scale	Sample size	Number of items	Mean	Standard deviation	Cronbach alpha	Number of items deleted
IPWBW	206	25	106.35	15.19	.90	0
PANAS_PA	206	5	20.44	3.91	.69	0
PANAS_NA	206	5	19.82	3.86	.72	0
Ryff's EWB scale	206	40	179.53	18.49	.73	2
JCS	206	20	74.33	12.09	.62	1
MCM	206	9	46.85	5.90	.75	0
OCSE-N	206	9	30.95	8.03	.85	0
BITS	206	9	26.91	7.17	.68	0

Note: IPWBW = Index of Psychological Well-being at Work; PANAS_PA = Positive Affect; PANAS_NA = Negative Affect; Ryff's EWB scale = Ryff's Eudaimonic Well-being Scale; JCS = Job Crafting Scale; MCM = Multidimensional Calling Measure; OCSE-N = Occupational Coping Self-efficacy for Nurses; BITS = Bern Illegitimate Tasks Scale

The item analyses revealed that six out of the eight scales (in terms of their overall scale reliabilities) returned Cronbach alpha reliability coefficients above the critical cut-off value of .70 (Nunnally, 1978), with the remaining three scales falling just short of this benchmark. It is acknowledged that although the reliability coefficients for the PANAS_PA, JCS and BITS scales fell below .70, all three values were at least >.60. Therefore, based on the comprehensive basket of results it could be concluded that the scales utilised in this study demonstrated satisfactory, albeit not ideal, internal consistency.

The main purpose of conducting item analyses was to detect and remove poor items. Only three items from the entire composite questionnaire were deleted, and thereby excluded from further analyses. This included item 19 and item 26 from the collapsed EWB subscale AEM, as well as item 5 from the JCS (from the Increasing Structural Resources subscale). The CFA results for the respective instruments yielded results ranging from reasonable to good, and in conclusion it could be noted that the basket of evidence provided sufficient justification for the inclusion of all of the instruments in the subsequent analyses in order to represent the latent variables that they have been tasked to reflect.

CHAPTER 4

RESULTS

4.1. Introduction

The aim of this study was to depict a possible nomological network of latent variables (Figure 3.1) that explain variance in the psychological processes that underlie the PWBW of aged care nursing staff. The respective relationships between the proposed constructs and its effects on PWBW were investigated in pursuit of the aforementioned aim. This chapter reports on the empirical evidence that was attained during this process.

This chapter commences with a discussion of the sample, with particular focus on the sample characteristics. Thereafter, the measurement model fit is presented and evaluated in terms of its statistical significance and the magnitude of its parameter estimates. The structural model fit and the adequacy of the structural model parameter estimates were evaluated via structural equation modelling in LISREL. The beta and gamma matrices were investigated to establish the significance of the hypothesised paths and the modification indices were inspected to explore ways in which the model could be improved in future research.

In order to determine the impact of the interaction effects contained in the proposed conceptual model, two moderated multiple regression analyses were conducted via SPSS.

4.2. Sample characteristics

The sample consisted of geriatric care nursing staff employed at four aged care facilities managed by one overarching management company. A total of n = 206 employees completed the composite questionnaire. The demographic information of the sample is summarised in Table 4.2.

The sample consisted of 98% females and 2% (four individuals) males. This gender distribution is clearly not in line with the current general population demographics for South Africa (Statistics South Africa, 2015) as depicted in Table 4.1. This was, however, expected considering that nursing is a female dominanted occupation (e.g. Tak, Sweeney, Alterman, Baron, & Calvert, 2010). The samples' race distribution, however, corresponded quite closely with the general population demographics, with 90.8% of the sample consisting of African individuals.

Table 4.1
Mid-year population estimates for South Africa (2015)

Population Group	Male		Female		Total	
	Number	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
African	21 653 500	80.6	22 574 500	80.4	4 4228 000	80.5
Coloured	2 334 800	8.7	2 498 100	8.9	4 832 900	8.8
Indian/Asian	6 88 100	2.6	673 900	2.4	1 362 000	2.5
White	2 201 900	8.2	2 332 200	8.3	4 534 000	8.3
Total	26 878 300	100.0	28 078 700	100.0	54 956 900	100.0

The aging nursing workforce is a global concern for the industry with experienced, qualified nursing staff retiring and less young individuals entering the profession (Phillips & Miltner, 2015). In this sample, however, 88.32% of the nursing staff were under the age of 50 with only 11.68% over the age of 50 (Table 4.2). The average age of participants in this sample was 38.

Zulu, Tswana, Xhosa and North Sotho were reported as the most frequent first language of the research participants, with respective percentages of 24.3, 16.0, 13.1, and 11.2. By far the most dominant second language amongst the participants was reported as being English (81.1%). As discussed in chapter 3, the negative effect of language proficiency on the reliability of measurement instruments is widely known (e.g. Moyo & Theron, 2011; Paterson & Uys, 2005). This possible adverse impact should be taken into consideration in the interpretation of this study's results as 81.1% of this sample completed the questionnaire in their second language.

Table 4.3 describes the sample in terms of job category, highest qualification and tenure. Of the sample 76.7% were employed as care workers and the remaining 23.3% consisted of nurses and sisters[12]. Of the sample, 52.7% reported matric as being their highest qualification, followed by 21% being in possession of a diploma qualification. With regards to the participants' tenure at the organisation the majority (51.9%) of the sample reported having worked for their organisation for 2-5 years. About a third (31.1%) of the sample indicated that they have not been at their organisation for more than a year.

[12] Refer to section 1.2 for a concise discussion of the typical responsibilities of the different job categories.

Table 4.2
Sample demographics (gender, ethnicity, age, first language, second language)

Gender		
Category	**Frequency**	**Percentage**
Female	202	98
Male	4	2
Ethnicity		
Category	**Frequency**	**Percentage**
African	188	90.8
Coloured	12	5.8
White	5	2.4
Indian	1	0.5
Age		
Category	**Frequency**	**Percentage**
20-29	42	20.4
30-39	69	33.5
40-49	63	30.6
50-59	11	5.3
60+	12	5.8
Missing	9	4.4
First Language		
Category	**Frequency**	**Percentage**
Zulu	50	24.3
Tswana	33	16.0
Xhosa	27	13.1
North Sotho	23	11.2
South Sotho	19	9.2
Venda	18	8.7
English	17	8.3
Afrikaans	13	6.3
Swazi	2	1.0
Tsonga	2	1.0
Ndbele	1	0.5
Other	1	0.5
Second Language		
Category	**Frequency**	**Percentage**
English	167	81.1
Zulu	8	3.9
Afrikaans	8	3.9
Tswana	6	2.9
Xhosa	4	1.9
North Sotho	3	1.5
Venda	3	1.5
Tsonga	3	1.5
South Sotho	2	1.0
Other	1	0.5
Swazi	0	0.0
Ndbele	0	0.0

Table 4.3
Sample characteristics in terms of job category, highest qualification and tenure

Position in organisation		
Category	**Frequency**	**Percentage**
Nurses/Sisters	48	23.3
Care Workers	158	76.7
Highest Qualification		
Category	**Frequency**	**Percentage**
Matric	109	52.7
Diploma	43	21.0
Grade 10	37	18.0
Certificate	16	7.7
Undergraduate? Degree	1	0.5
Tenure		
Category	**Frequency**	**Percentage**
2-5 years	107	51.9
1 year or less	64	31.1
more than 5 years	26	12.6
Missing	7	3.5

4.3. Item Parcels

In order to fit the measurement and structural models, item parcels were constructed for each latent variable. An alternative to creating item parcels is to operationalise the latent variable by using the individual items comprising the scales contained in the model. This method, however, leads to extensively comprehensive models with a very large number of parameters to be estimated. Using item parcels sufficiently reduces the number of parameters to be estimated and results in more reliable estimates (Hall, Snell, & Foust, 1999), particularly when the sample sizes are relatively small (Little, Cunningham, & Shahar, 2002).

It has been suggested that parcel-level models improve model fit through the creation of more continuously measured units and that, compared to item-level data, parcelled data contains less sources of contamination that could contribute to overall lack of model fit (Hoyle, 2014). MacCallum, Widaman, Zhang and Hong (1999) argue that, compared to item-level data, models based on parcelled data i) are more parsimonious (i.e. they have fewer estimated parameters in defining a construct and globally representing an entire model), ii) residuals are less likely to be correlated and dual loadings are less likely to emerge, because fewer indicators are used and unique variances are smaller, and iii) lead to reductions in various sources of sampling error. Upon consideration of the aforementioned, it was decided to construct a minimum of two item parcels as indicator variables for each latent variable contained in the structural model.

Item parcels were created for the PWBW, Job Crafting, and Calling variables by grouping the items based on the initial sub-factors of these constructs into separate parcels. For example, the PWBW item parcels were created by grouping the items comprising the original five subscales (i.e. IFW, TW, FCW, PRW, DIW) into parcels. Similarly, Job Crafting's four item parcels were comprised of the items contained in each of the respective sub-dimensions of the construct, namely Increasing Structural

Resources at Work, Decreasing Hindering Demands, Increasing Social Resources, and Increasing Challenging Demands. Calling was represented by three item parcels grouped according to the constructs' three sub-dimensions (i.e. SMVB, TGF and IP).

The item parcels for PA and NA were formed by randomly assigning items from each of these two PANAS subscales into two parcels per construct. Similarly, three item parcels were created for both Illegitimate Tasks and OCSE, by randomly assigning items to parcels. Lastly, the items from the EWB scale were parcelled in line with the four collapsed factors that were created during the confirmatory factor analysis (reported in section 3.12.5) of the instrument.

4.4. Measurement Model

The measurement model regards the relationships between the various respective variables and their corresponding parcelled indicator variables. The measurement model estimates provide information about the validity and reliability of the observed variables (Diamantopolous & Siguaw, 2000). CFA was conducted in order to evaluate the fit of the measurement model with the aim of determining whether the operationalisation of the variables using item parcels were successful. The measurement model fit regards the extent to which the theoretical model accurately explains the data. The fit was evaluated through interpretation of the fit indices produced by LISREL 8.80.

4.4.1. Screening the data

LISREL 8.80 (Jöreskog & Sörbom, 2002) was used to perform the CFA on the measurement model and RML estimation was employed to derive the model parameter estimates.

4.4.2. Fitting the measurement model

The measurement model fit needed to be evaluated prior to fitting the structural model as the latter mentioned model's fit indices could only be interpreted unambiguously if it were proven that the indicator variables, used to operationalise the latent variables, successfully reflected the variables they were intended to represent (Diamantopoulos & Siguaw, 2000).

The exact fit null hypothesis (H_{01a}) was tested via the Satorra-Bentler chi square (X^2) statistic (as RML estimation was employed). H_{01a} hypothesised that the measurement model provides a perfect account of how the latent variables manifest themselves in the indicator variables. This is considered a somewhat unrealistic ideal and therefore it was very likely that H_{01a} would be rejected. Rejection of H_{01a} requires testing of the close fit null hypothesis (H_{01b}) by inspecting the probability of observing the sample estimate of the root mean square error of approximation (RMSEA).

Good fit would be observed if the measurement model succeeded in reproducing the observed covariance matrix. Otherwise stated, good model fit would occur if the item parcels loaded

statistically significant on the latent variables they were intended to reflect, and the completely standardised factor loadings exceeded .71 (Hair et al. 2006).

Table 4.4
The Goodness of Fit for the measurement model CFA

X^2	S-BX^2	df	S-BX^2/df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
519.15*	477.32*	271	1.76	.93	.95	1.32	0.07	0.06 (0.05; 0.07)	0.02

Note: *p < 0.05

A Satorra Bentler Scaled chi-square value of 477.32 with 271 degrees of freedom, and p = .00 was obtained. As expected, the null hypothesis for exact fit (H_{01a}) was consequently rejected (p < .05). Unfortunately, the hypothesis for close fit (H_{01b}) was also rejected [p(close) < .05 = 0.02], indicating that the model did not obtain close fit – statistically speaking. Closer examination of the other indices however, suggested that the model still achieved a good fit. Hair et al. (2006) suggest that a RMSEA value of less than .08 indicates good fit in a model with more than 30 observed variables, fitted with a sample of less than 250 people. The RMSEA of .06 thus indicated good model fit.

The closer the values of the incremental fit indices are to unity (1.00), the better the fit of the measurement model. Hair et al. (2006) suggest a cut-off value of .92, whilst Diamantopoulos and Sigauw (2000) suggest that .90 provides evidence of a well-fitting model. Both the NNFI and the CFI of this measurement model returned values above these recommended cut-offs at .93 and .95 respectively – further underscoring the conclusion of good fit.

The SRMR is a summary measure of the standardised residuals. It represents the average difference between the elements of the sample covariance matrix and the fitted covariance matrix. Accordingly, better model fit is indicated by lower SRMR values and higher values indicate increasingly worse fit. When the number of observed variables is above 30, Hair et al. (2006) suggest that the SRMR should fall below .09. With a value of .07 the SRMR for this model further indicated good model fit.

In conclusion, based on the basket of evidence attained from the GOF indices it could be concluded that the PWBW measurement model obtained good fit, even though statistical evidence of close fit was not attained.

4.4.3. Interpretation of the measurement model standardised residuals and modification indices

The standardised residuals and the modification indices are examined in order to obtain relevant diagnostic information regarding modifications of the model that could lead to improved model fit (Diamantopoulos & Siguaw, 2000). The standardised residuals and modification indices, calculated for lambda-X and theta-delta, comment on the quality of the measurement model.

The difference between elements of the observed covariance matrix and the reproduced covariance matrix is represented by the residuals. Standardised residuals can be interpreted as z-scores, in terms of standard deviation units deviating from the mean (Diamantopoulos & Siguaw, 2000). Standardised residuals exceeding the absolute value of 2.58 are considered large. The need for additional explanatory paths is indicated by positive residuals, whilst negative residuals indicate the need to remove some paths in order to improve the model fit. Modification indices indicate to which extent the χ^2 fit statistic will decrease if a currently fixed model parameter is set free. Larger modification indices indicate parameters that, if set free, would result in greater improvement to the model fit. It comments positively on the model fit if the number of ways through which the model fit can be improved, is limited.

4.4.3.1. Standardised Residuals

A summary of the standardised residuals (Table 4.5) indicated 12 values smaller than -2.58 and 4 values greater than 2.58. These 16 large residuals comprised 4.56% of the total number of unique variance and covariance terms in the observed covariance matrix. The residual matrix for the model contained ([26x27]/2) = 351 elements. Otherwise stated, only approximately 4.5% of the observed variances and covariance were inaccurately estimated from the model parameter estimates. Although not ideal, this figure is relatively small and regarded as acceptable.

Table 4.5

Summary statistics for the PWBW measurement model standardised residuals

Description	Value
Smallest Standardised Residual	-5.22
Median Standardised Residual	.00
Largest Standardised Residual	3.16
Largest Negative Standardised Residuals	
Residual for JC_dhd and C_ip	-2.65
Residual for JC_isor and C_ip	-2.96
Residual for JC_isor and C_smvb	-5.22
Residual for EWB_pgp and PWBW_prw	-4.96
Residual for EWB_pgp and JC_dhd	-3.43
Residual for EWB_pgp and JC_isor	-5.12
Residual for HWB_n1 and C_tgf	-2.83
Residual for HWB_n2 and PWBW_diw	-2.70
Residual for HWB_p1 and PWBW_prw	-3.14
Residual for HWB_p1 and JC_isor	-3.80
Residual for IT_3 and PWBW_tw	-4.04
Residual for IT_3 and PWBW_prw	-3.19
Largest Positive Standardised Residuals	
Residual for JC_icd and C_tgf	3.01
Residual for JC_IStR and EWB_aem	2.98
Residual for IT_1 and JC_isor	2.93
Residual for IT_2 and PWBW_ifw	3.03
Residual for OCSE_1 and PWBW_ifw	3.16

Note: PWBW_ifw, PWBW_tw, IPWBW_fcw, PWBW_prw, PWBW_diw = Psychological Well-being at Work; Cal_ip, Cal_smvb, Cal_tgf = Calling; JC_IStR, JC_ISoR, JC_dhd, JC_icd = Job Crafting; EWB_aem, EWB_pgp, EWB_pr, _sa = Eudaimonic Well-being; HWB_n1, HWB_n2 = Negative Affect; HWB_p1, HWB_p2 = Positive Affect; IT_1, IT_2, IT_3 = Illegitimate Tasks; OCSE_1, OCSE_2, OCSE_3 = Occupational Coping Self-efficacy.

Visual representation of the stem-and-leaf plot allows for the collective investigation of all standardised residuals (Diamantopoulos & Siguaw, 2000). A good fitting model would be reflected in a stem-and-leaf plot with residuals distributed symmetrically around zero. The distribution of the standardised residuals for the PWBW model appeared to be slightly negatively skewed. This excess of residuals on the negative side suggested that the observed variance and covariance terms in the observed covariance matrix were slightly overestimated by the derived model parameter estimates. This problem could be rectified by deleting some paths from the model, but the slight nature of the skewness was not too great of a concern.

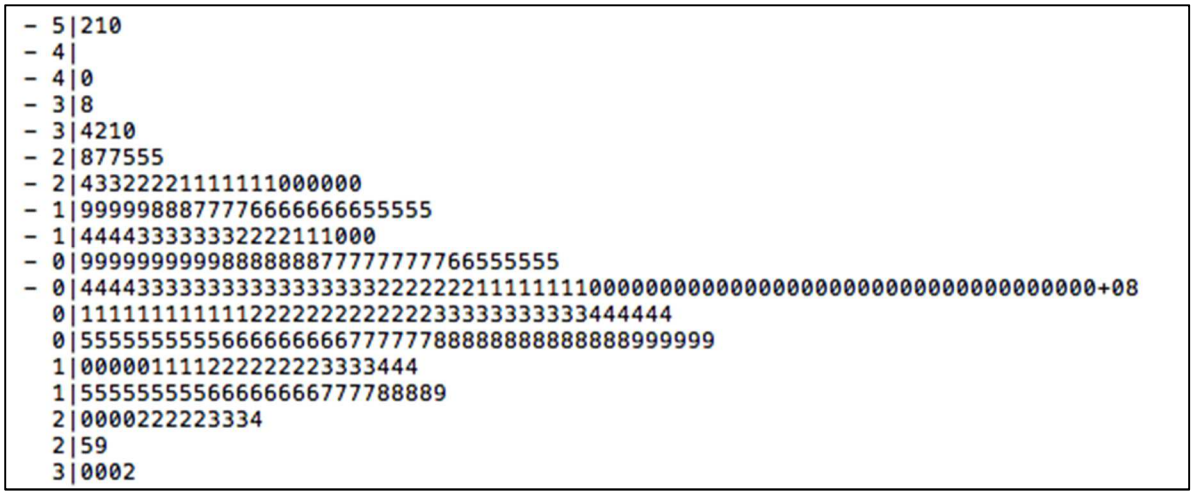

Figure 4.1. Stem-and-leaf plot of the measurement model standardised residuals

Figure 4.1 depicts the Q-plot of the PWBW measurement model where the standardised residuals (horizontal axis) are plotted against the quintiles of the normal distribution (Diamantopoulos & Siguaw, 2000). According to Jöreskog and Sörbom (1996) the extent to which the data points fall on the 45-degree reference line should be determined when interpreting the Q-plot. The closer the data points fall to the reference line, the better the model fit. The Q-plot for the PWBW model indicated relatively good model fit as the standardised residuals did deviate from the reference line, but the deviations were mostly in the upper and lower regions of the X-axis. This finding is in line with the results reported in Table 4.5 and Figure 4.1 where both large positive and negative standardised residuals were indicated, with the negative residuals being more prevalent.

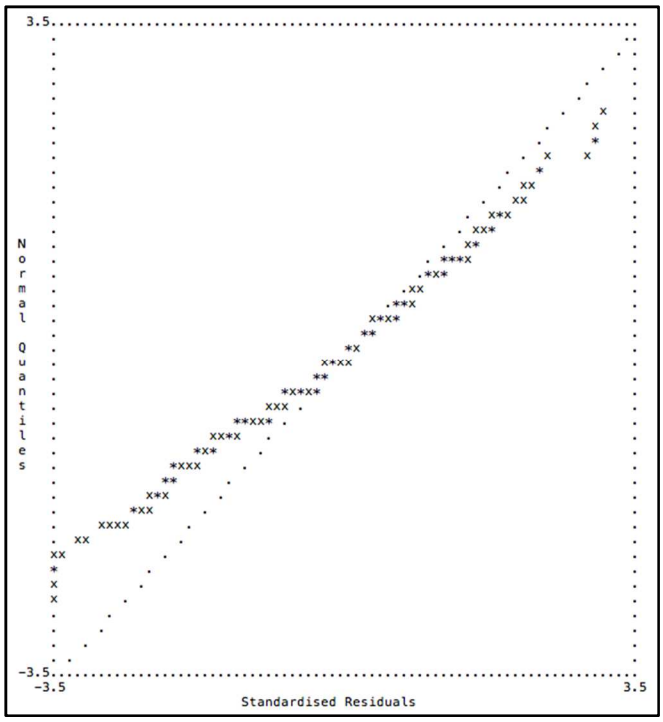

Figure 4.2. Q-plot for the measurement model standardised residuals

4.4.3.2. Modification Indices

The intention of each item parcel was to reflect a respondent's standing on a specific latent variable. The underlying logic thereof is that the systematic measurement error component of each parcel does not have a common source. Therefore, the measurement error terms should be uncorrelated. In this instance, the specified measurement model reflected these intentions and in Λ_x each item parcel was allowed to load onto only one latent variable, with the other loadings fixed to zero.

Modification indices show the extent to which the χ^2 fit statistic decreases if a parameter, that is currently fixed, is freed and the model fit is then re-estimated (Jöreskog & Sörbom, 2002). Modification indices with values exceeding 6.64 are considered large and suggest that if these currently fixed parameters are set free, the model fit would be significantly improved ($p < .01$).

The modification indices, presented in Table 4.6, were investigated with the purpose of further evaluating and commenting on the current fit of the measurement model, as opposed to freeing some paths and re-estimating the model fit. Modification index values greater than 6.64 are indicated in bold formatting. Table 4.6 revealed that 24 of the currently fixed elements in the Λ_X, if set free, would significantly ($p > .01$) improve the fit of the model. The lambda-X modification results suggested that adding these additional paths would lead to significant improvements in model fit. However, the matrix only suggested 24 of 178 possible ways through which the model could be modified (13.48%). This percentage was deemed sufficiently small and further commented favourably on the current model fit.

Table 4.6
Modification Indices for the lambda-X matrix (Measurement Model)

	PWBW	PA	NA	EWB	IT	JC	CAL	OCSE
PWBW_ifw		1.82	.04	**7.41**	2.53	.39	.35	1.98
PWBW_tw		.00	.91	.08	2.85	**24.85**	.72	1.77
PWBW_fcw		.75	5.67	.41	1.11		5.55	.54
PWBW_prw		.86	.54	5.28	.01	1.09	**7.31**	.19
PWBW_diw		.29	3.16	.01	1.19	1.66	3.43	.06
Cal_ip		.22	.06	.09	.32	.21		1.36
Cal_smvb		1.42	2.93	5.75	2.16	**29.94**		.54
Cal_tgf	.90	3.05	6.13	**8.58**	1.22	**37.00**		.44
JC_IStR	**9.60**	**8.61**	.26	**10.70**	2.46		**13.05**	.27
JC_IsoR	.07	**9.11**	.15	**6.86**	1.98		**7.27**	2.04
JC_dhd	.44	1.24	.00	3.12	.01		3.66	4.24
JC_icd	1.56	1.40	.58	.47	.01		1.75	.11
EWB_aem	1.58	.04	.02		.21	1.84	.01	1.64
EWB_pgp	**7.57**	2.64	.37		.53	**12.38**	.20	**7.31**
EWB_pr	1.99	1.64	.03		.07	.78	.02	.02
EWB_sa	**6.76**	.01	.04		1.76	5.61	.19	.70
HWB_n1		1.55		.05	**9.96**	**9.96**	5.74	.06
HWB_n2	3.53	1.22		.03	.00	2.82	2.14	.04
HWB_p1	**14.82**		1.50	.88	1.96	.13	4.40	.09
HWB_p2	1.74		1.53	.15	2.09	.09	2.56	.10
IT_1	6.50	.00	.61	1.03		5.44	3.12	.27
IT_2	6.37	4.12	2.17	6.53		2.79	1.54	1.46
IT_3	**28.02**	4.74	5.30	**13.97**		**14.74**	**9.01**	3.03
OCSE_1	2.85	.17	3.55	.12	3.84	.08	.15	
OCSE_2	2.76	.16	1.69	1.50	.48	.08	1.19	
OCSE_3	.00	.83	.45	1.00	2.11	.41	.66	

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy; PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3.*

Table 4.7
Measurement model modification indices for theta-delta

	PWBW_ifw	PWBW_tw	PWBW_fcw	PWBW_prw	PWBW_diw	C_ip
PWBW_ifw	--					
PWBW_tw	.29	--				
PWBW_fcw	.85	.05	- -			
PWBW_prw	.67	1.86	.50	- -		
PWBW_diw	.11	.07	3.88	2.16	- -	
C_ip	1.51	.01	.29	.27	3.37	- -
C_smvb	.77	.09	1.99	1.31	.43	- -
C_tgf	.00	.12	2.12	.25	.78	**10.96**
JC_dhd	2.96	3.10	.90	.96	3.89	2.86
JC_isor	3.94	.72	4.53	**13.10**	1.88	2.09
JC_icd	.60	.03	.24	.18	3.44	1.23
EWB_aem	1.26	2.68	.13	.01	1.38	.98
EWB_pgp	.22	.91	4.44	**15.47**	.02	.12
EWB_pr	3.32	.07	2.77	4.22	.67	.16
EWB_sa	.04	.18	.20	**8.96**	1.65	1.31
JC_IStR	2.82	2.58	**10.23**	**11.23**	2.77	5.26
HWB_n1	2.16	.86	.45	.42	.29	.31
HWB_n2	2.98	.92	3.13	.77	2.91	.01
HWB_p1	.55	3.02	3.98	1.49	.52	.50
HWB_p2	.60	4.76	5.62	1.55	.10	.03

	PWBW_ifw	PWBW_tw	PWBW_fcw	PWBW_prw	PWBW_diw	C_ip
IT_1	.07	.22	.54	1.05	1.60	4.66
IT_2	1.62	1.32	1.08	.01	.68	.00
IT_3	.00	4.24	1.47	2.46	.59	.28
OCSE_1	2.68	.22	3.31	.07	7.55	.54
OCSE_2	3.60	.00	3.61	1.55	.06	6.01
OCSE_3	1.75	2.43	.11	2.36	**10.25**	4.21

	C_smvb	C_tgf	JC_dhd	JC_isor	JC_icd	EWB_aem
C_smvb	- -					
C_tgf	- -	- -				
JC_dhd	.01	.92	- -			
JC_isor	**6.83**	6.30	3.38	- -		
JC_icd	4.15	.81	.14	.77	- -	
EWB_aem	.51	.34	.43	.38	.61	- -
EWB_pgp	2.25	.00	4.42	**6.82**	.20	1.35
EWB_pr	.28	.05	1.72	.61	1.13	.00
EWB_sa	2.84	.35	1.91	.47	.87	.99
JC_IStR	2.99	2.30	.76	4.47	.41	5.08
HWB_n1	2.74	1.47	1.16	3.53	.00	.82
HWB_n2	.86	.87	.26	5.22	.14	3.16
HWB_p1	5.85	- -	1.68	**11.18**	5.27	.38
HWB_p2	.91	1.43	.73	.60	1.26	1.44
IT_1	1.09	1.88	1.11	5.16	.00	.60
IT_2	.84	.57	.00	2.25	.01	.03
IT_3	.59	.00	2.37	3.28	.20	1.66
OCSE_1	.37	.24	**8.38**	.29	.40	.86
OCSE_2	1.54	1.75	.00	.07	1.07	.00
OCSE_3	.37	.50	1.05	.59	.22	3.37

	EWB_pgp	EWB_pr	EWB_sa	JC_IStR	HWB_n1	HWB_n2
EWB_pgp	- -					
EWB_pr	.90	- -				
EWB_sa	.52	.02	- -			
JC_IStR	2.76	.45	4.07	- -		
HWB_n1	1.12	.22	.01	4.56	- -	
HWB_n2	**9.08**	.73	.41	4.80	- -	- -
HWB_p1	2.06	.27	2.61	.07	.33	.47
HWB_p2	3.74	1.77	.04	.54	.93	.00
IT_1	2.55	2.72	**8.40**	1.52	.97	2.10
IT_2	.30	3.77	.00	.28	.70	.14
IT_3	.60	1.42	.55	.72	2.84	2.39
OCSE_1	.68	4.49	1.53	3.20	.37	.36
OCSE_2	.39	.03	.42	.00	.06	.03
OCSE_3	1.98	**8.92**	1.08	5.27	.82	.02

	HWB_p1	HWB_p2	IT_1	IT_2	IT_3	OCSE_1
HWB_p1	- -					
HWB_p2	- -	- -				
IT_1	3.59	0.01	- -			
IT_2	2.43	3.45	**68.27**	- -		
IT_3	2.38	.13	4.33	- -	- -	
OCSE_1	1.20	.27	.05	.00	1.76	- -
OCSE_2	1.98	.05	1.08	1.66	3.52	- -
OCSE_3	**8.45**	.08	.09	2.71	.03	- -

	OCSE_2	OCSE_3
OCSE_2	- -	
OCSE_3	- -	- -

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy; PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS*

parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3.

The modification indices for the theta-delta matrix (Table 4.7) revealed that only 16 covariance terms out of the possible 351 (4.56%) terms in the matrix were significant (> 6.64). This implied that only 4.56% of the values, if set free, would significantly improve the fit of the model ($p < .01$). This small percentage of large significant modification index values that were obtained for Θ_δ once again commented favourably on the fit of the measurement model.

Based on the aforementioned results it could be concluded that the small percentage of large standardised residuals and the small percentage of large modification index values obtained for Λx and Θ_δ commented favourably on the fit of the measurement model. Therefore, in conjunction with the spectrum of goodness-of-fit statistics, good model fit was concluded. Hence, the measurement model parameter estimates were considered plausible in reproducing the observed covariance matrix and interpretation of the parameter estimates and squared multiple correlations (R^2) for the indicators were justified.

4.4.4. Interpreting the measurement model parameter estimates and squared multiple correlations

The magnitude and statistical significance of the regression of the observed variable loadings onto their respective latent variables provides information regarding the validity of the measures that comprise the measurement model. A measure provides a valid reflection of the variable it was designed for if the slope of the regression of X_i on ξ_j in the model is significant (Diamantopoulos & Siguaw, 2000). The unstandardised lambda-x matrix (Table 4.8) of the PWBW measurement model displays the regression coefficients of the regression of the observed variables on their respective latent variables. The manifest variables' loadings on the latent variables are considered significant ($p < .05$) if the t-values exceed the absolute value of |1.6449|. Significant indicator loadings are interpreted to mean that the indicators successfully reflect the latent variables they were intended to measure.

Table 4.8
Measurement model unstandardised Lambda-X matrix

	PWBW	PA	NA	EWB	IT	JC	CAL	OCSE
PWBW_ifw	2.70 (.27) 10.07*							
PWBW_tw	3.25 (.32) 10.32*							
PWBW_fcw	2.12 (.24) 8.76*							
PWBW_prw	3.82 (.26) 14.87*							
PWBW_diw	2.59 (.23) 11.08*							
HWB_p1		1.69 (.22) 7.60*						
HWB_p2		1.59 (.20) 8.16*						
HWB_n1			2.37 (.30) 7.79*					
HWB_n2			1.07 (.17) 6.03*					
EWB_aem				4.98 (.44) 11.36*				
EWB_pgp				4.49 (.49) 9.22*				
EWB_pr				2.85 (.28) 10.32*				
EWB_sa				3.17 (.30) 10.52*				
IT_1					1.76 (.20) 8.81*			
IT_2					2.02 (.18) 10.97*			
IT_3					2.46 (.21) 11.49*			
JC_IStR						1.37 (.21) 6.56*		
JC_dhd						2.06 (.38) 5.41*		
JC_isor						3.12 (.35) 8.83*		
JC_icd						2.92 (.28) 10.55*		
C_ip							1.64 (.18)	

C_smvb	8.97* 1.69 (.19)
C_tgf	8.78* 1.77 (.22)
OCSE_1	7.97* 2.42 (.19)
OCSE_2	12.73* 2.35 (.21)
OCSE_3	11.05* 2.40 (.22)
	11.07*

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy; PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3; * = p <0.05*

It is evident from Table 4.8 that all of the indicator variables loaded significantly on their respective latent variables with t > 1.64. However, comparing the validity of different indicators measuring a particular construct may be difficult when relying solely on unstandardised loadings and associated t-values. Consequently, the completely standardised factor loading matrix should also be considered due to the standardised estimates' comparative value (Diamantopoulos & Siguaw, 2000).

The completely standardised factor loadings (Table 4.9) reflect the average change in the indicator variables associated with one standard deviation change in the respective latent variables to which they have been linked, with the effect of all other variables being held constant (Diamantopoulos & Siguaw, 2000). The factor loading estimates were considered satisfactory if the completely standardised factor loading estimates exceeded the cut-off of .71 (Hair et al. 2006).

Table 4.9
Measurement model completely standardised Lambda-X matrix

	PWBW	PA	NA	EWB	IT	JC	CAL	OCSE
PWBW_ifw	**.79**							
PWBW_tw	**.86**							
PWBW_fcw	**.73**							
PWBW_prw	**.87**							
PWBW_diw	**.79**							
HWB_p1		**.71**						
HWB_p2		**.78**						
HWB_n1			**.93**					
HWB_n2			.60					
EWB_aem				**.74**				
EWB_pgp				.63				
EWB_pr				.65				
EWB_sa				**.73**				
IT_1					.67			
IT_2					**.76**			
IT_3					**.72**			
JC_IStR						.55		
JC_dhd						.41		
JC_isor						.59		
JC_icd						.67		
C_ip							**.81**	
C_smvb							**.80**	
C_tgf							.60	
OCSE_1							**.79**	
OCSE_2							**.78**	
OCSE_3							.70	

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy; PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3.*

From the 26 parcels, 16 obtained loadings greater than .71. Although the remaining parcels obtained loadings that fell below the relatively stringent 0.71 cut-off value, they all obtained loadings exceeding .50 (ranging from .55 to .70) and were not excessively low enough to warrant serious concern. Only one parcels' factor loading fell below .50 (JC_dhd) with a factor loading of .44.

In addition to the completely standardised lambda-X matrix, the squared multiple correlations (R^2) for the item parcels on the respective latent variables were interpreted (Table 4.10). The R^2 values indicate the proportion of variance in the item parcel that is explained by its underlying variable (Prinsloo, 2013). Higher R^2 values indicate higher indicator reliability and are thus preferred.

Table 4.10
Squared multiple correlations for X-variables

PWBW_ifw	PWBW_tw	PWBW_fcw	PWBW_prw	PWBW_diw	C_ip
.62	.74	.53	.75	.63	.66
C_smvb	**C_tgf**	**JC_IStR**	**JC_dhd**	**C_isor**	**JC_icd**
.63	.35	.30	.17	.34	.46
EWB_aem	**EWB_pgp**	**EWB_pr**	**EWB_sa**	**HWB_n1**	**HWB_n2**
.38	.37	.45	.45	.86	.35
HWB_p1	**HWB_p2**	**IT_1**	**IT_2**	**IT_3**	**OCSE_1**
.57	.53	.45	.58	.51	.61
OCSE_2	**OCSE_3**				
.62	.49				

Note: PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3.

The critical cut-off value of .71 for the factor loadings, imply a critical R^2 cut-off of .50 (Hair et al. 2006). Therefore, values exceeding .50 indicate that a satisfactory proportion of variance of each indicator variable is explained by its underlying latent variable. Of the 26 indicators, 14 obtained satisfactory reliabilities that fell above .50 ranging from .51 to .86. With the exception of JC-dhd (.17), the other parcels returned R^2 values ranging from .30 to .49 that, although they were below .50, did not warrant serious concern. No R^2 values were considered excessively high and although some of the values fell below the recommended cut-off value it could safely be concluded that the majority of the latent variables were successfully operationalised.

The completely standardised measurement error variances are depicted in Table 4.11. These values reflect the proportion of item parcel variance that is due to systematic non-relevant variance and random error variance. Values below .50 are preferred as that would indicate that less than 50% of the item parcel variance can be attributed to measurement error variance. Twelve parcels were identified as problematic (> .50), with JC_dhd being the greatest cause for concern with a value of .83. The other problematic parcels, JC_dhd excluded, returned values ranging from .52 to .70. Once again it is noted that these results indicated that the validity and reliability of these indicators have, to a certain extent, been compromised.

Table 4.11
Measurement model completely standardised solution Theta-delta

PWBW_ifw	PWBW_tw	PWBW_fcw	PWBW_prw	PWBW_diw	C_ip
.38	.26	.47	.25	.37	.34
C_smvb	**C_tgf**	**JC_IStR**	**JC_dhd**	**C_isor**	**JC_icd**
.37	.65	.70	.83	.66	.54
EWB_aem	**EWB_pgp**	**EWB_pr**	**EWB_sa**	**HWB_n1**	**HWB_n2**
.62	.63	.55	.55	.15	.65
HWB_p1	**HWB_p2**	**IT_1**	**IT_2**	**IT_3**	**OCSE_1**
.43	.46	.55	.42	.49	.39
OCSE_2	**OCSE_3**				
.38	.52				

Note: PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3.

Table 4.12
Measurement model unstandardised solution Theta-delta

PWBW_ifw	PWBW_tw	PWBW_fcw	PWBW_prw	PWBW_diw	C_ip
4.49	3.75	3.99	4.88	3.98	1.47
(.76)	(.62)	(.68)	(.74)	(.59)	(.31)
5.88*	6.03*	5.89*	6.60*	6.70*	4.71*
C_smvb	**C_tgf**	**JC_IStR**	**JC_dhd**	**JC_isor**	**JC_icd**
1.63	5.71	4.31	20.91	18.68	10.41
(.41)	(.90)	(.67)	(2.65)	(2.17)	(1.31)
3.99*	6.32*	6.42*	7.89*	8.61*	7.96*
EWB_aem	**EWB_pgp**	**EWB_pr**	**EWB_sa**	**HWB_n1**	**HWB_n2**
20.18	30.45	10.86	9.06	.95	2.09
(2.53)	(3.60)	(1.44)	(1.27)	(1.10)	(.31)
7.98*	8.45*	7.56*	7.15*	.86	6.80*
HWB_p1	**HWB_p2**	**IT_1**	**IT_2**	**IT_3**	**OCSE_1**
2.80	1.69	3.81	3.04	5.67	3.64
(.59)	(.50)	(.57)	(.61)	(.84)	(.74)
4.72*	3.38*	6.73*	4.99*	6.75*	4.95*
OCSE_2	**OCSE_3**				
3.46	6.17				
(.64)	(1.00)				
5.45*	6.20*				

*Note: PWBW_ifw = IPWBW parcel 1; PWBW_tw = IPWBW parcel 2; IPWBW_fcw = PWBW parcel 3; PWBW_prw = IPWBW parcel 4; PWBW_diw = IPWBW parcel 5; Cal_ip = Calling parcel1; Cal_smvb = Calling parcel 2; Cal_tgf = Calling parcel 3; JC_IStR = JCS parcel 1; JC_ISoR = JCS parcel 2; JC_dhd = JCS parcel 3; JC_icd = JCS parcel 4; EWB_aem = Ryff's EWB scale parcel 1; EWB_pgp = Ryff's EWB scale parcel 2; EWB_pr = Ryff's EWB scale parcel 3; EWB_sa = Ryff's EWB scale parcel 4; HWB_n1 = PANAS parcel 1; HWB_n2 = PANAS parcel 2; HWB_p1 = PANAS parcel 3; HWB_p2 = PANAS parcel 4; IT_1 = BITS parcel 1; IT_2 = BITS parcel 2; IT_3 = BITS parcel 3; OCSE_1 = OCSE-N scale parcel 1; OCSE_2 = OCSE-N scale parcel 2; OCSE_3 = OCSE-N scale parcel 3;. * = p <0.05.*

4.4.5. Discriminant validity

The Φ matrix (Table 4.13) depicts the inter-correlations between the latent variables in the PWBW measurement model. Discriminant validity would be achieved if a construct does not correlate excessively with constructs from which it is supposed to differ. Discriminant validity could be concluded for sufficiently low (< .90) inter-correlations.

Inspection of Table 4.13 revealed that all of the correlations in the phi matrix were sufficiently low (< .90) and accordingly, discriminant validity between the respective constructs was attained.

Table 4.13
Completely standardized Phi values of the fitted measurement model

	PWBW	PA	NA	EWB	IT	JC	CAL	OCSE
PWBW	1.00							
PA	.40*	1.00						
NA	-.31*	-.00[13]	1.00					
EWB	.37*	.58*	-.22*	1.00				
IT	-.31*	.00	.25*	-.13	1.00			
JC	.61*	.32*	.16	.14	.10	1.00		
CAL	.56*	.35*	-.15	.39*	-.19*	.47*	1.00	
OCSE	.32*	.12	-.01	.29*	-.04	.34*	.10	1.00

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy; * = p < .05*

Based on the results presented in this section it was concluded that the operationalisation of the model was successful and that sufficient merit existed for the PWBW measurement model. Consequently, the fit of the PWBW structural model to the data was tested.

4.5. Structural Model

The conceptual PWBW model proposed by this research depicts the potential causal relationships between the various exogenous and endogenous variables contained in this study. The conceptual model contains two interaction effects that could not be captured in the structural model, and were therefore tested with moderated regression analyses. In order to test the relationships hypothesised in the structural model, SEM was utilised. The purpose of the SEM analysis was to determine whether the hypotheses contained in the structural model, resulting from the comprehensive theorising presented in the literature review, were supported by the data obtained from the sample.

4.5.1. Fitting the structural model

The PWBW structural model was fitted by analysing the asymptotic covariance matrix. The SEM analysis was conducted with LISREL 8.80 (Du Toit & Du Toit, 2001).

4.5.2. Interpretation of structural model fit and parameter estimates

The structural model fit was interpreted by inspecting a broader range of fit indices than used for the fit of the various measurement models. This was done in order to create a more comprehensive perspective on the fit of the model to the data. The exact fit null hypothesis (H_{02a}) was tested via the Satorra-Bentler chi square (X^2) statistic (as RML estimation was employed). H_{02a} hypothesised that the PWBW reduced structural model provides a perfect account of the psychological processes underlying the PWBW of aged care nursing staff. As this aforementioned assumption is highly unlikely it was expected that the exact fit null hypothesis would be rejected. Consequently, the close

[13] The non-significance of the relationship between PA and NA contradicts the well-being literature.

fit null hypothesis (H_{02b}) was tested by inspecting the probability of observing the sample estimate of the root mean square error of approximation (RMSEA).

The magnitude and distribution of the standardised residuals and the magnitude of the model modification indices calculated for Γ and B were also interpreted. Standardised residuals were considered excessively large if the values fell outside the range of -2.58 to 2.58. An excess of positive residuals indicated the need to explore additional explanatory paths and too many negative residuals suggest the need to remove some existing explanatory paths from the model. The Γ and B matrices were inspected to determine whether there existed any meaningful possibilities to improve the model fit through inclusion of additional structural paths. A modification index value of 6.64 or greater identified currently fixed parameters that, if set free, would significantly ($p < .01$) improve the model fit.

The presence of multiple large, significant modification index values in the results would comment negatively on the fit of the model as it suggests that there are numerous possibilities to improve the model fit. In this study, however, the inspection and reporting of the modification indices served only the purpose of commenting on the fit of the model (Diamantopoulos & Siguaw, 2000). No testing of empirically motivated model modifications was conducted in this study. Instead, the possible modifications suggested by the current results were discussed and integrated into the recommendations for future research, where this was theoretically justifiable.

If H_{02b} failed to be rejected, indicating close model fit, or if at least reasonable model fit was obtained (a conclusion reached through considering the basket of GOF indices), then H_{03}-H_{014} (presented in chapter 3) was to be tested. These hypotheses were tested by investigating the statistical significance and magnitude of the path coefficients from the completely standardised Γ and B solutions for each hypothesised path. Additionally, the squared multiple correlations (R^2) associated with each respective endogenous variable were inspected (large R^2 values were preferred).

Finally, the structural model was considered satisfactory to the extent that a) the measurement model fitted the data well, b) the structural model fitted the data well, c) the path coefficients for the hypothesised structural relations were significant, and d) the model explained a substantial proportion of the variance in each of the endogenous variables.

4.5.3. Evaluating the PWBW structural model fit

The fitted PWBW structural model's goodness of fit statistics are presented in Table 4.14.

Table 4.14
The Goodness of Fit for the structural model CFA

X^2	S-BX^2	df	S-BX^2/df	NNFI	CFI	RMR	SRMR	RMSEA (CI)	P(close)
646.89*	596.33*	286	2.08	.91	.92	1.68	.11	.07 (.06; .08)	.00

Note: *X^2, Chi-square; S-BX^2, Satorra-Bentler Scaled Chi-square; NNFI, non-normed fit index; CFI, comparative fit index; RMR, root mean square residuals; SRMR, standardised root mean residual; RMSEA, root mean square error of approximation* *p < 0.05

A Satorra Bentler Scaled chi-square value of 596.33 with 286 degrees of freedom, and p = .00 was obtained. As expected, the null hypothesis for exact fit (H_{02a}) was consequently rejected (p < .05). Moreover, the results revealed that the hypothesis for close fit (H_{02b}) was also rejected [p(close) < .05 = .00], indicating that the model did not obtain close fit. Examination of the other indices, however, suggested that the model still achieved a reasonable fit. Hair et al. (2006) suggested that a RMSEA value of less than .08 indicate good fit in a model with more than 30 observed variables, tested on a sample with less than 250 people. It could therefore be concluded that the RMSEA of .07 is indicative of good model fit.

The NNFI (.91) of this structural model fell just below the recommended cut-off value of .92 (Hair et al. 2006) with a CFI value of exactly .92. However, according to Diamantopoulos and Siguaw's (2000) slightly less stringent cut-off value of .90, both the NNFI and the CFI value of the structural model was acceptable. With a value of 0.11 the SRMR for this model marginally missed the recommended cut-off value for good fit (.09) (Hair et al. 2006), indicating only reasonable model fit.

The model's EVCI (3.54) was smaller than the value obtained for the independence model (20.05), but slightly bigger than the value obtained for the saturated model (3.42). These results indicated that a model more closely resembling the fitted model seems to have a better chance of being replicated in a cross-validation sample than the independence model, but not the saturated model (Byrne, 2010). This is not ideal, but still points towards reasonable model fit.

The model's AIC suggested that the fitted model (726.33) provided a more parsimonious fit than the independent model (4213.55), but not the saturated model (702.00). However, the model CAIC achieved a value (1007.64) smaller than both the independence (4213.55) and saturated (2221.09) models. These results provide further evidence for only a reasonably fitting model.

The Critical N (CN) regards the adequacy of the sample size. In this instance, the CN value of 119.45 fell below the suggested cut-off value (CN > 200). It should however be noted that the value of the CN statistic and its suggested cut-off have however been contested in the literature and should be interpreted with caution (Diamantopoulos & Siguaw, 2000).

The goodness-of-fit index (GFI) and the adjusted goodness-of-fit indix (AGFI) are absolute fit indices and values exceeding .90 generally indicates acceptable model fit (Diamantopoulos & Siguaw, 2000). With respective values of .81 and .76 this model's GFI and AGFI once again pointed towards reasonable model fit.

A consolidated consideration of all of the abovementioned GOF indices led to the conclusion that the PWBW structural model obtained reasonable fit. The selected fit indices seemed to indicate that the structural model was able to reproduce the observed covariance matrix to such an extent that warranted sufficient faith in the model and its derived parameter estimates. In the next section, the standardised residuals and modification indices are discussed, with the purpose of further commenting on the model fit.

4.5.4. Interpretation of the structural model standardised residuals

A summary of the standardised variance-covariance residuals (Table 4.15) indicated 19 values smaller than -2.58 and 40 values greater than 2.58. The residual matrix for the model contained ([26x27]/2) = 351 elements. These 59 large residuals, therefore, comprised 16.81% of the total number of unique variance and covariance terms in the observed covariance matrix. Otherwise stated, approximately 17% of the observed variances and covariance were inaccurately estimated from the model parameter estimates. This figure is slightly larger than desired and could be interpreted to further comment negatively on the model fit – underscoring the conclusion of just reasonable, and not good, model fit.

Table 4.15

Summary statistics for the PWBW structural model standardised residuals

Description	Value
Smallest Standardized Residual	-5.60
Median Standardized Residual	.04
Largest Standardized Residual	5.01
Largest Negative Standardized Residuals	
Residual for EWB_pgp and PWBW_prw	-3.01
Residual for EWB_pgp and JC_dhd	-2.99
Residual for EWB_pgp and JC_isor	-4.22
Residual for HWB_n2 and PWBW_diw	-2.79
Residual for HWB_n2 and JC_isor	-2.84
Residual for HWB_p1 and PWBW_tw	-4.19
Residual for HWB_p1 and PWBW_prw	-5.60
Residual for OCSE_2 and PWBW_fcw	-2.58
Residual for C_smvb and HWB_p2	-3.83
Residual for C_tgf and EWB_aem	-2.66
Residual for C_tgf and HWB_n1	-3.04
Residual for C_tgf and HWB_p2	-2.70
Residual for IT_3 and PWBW_ifw	-3.65
Residual for IT_3 and PWBW_tw	-5.02
Residual for IT_3 and PWBW_fcw	-3.42
Residual for IT_3 and PWBW_prw	-4.37
Residual for IT_3 and PWBW_diw	-3.48
Residual for IT_3 and EWB_aem	-2.68
Residual for IT_3 and EWB_pr	-2.58
Largest Positive Standardized Residuals	

Residual for JC_dhd and PWBW_ifw	2.68
Residual for JC_dhd and PWBW_prw	2.88
Residual for JC_isor and PWBW_ifw	2.84
Residual for JC_isor and PWBW_tw	3.22
Residual for JC_isor and PWBW_prw	5.01
Residual for JC_isor and PWBW_diw	4.32
Residual for JC_icd and PWBW_ifw	3.44
Residual for JC_icd and PWBW_tw	3.15
Residual for JC_icd and PWBW_fcw	2.77
Residual for JC_icd and PWBW_prw	3.93
Residual for JC_icd and PWBW_diw	3.11
Residual for EWB_sa and JC_icd	2.84
Residual for JC_IStR and PWBW_ifw	2.97
Residual for JC_IStR and PWBW_fcw	3.10
Residual for JC_IStR and PWBW_prw	3.15
Residual for JC_IStR and PWBW_diw	3.57
Residual for JC_IStR and EWB_aem	3.45
Residual for HWB_n1 and EWB_sa	2.85
Residual for HWB_n2 and EWB_pgp	3.31
Residual for HWB_p1 and JC_icd	2.82
Residual for HWB_p1 and EWB_pgp	2.98
Residual for HWB_p2 and EWB_pgp	3.30
Residual for HWB_p2 and JC_IStR	3.09
Residual for OCSE_1 and PWBW_ifw	2.60
Residual for C_ip and PWBW_ifw	2.59
Residual for C_ip and PWBW_fcw	3.33
Residual for C_ip and PWBW_prw	2.63
Residual for C_ip and PWBW_diw	3.59
Residual for C_ip and JC_icd	3.93
Residual for C_ip and JC_IStR	4.02
Residual for C_smvb and PWBW_fcw	2.62
Residual for C_smvb and PWBW_diw	3.02
Residual for C_smvb and JC_icd	4.61
Residual for C_smvb and JC_IStR	2.70
Residual for C_tgf and PWBW_diw	2.80
Residual for C_tgf and JC_dhd	2.59
Residual for C_tgf and JC_isor	3.39
Residual for C_tgf and JC_icd	4.76
Residual for C_tgf and JC_IStR	3.80
Residual for IT_1 and JC_isor	3.06

Note: PWBW_ifw, PWBW_tw, IPWBW_fcw, PWBW_prw, PWBW_diw = Psychological Well-being at Work; Cal_ip, Cal_smvb, Cal_tgf = Calling; JC_IStR, JC_ISoR, JC_dhd, JC_icd = Job Crafting; EWB_aem, EWB_pgp, EWB_pr, _sa = Eudaimonic Well-being; HWB_n1, HWB_n2 = Negative Affect; HWB_p1, HWB_p2 = Positive Affect; IT_1, IT_2, IT_3 = Illegitimate Tasks; OCSE_1, OCSE_2, OCSE_3 = Occupational Coping Self-efficacy.

The stem-and-leaf plot for the PWBW structural model is presented in Figure 4.3. The distribution of the standardised residuals for the PWBW model appears to be slightly positively skewed. This excess of residuals on the positive side suggests that the observed variance and covariance terms in the observed covariance matrix were slightly underestimated by the derived model parameter estimates.

```
- 5|60
- 4|422
- 3|8754000
- 2|8877766421111100
- 1|9888887777666555555444443333333332222222221111110000
- 0|99999998888887777776666655554444443333333332222222211111000000000000000000+28
  0|11111111111222222222223333333334444555555666666677777888888899999
  1|000011122222223333444556666777888888899999
  2|00000111111112222333445555666667778888899
  3|000111112233344466899
  4|0368
  5|0
```

Figure 4.3 Stem-and-leaf plot of the structural model standardised residuals

Figure 4.4 depicts the Q-plot of the PWBW structural model where the standardised residuals (horizontal axis) are plotted against the quintiles of the normal distribution (Diamantopoulos & Siguaw, 2000). The Q-plot for the PWBW model further indicated reasonable model fit as the standardised residuals did deviate from the reference line, but the deviations were mostly in the upper and lower regions of the X-axis. This finding is in line with the results reported in Table 4.15 and Figure 4.3 where both large positive and large negative standardised residuals were indicated, with the positive residuals being more prevalent.

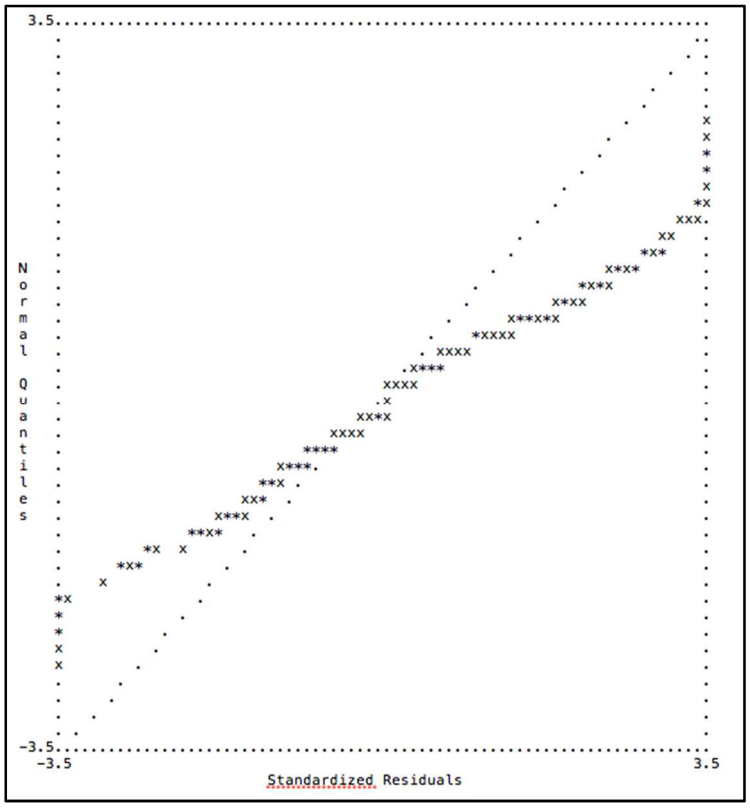

Figure 4.4 Q-plot for the structural model standardised residuals

4.5.5. Structural model modification indices

The structural model modification indices were inspected for the primary purpose of commenting on the model fit.

A value that exceeds the critical chi-square value of 6.64 indicates parameters that, if set free, would significantly ($p < .01$) improve the model fit. Table 4.16 presents the modification indices calculated for the currently fixed gamma parameters. The results in this table revealed that freeing three additional paths, of the possible seven additional paths, would significantly improve the fit of the structural model. Thus, 42.8% (i.e. 3 out of 7) of the possible additional paths between the exogenous and endogenous latent variables currently not included in the model would significantly improve the model fit. The parameter with the highest modification index-value for the gamma matrix was the addition of a path allowing Calling to exert a direct influence on PWBW, followed by further direct paths from Calling to Job Crafting and Illegitimate Tasks to PWBW.

Table 4.16
Structural model modification indices for gamma

	Cal	IT
PWBW	**126.49**	**10.81**
NA	--	--
PA	--	--
EWB	--	.10
JC	**18.96**	1.80
OCSE	0.24	0.68

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

The modification indices calculated for the fixed beta parameters in the beta matrix revealed that 8 out of a possible 21 additional paths between endogenous variables (38%) would significantly improve the model fit, if set free. Although this percentage of significant modification indices is not ideal, it is not high enough to indicate very poor model fit. Rather, it provides further support for a reasonable fitting model. The beta parameter with the highest modification index-value suggested the addition of a direct path from Job Crafting to PWBW.

Table 4.17
Structural model modification indices for beta

	PWBW	NA	PA	EWB	JC	OCSE
PWBW	--	--	--	--	**45.57**	.74
NA	--	--	.85	2.28	6.39	2.21
PA	**7.89**	.73	--	**17.51**	3.24	.00
EWB	--	2.77	**27.41**	--	--	--
JC	**39.24**	3.06	**15.55**	**20.57**	--	--
OCSE	--	1.81	.09	.27	**8.18**	--

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-Being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

4.5.6. Structural model parameter estimates and squared multiple correlations

In order to determine whether each of the hypothesised relationships (H_{03} – H_{14}) was supported by the data, the empirical evidence was examined regarding the relationships between the various endogenous (η) variables, as well as between the exogenous (ξ) and endogenous (η) variables.

Diamantopoulos and Siguaw (2000) recommend an evaluation of four components when assessing the relations contained in the structural model. First, the statistical significance ($p < .05$) of the parameter estimates should be inspected. If the parameter estimates are significant, then the magnitude of the parameter estimates should be considered to determine the strength of the hypothesised relationships. Third, the signs of the parameters representing the paths between the variables should be interpreted along with the nature of the causal effects hypothesised between the variables. Lastly, the squared multiple correlation (R^2) for each of the endogenous latent variables in the model should be considered. Each R^2 reflects the amount of variance in each endogenous variable that is explained by the latent variable causally related to it.

The parameters of interest are the freed elements reported in the beta (B), gamma (Γ) and psi (Ψ) matrices. Each of the unstandardised matrices consists of three values, namely the unstandardised parameter estimates, standard error terms and t-values. The former mentioned estimates indicate the average change in an endogenous latent variable resulting from a one unit change in an exogenous or endogenous latent variable, assuming all other variables are held constant (Diamantopoulos & Siguaw, 2000). The unstandardised gamma matrix (Table 4.18) allows interpretation of the significance of the estimated path coefficients γ_{ij}, expressing the strength of the influence of Ksi (ξ_j) on Eta (η_i). The unstandardised γ_{ij} estimates are statistically significant ($p < .05$) if the corresponding t-value is greater than |1.64| (Diamantopoulos & Siguaw, 2000). The completely standardised gamma matrix (Table 4.19) allows for comparison across structural equations as the parameter estimates are unaffected by variance in the variables' unit of measurement. Implicitly, the latter mentioned matrix allowed for additional insights on the strength of the structural relationships.

Table 4.18
Structural model unstandardized gamma matrix

	Cal	**IT**
PWBW	--	--
NA	- .15	.22
	(.09)	(.08)
	-1.48	**2.86**
PA	.47	.06
	(.09)	(.10)
	5.04	.61
EWB	.43	
	(.10)	--
	4.17	
JC	--	--
OCSE	--	--

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

It is evident from Table 4.18 that three of the five t-values exceeded the 1.64 cut-off value and was consequently deemed statistically significant. The following three null hypotheses were thus rejected ($p < .05$) H_{010}: $\Upsilon_{31} = 0$; H_{012}: $\Upsilon_{41} = 0$ and H_{013}: $\Upsilon_{22} = 0$. These findings were interpreted at the hand of the path specific statistical hypotheses formulated in chapter 3 (Table 3.1).

Table 4.19
Structural model completely standardised gamma matrix

	Cal	IT
PWBW	--	--
NA	- .14	**.22**
PA	**.47**	.06
EWB	**.43**	--
JC	--	--
OCSE	--	--

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

Hypothesis 10[14]: Calling (ξ_1) has a significant positive linear effect on PA (η_3).

The results in Tables 4.18 and 4.19 supported the hypothesised path between Calling and PA (SEM path coefficient = .47). The sign of the parameter estimate corresponded to the theorised path and it could be concluded that Calling (ξ_1) has a statistically significant positive effect on PA (η_3). Therefore, H_{010}: $\Upsilon_{31} = 0$ could be rejected in favour of H_{a10}: $\Upsilon_{31} > 0$.

Hypothesis 11: Calling (ξ_1) has a significant negative linear effect on NA (η_2).

The results suggested that the relationship between Calling and NA was not statistically significant. Accordingly, H_{011}: $\Upsilon_{21} = 0$ could not be rejected in favour of H_{a11}: $\Upsilon_{21} < 0$ and it was concluded that Calling (ξ_1) did not have a negative linear effect on NA (η_2).

Hypothesis 12: Calling (ξ_1) has a significant positive linear effect on EWB (η_4).

The hypothesised positive relationship between Calling and EWB was corroborated with a statistically significant path coefficient of .43. Thus, H_{012}: $\Upsilon_{41} = 0$ was therefore rejected in favour of H_{a12}: $\Upsilon_{41} > 0$ and it could be concluded that Calling (ξ_1) has a positive linear effect on EWB (η_4).

Hypothesis 13: Illegitimate Tasks (ξ_2) have a significant positive linear effect on NA (η_2).

[14] Hypotheses 10 to 14 specified relationships between exogenous and endogenous latent variables, the results of which are depicted in the Gamma matrix. Hypotheses 3 to 9 specified relationships between different endogenous latent variables, the results of which are depicted in the Beta matrix.

The results suggested that the hypothesised relationship between Illegitimate Tasks and NA was statistically significant (see Tables 4.18 and 4.19), indicating that the perception of experiencing more Illegitimate Tasks would lead to higher levels of self-reported NA. Therefore, H_{013}: $\Upsilon_{22} = 0$ could be rejected in favour of H_{a13}: $\Upsilon_{22} > 0$ and it could be concluded that Illegitimate Tasks (ξ_2) do have a positive linear effect on NA (η_2).

Hypothesis 14: Illegitimate Tasks (ξ_2) have a significant negative effect on PA (η_3).

The results revealed that the relationship between Illegitimate Tasks and PA was not statistically significant. Thus, H_{014}: $\Upsilon_{32} = 0$ could therefore not be rejected in favour of H_{a14}: $\Upsilon_{32} < 0$ and it was concluded that Illegitimate Tasks (ξ_2) does not have a negative influence on PA (η_3).

The significance of the estimated path coefficients β_{ij}, expressing the strength of the influence of η_j on η_i, was assessed through interpretation of the unstandardised beta matrix (Table 4.20). Again, the unstandardised βij estimates are statistically significant ($p < .05$) if the corresponding z-value is greater that |1.64| (Diamantopoulos & Siguaw, 2000). Table 4.21 presents the completely standardised beta parameter estimates that were used to comment on the strength and direction of the hypothesised relationships.

Table 4.20
Structural model unstandardised beta matrix

	PWBW	**NA**	**PA**	**EWB**	**JC**	**OCSE**
PWBW		- .29	.40	.12		
	--	(.12)	(.11)	(.10)	--	--
		2.47	**3.62**	1.26		
NA	--	--	--	--	--	--
PA	--	--	--	--	--	--
EWB					- .12	.27
	--	--	--	--	(.10)	(.11)
					-1.13	**2.40**
JC						.38
	--	--	--	--	--	(.12)
						3.16
OCSE	.33					
	(.10)	--	--	--	--	--
	3.44					

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

Table 4.21
Structural model completely standardised beta matrix

	PWBW	**NA**	**PA**	**EWB**	**JC**	**OCSE**
PWBW	--	**- .29**	**.40**	.12	--	--
NA	--	--	--	--	--	--
PA	--	--	--	--	--	--
EWB	--	--	--	--	-.12	**.27**
JC	--	--	--	--	--	**.38**
OCSE	**.34**	--	--	--	--	--

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; IT = Illegitimate Tasks; JC = Job Crafting; CAL = Calling; OCSE = Occupational Coping Self-Efficacy*

According to the results presented in Table 4.20 five of the seven freed **B** parameter estimates in the PWBW structural model obtained values greater than |1.64| and thus, the following null hypotheses was rejected: H_{03}: $\beta_{13} = 0$; H_{04}: $\beta_{12} = 0$; H_{06}: $\beta_{46} = 0$; H_{07}: $\beta_{61} = 0$; H_{08}: $\beta_{56} = 0$.

Hypothesis 3: PA (η_3) has a significant positive linear effect on PWBW (η_1).

Tables 4.21 and 4.22 indicated that PA (η_3) had a statistically significant positive effect on PWBW (η_1) (SEM path coefficient = .40). The original theoretically hypothesised direction of the relationship (i.e. positive) was corroborated by the results. Consequently, the following null hypotheses H_{03}: $\beta_{13} = 0$ could therefore be rejected in favour of the path-specific substantive research hypotheses H_{a3}: $\beta_{13} > 0$.

Hypothesis 4: NA (η_2) has a significant negative linear effect on PWBW (η_1).

The hypothesised negative relationship between NA (η_2) and PWBW (η_1) was supported by the results with a statistically significant path coefficient of - .29. H_{04}: $\beta_{12} = 0$ could therefore be rejected in favour of H_{a4}: $\beta_{12} < 0$ and it was concluded that NA (η_2) has a significant negative linear effect on PWBW (η_1).

Hypothesis 5: EWB (η_4) has a significant positive linear effect on PWBW (η_1).

The results did not provide support for the hypothesised positive relationship between EWB (η_4) and PWBW (η_1). Thus, H_{05}: $\beta_{14} = 0$ could therefore not be rejected in favour of H_{a5}: $\beta_{14} > 0$ and it was concluded that EWB (η_4) does not have a significant positive linear effect on PWBW (η_1).

Hypothesis 6: OCSE (η_6) has a significant positive linear effect on EWB (η_4).

Support was found for the hypothesised positive relationship between OCSE (η_6) and EWB (η_4) with a statistically significant path coefficient of .27. Therefore, H_{06}: $\beta_{46} = 0$ was rejected in favour of H_{a6}: $\beta_{46} > 0$ and it could be concluded that OCSE (η_6) has a significant positive linear effect on EWB (η_4).

Hypothesis 7: PWBW (η_1) has a significant positive linear effect on OCSE (η_6).

Support was also found for the hypothesised positive relationship between PWBW (η_1) and OCSE (η_6) with a statistically significant path coefficient of .34. Thus, H_{07}: $\beta_{61} = 0$ was therefore rejected in favour of H_{a7}: $\beta_{61} > 0$ and it could be concluded that PWBW (η_1) has a significant positive linear effect on OCSE (η_6).

Hypothesis 8: OCSE (η_6) has a significant positive linear effect on Job Crafting (η_5).

The results revealed support for the hypothesised positive relationship between OCSE (η_6) and Job Crafting (η_5) with a statistically significant path coefficient of .38. Therefore, H_{08}: $\beta_{56} = 0$ could be rejected in favour of H_{a8}: $\beta_{56} > 0$ and it could be concluded that OCSE (η_6) has a significant positive linear effect on Job Crafting (η_5).

Hypothesis 9: Job Crafting (η_5) has a significant positive linear effect on EWB (η_4).

The evidence suggested that the hypothesised positive relationship between Job Crafting (η_5) and EWB (η4) was not statistically significant. Therefore, H_{09}: $\beta_{45} = 0$ could not be rejected in favour of H_{a9}: $\beta_{45} > 0$ and it was concluded that Job Crafting (η_5) does not have a significant positive linear effect on EWB (η_4).

In conclusion, the completely standardised parameter estimates revealed that of all the significant effects, the influence of PA on PWBW (.40) was the most pronounced, followed by the influence of OCSE on Job Crafting (.38), PWBW on OCSE (.34), NA on PWBW (- .29) and lastly OCSE on EWB (.27).

Tables 4.22 and 4.23 report on the psi matrices that depict the variances in the structural error terms. Table 4.22 contains the unstandardised psi matrix that shows the error variance estimates, standard errors and z-values for the residual terms of the structural model. The completely standardised psi matrix is depicted in Table 4.23 and its values represent the magnitude of the variance coefficients in the structural error terms.

Table 4.22
Structural model unstandardised psi matrix

PWBW	NA	PA	EWB	JC	OCSE
.69	.92	.79	.72	0.86	.88
(.15)	(.34)	(.24)	(.18)	(.28)	(.15)
4.62	**2.70**	**3.25**	**3.97**	**3.12**	**5.68**

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; JC = Job Crafting; OCSE = Occupational Coping Self-Efficacy*

Table 4.23
Structural model completely standardised psi matrix

PWBW	NA	PA	EWB	JC	OCSE
.69	**.92**	**.79**	**.72**	**.86**	**.88**

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; JC = Job Crafting; OCSE = Occupational Coping Self-Efficacy*

According to these results a statistically significant proportion of the variance in all of the endogenous variables were not accounted for by the model with the t-values > |1.64|. Considering that the model cannot be regarded as having achieved perfect fit it is not surprising that all of the psi variances were

significant. It should however be noted that the magnitude of these structural error variances is not ideal (Table 4.23).

The squared multiple correlations presented in Table 4.24 explain the proportion of variance in each endogenous variable that can be accounted for by the weighted linear composite of effects linked to it in the model (Diamantopoulos & Siguaw, 2000).

Table 4.24
Squared multiple correlations for structural equations

PWBW	NA	PA	EWB	JC	OCSE
.32	.08	.21	.28	.14	.12

Note: P*WBW = Psychological well-being at work; PA = Positive Affect; NA = Negative Affect; EWB = Eudaimonic Well-being; JC = Job Crafting; OCSE = Occupational Coping Self-Efficacy*

From these results it is evident that the structural model explained only 32% of variance in PWBW. The model can therefore be considered as having reasonable success in attempting to explain variance in the primary latent variable of interest.

Figure 4.5 depicts the parameter estimates for all of the hypothesised paths in the final version of the reduced structural model that was fitted to the data. Only 8 of the original 12 path specific hypotheses returned significant results (indicated in red). It should be noted that although there are 16 hypotheses in this study, H_{01} and H_{02} regard the exact fit and close fit null hypotheses, and hypotheses 15 and 16 regard the interaction effects which could not be tested via SEM and are accordingly discussed in the next section. Therefore, only 12 paths are indicated in Figure 4.5, of which 8 were found to be statistically significant. These significant path coefficients are indicated in red.

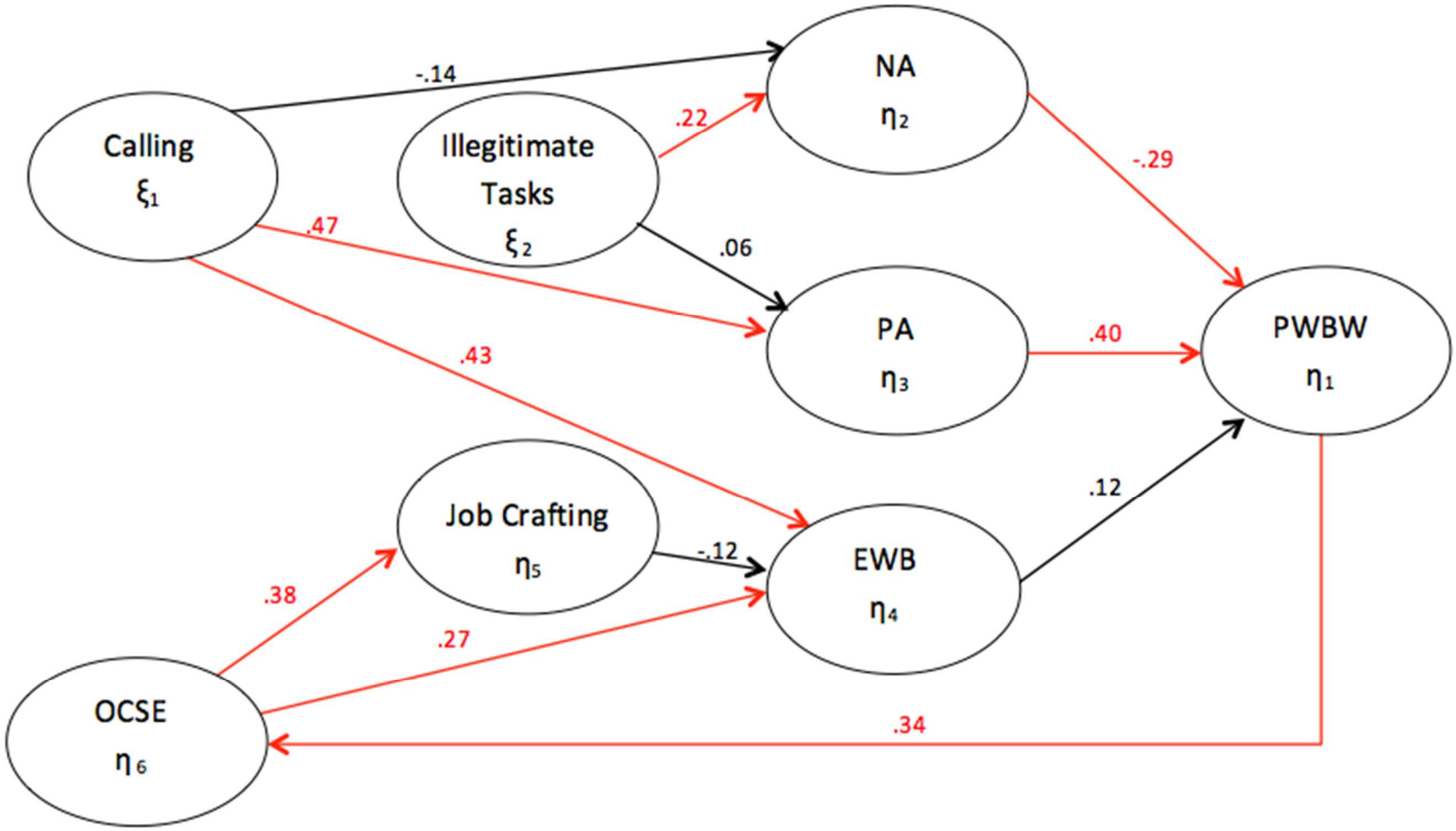

Figure 4.5. Results of the fitted PWBW structural model

4.6. Moderating Effects

A moderating or interaction effect exists when the introduction of a moderating variable changes the magnitude or direction of the relationship between two variables. The slope of the regression of the dependent variable on the independent variable therefore differs in terms of sign and/or magnitude across the levels of the moderator variable.

Two moderated multiple regression analyses were conducted in order to explore whether Job Crafting acts as a moderator in the relationship between Calling and EBW, and whether Illegitimate Tasks act as a moderator in the relationship between Calling and EBW. Quite often in moderated multiple regression analyses the correlation between components and the product terms representing the moderating effects are excessively high (Dalal & Zickar, 2012). Collinearity implies that within the predictor set, one or more of the independent variables are highly predicted by one or more of the other independent variables. This presence of collinearity can lead to problems when estimating regression coefficients and accordingly affect the statistical support for these moderating effects (Little et al. 2006). To remedy this this and reduce the collinearity the variables can be transformed, using mean-centering, before the interaction terms are created.

In order to calculate the mean centered interaction effect the means for each of the two variables (i.e. the independent variable hypothesised to have a main effect on the dependent variable, EBW, and the variables hypothesised to moderate this relationship, respectively Calling and Job Crafting) are determined and subtracted from the original variables (e.g. Mean-centered interaction effect = [Calling – mean of Calling] * [Job Crafting – mean of Job Crafting]). The product of these two mean centered values is then entered into the regression analysis as the interaction effect along with the original two variables.

According to Little et al. (2006) there exist two distinct advantages of mean centering predictor variables prior to creating interaction terms. First, mean centering alleviates the ill conditioning of the correlation matrix among the predictor variables that result from nonessential multicollinearity among the predictors and their interactions term. The resultant instability of regression estimates and standard errors are thus stable and robust. Otherwise stated the “bouncing beta weight problem is remedied” (Little et al. 2006, p. 499). The second advantage is that mean centering increases the interpretability of the estimates, as the regression coefficient for a mean-centered predictor may be more practically meaningful than the same coefficient for the same predictor with an arbitrary zero point. Little et al. (2006) state that mean centering is, in most cases, an adequate solution to the collinearity problem.

Mean centering was used in this study’s moderated multiple regression analyses in order to explore the moderating effect of Job Crafting in the relationship between Calling and EBW, and Illegitimate Tasks in the relationship between Calling and EBW. The results are discussed in the following sections.

4.6.1. Job Crafting as moderator

For the first moderated regression analysis, EBW was entered as the dependent variable. The independent variables included Job Crafting, Calling and the product term created from these two variables' mean centered values. The following hypothesis was tested:

Hypothesis 15: The interaction effect between Calling and Job Crafting (Calling*Job Crafting) has a positive linear effect on EWB.

The results in Table 4.25 indicates that the model was significant (.04, $p < .05$), but a mere 4% of the variance in EBW could be explained by the model.

Table 4.25
Model summary: Job Crafting as moderator (with mean centering)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.23[a]	.04	.03	17.36	2.90	.04[b]

a. Dependent Variable: 'EWB
b. Predictors: (Constant), Job Crafting_Calling, Job Crafting, Calling

Table 4.26
Moderated regression analysis with mean centering for Job Crafting

Model		Standardised Coefficients Beta	t	Sig
1.	(Constant)		100.68	.00
	Calling	.20	2.75	.01
	Job Crafting	-.13	-1.82	.07
	Calling_Job Crafting	.00	-.06	.95

The results from the moderated regression (Table 4.26) did not provide support for hypothesis 15 with $p > .05$. The inclusion of the Job Crafting x Calling interaction effect in the regression model did not explain any unique variance in EWB, not already explained by the other variables. Accordingly, hypothesis 15 was rejected.

4.6.2. Illegitimate Tasks as moderator

For the second moderated regression analysis, EBW was entered as the dependent variable. The independent variables included Calling, Illegitimate Tasks and the product term created from these two variables' mean centered values. The following hypothesis was tested:

Hypothesis 16: The interaction effect between Calling and Illegitimate Tasks (Calling*Illegitimate Tasks) has a negative linear effect on EWB.

The results in Table 4.27 indicates that the model was significant (.02, $p < .05$), but a mere 5% of the variance in EBW could be explained by the model.

Table 4.27
Model summary: Illegitimate Tasks as moderator

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.21[a]	.05	.03	17.32	3.23	.02[b]

a. Dependent Variable: 'EWB
b. Predictors: (Constant), Calling_Illegitimate Tasks, Calling, Illegitimate Tasks

Table 4.28
Moderated regression analysis for Illegitimate Tasks

Model		Standardised Coefficients Beta	t	Sig
1.	(Constant)		104.17	.00
	Illegitimate Tasks	-.15	-2.01	.05
	Calling	.14	1.98	.05
	Illegitimate Tasks_Calling	.00	.01	.99

The results from the moderated regression (Table 4.28) did not provide support for hypothesis 16 ($p > .05$). The inclusion of the Calling x Illegitimate Tasks interaction effect in the regression model did not explain any unique variance in EWB, not already explained by the other variables. Accordingly, hypothesis 16 was rejected.

Figure 4.6 illustrates the final conceptual PWBW model. The significant hypothesised effects derived from the structural equation modeling results are indicated in red.

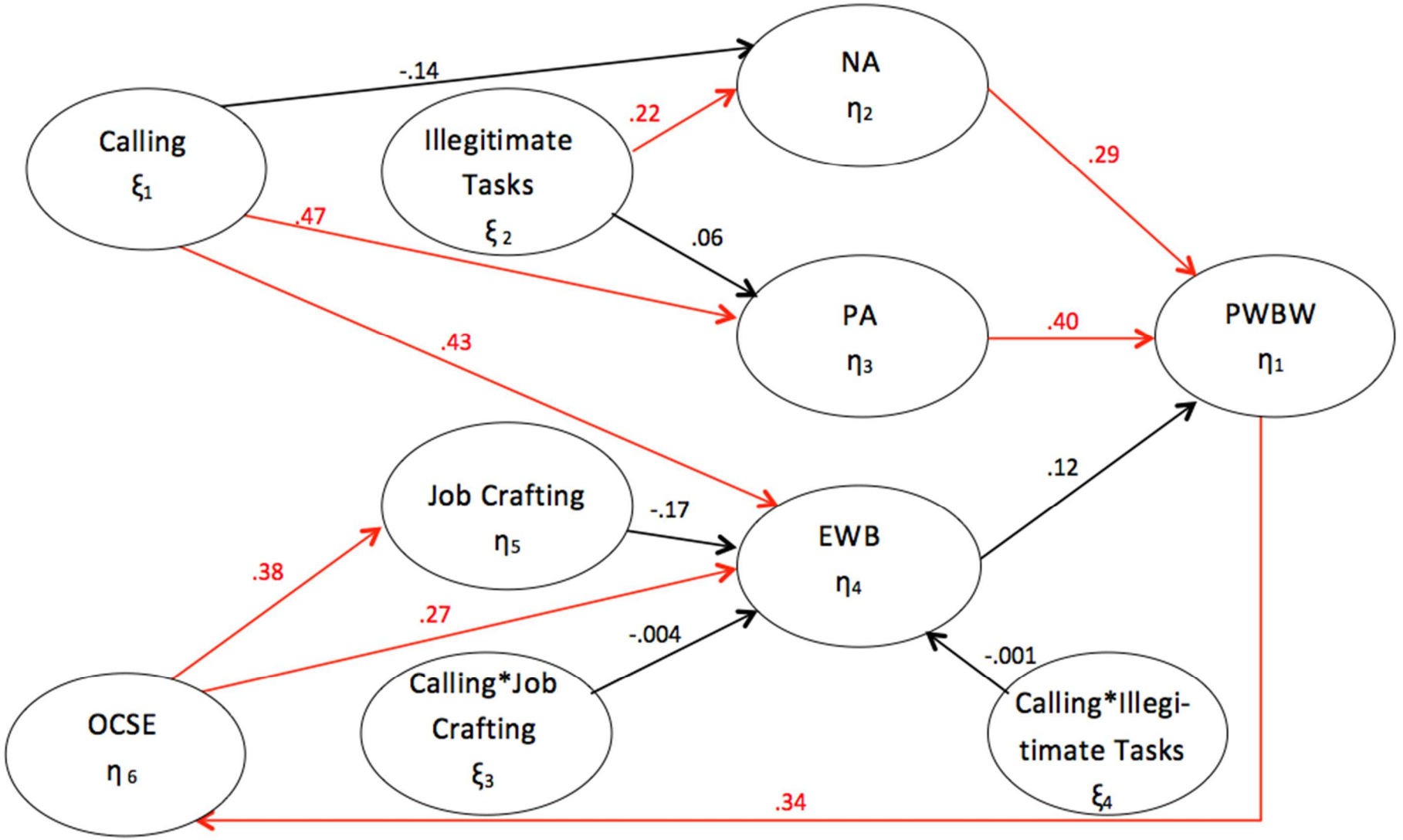

Figure 4.6. Final conceptual PWBW model

4.7. Summary

This chapter reported on the research results obtained through the various data analyses conducted in this study. Particularly, this chapter provided comprehensive comments on the measurement and structural model fit as well as reporting on the results of the hypothesised interaction effects contained in the conceptual PWBW model. The following, and final, chapter provides a detailed discussion of the results and specific focus is placed on possible structural model modifications and empirical suggestions for future research. The methodological limitations and practical implications of the research findings are also discussed.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1. Introduction

The research initiating question, formulated in chapter 1, asked why variance in PWBW of aged care / geriatric nursing staff occur. More specifically the emphasis of this study was on which job demands and resources, over and above those already considered in the Steyn (2011) and Boers (2014) models, should be investigated in explaining variance in PWBW. The research objective of this study was, therefore, to propose a nomological network of variables that provide a plausible explanation for the variance in the PWBW of geriatric care staff, at the hand of the JD-R model and Boers' (2014) conceptualisation of PWBW.

A systematic, reasoned argument was generated via theorising in response to the research initiating question and this was presented in a comprehensive literature review (chapter 2). The arguments contained in the literature study culminated into an answer to the research question in the form of a PWBW structural model. Chapter 3 motivated and delineated the research methodology utilised in this study to empirically test the newly developed PWBW structural model. The results of various statistical analyses performed to test the model was also presented (chapter 4).

This fifth and final chapter summarises and discusses the results presented in chapter 4 in more detail and allows for inferences to be made regarding the extent to which the theorising led to a valid probable explanation of the complex psychological processes underlying the PWBW of geriatric care staff. The limitations of the study are presented, followed by some recommendations for future research in this domain. The development and testing of an explanatory structural model should ultimately serve the purpose of enabling the development and implementation of interventions designed to influence the behaviour of working man. In this instance recommendations are made to influence the level of PWBW among geriatric care staff.

5.2. Results

The results of the various statistical analyses performed to test the proposed model of PWBW was presented in chapter 4. This section provides a summary of the measurement model fit and the structural model fit as elaborated on in chapter 4. This is followed by an interpretative discussion of the final results.

5.2.1. Summary of the PWBW measurement model results

Examination of the goodness-of-fit statistics (i.e. the RMSEA, NNFI, CFI and SRMR) revealed that the measurement model obtained reasonable fit, indicating that the model fitted the data well.

All of the indicators loaded significantly ($p < .05$) on the latent variables they were intended to reflect. Of the 26 indicator variables, 16 returned high lambda-x parameter estimates, low measurement error parameter estimates and high R^2 values. Of the remaining 10 indicator variables only one (JC-dhd) returned values that warranted concern. Overall it could be concluded that the majority of the indicator variables provided a relatively uncontaminated reflection of their respective latent variables and their operationalisation was reasonably successful.

Consideration of all of the aforementioned statistics led to the conclusion that the PWBW measurement model obtained a reasonable fit. As a result of relatively successful operationalisation, an unambiguous verdict could be concluded on the fit of the structural model.

5.2.2. Summary of the PWBW structural model results

The goodness-of-fit statistics (i.e. the RMSEA, NNFI, CFI and SRMR) indicated that the reduced PWBW structural model achieved moderate fit. The selected fit indices seemed to indicate that the structural model was able to reproduce the observed covariance matrix to such an extent that warranted sufficient faith in the model and its derived parameter estimates.

Inspection of the gamma matrix revealed that only two of the five hypothesised relationships between exogenous and endogenous latent variables could be deemed statistically significant ($p < .05$). Support was found for the hypothesised influence of Calling on PA and of Calling on EWB. No evidence was found for the hypothesised influence of Calling on NA, Illegitimate Tasks on NA and Illegitimate Tasks on PA.

The beta matrix revealed that five of the seven path estimates between endogenous latent variables were statistically significant ($p < .05$). This implies that support was found for the hypothesised influence of PA on PWBW, NA on PWBW, OCSE on EWB, PWBW on OCSE, and for OCSE on Job Crafting. Support was not found for the influence of Job Crafting on EWB. There was also a lack of support for the hypothesised influence of EWB on PWBW.

The results further revealed that the structural model explained only 32% of variance in PWBW (Table 4.24). The model can therefore be considered as having only moderate success in attempting to explain variance in the primary latent variable of interest. In order to gain a better understanding of the complex psychological processes that underlies PWBW, attempts should be made to gain a better

understanding of the nomological network of latent variables that could account for additional variance in PWBW. Implicitly, this suggests a further need for future research to elaborate on the suggested PWBW structural model tested in this research. Such relevant recommendations for future research are discussed in section 5.5.

It is important to note that the path-specific substantive hypotheses that were developed in chapter 2, incorporated into the PWBW structural model, and empirically tested through SEM in this study, all contain a silent condition that is implied by combining path-specific hypotheses into a single integrated structural model. Each of these hypotheses claims the influence of a specific exogenous or endogenous variable on another endogenous variable, with the variance of all the other variables being controlled for. This means that the same structural path embedded in a different structural model represents two different hypotheses. This should be kept in mind when comparing findings on specific structural relationships across various studies.

5.2.3. Summary of the moderating effects

Moderated multiple regression analyses with mean centering were conducted in order to explore first, whether Job Crafting acts as a moderator in the relationship between Calling and EWB, and second, whether Illegitimate Tasks act as a moderator in the relationship between Calling and EWB. The reasoning underlying the first moderating effect was that a care staff member who experiences a sense of Calling in her work is likely to experience greater levels of EWB if she actively engages in Job Crafting behaviour to align her job to her preferences. By crafting her job in such a way that increases its meaningfulness to her she might experience increased EWB. Regarding the second moderating effect, it was argued that an employee who feels called to her job is likely to experience greater EWB, but that the presence of hindering demands, specifically Illegitimate Tasks, may diminish the strength of this relationship. The care staff member might experience a sense of Calling, and thus meaning, in her work. This is likely to positively affect her EWB, but if she consistently has to perform tasks that are unrelated to caring the sense of meaning experienced might decrease, thus negatively impacting on her EWB levels. The results revealed no evidence of the moderating effect of any of these two variables in the proposed relationships. Neither of the interaction effects were found to be statistically significant and thus support was not found for hypothesis 15 or 16.

5.3 Interpretation of the structural model results

5.3.1 PWBW, HWB and EWB

The adverse organisational consequences of impaired employee well-being are well documented, particularly in the form of lost productivity (Hafner, et al. 2015). In a study by Pelissier et al. (2015), a staggering 36.83% of geriatric care staff, including nurses and nursing assistants employed by nursing homes in France, reported impaired mental well-being. The aforementioned contributes to

poor performance and increased turnover (Salanova et al. 2011; Xantopoulou et al. 2009), which warrants the exploration of the antecedents of, and psychological processes underlying, employee well-being.

The well-being literature incorporates two prominent lines of well-being conceptualisation, hedonic and EWB. HWB refers to an individual's feelings of happiness, i.e. low levels of NA and high levels of PA (Diener, 2000), whilst the pursuit of life's meaning is at the core of the EWB construct (Ryff, 1995; Waterman, 1993). Together, HWB and EWB are known as SWB, an aspect of employee health which is increasingly being acknowledged by organisations (Costanza et al. 2014). With the development of the IPWBW, Dagenais-Desmarais and Savoie (2012) contextualised SWB within the workplace. These authors argued that context-free SWB could be used to predict work-related well-being, i.e. PWBW. In support of this argument, Boers (2014) included measures of SWB as well as PWBW in her model of occupational well-being. This study supported the aforementioned conceptualisation of well-being and included the same well-being constructs in an attempt to replicate the results of Boers' study regarding the relationships between HWB, EWB and PWBW on another South-African sample.

Dagenais-Desmarais and Savoie (2012) found support for the "related, but distinct nature of PWBW with regard to context-free hedonic and eudaimonic PWB dimensions" (p.1). In their analysis of the relationship between the HWB and PWBW, the authors found a strong correlation between PA and PWBW (.526) and a slightly weaker correlation of -.357 between NA and PWBW. When both of the SWB components were entered into a regression analysis to determine PWBW, the results indicated that both EWB ($B = .147$, $p < .001$) and PA ($B = .296$, $p < .001$) was significant predictors of the dependent variable, with the latter mentioned once again emerging as the strongest predictor. NA was not found to be a significant predictor of PWBW in this analysis.

Dagenais-Desmarais and Savoie (2012), the developers of the IPWBW, noted the strong eudaimonic connotation with PWBW through the construct themes of congruence and self-realization – expecting some level of overlap between these variables. In accordance with the aforementioned, Boers (2014) hypothesised that both HWB and EWB would exert a direct influence on PWBW. In a model where all three these variables were hypothesised to directly and simultaneously predict PWBW, Boers (2014) found strong support for the positive relationship between PA and PWBW (path coefficient = .758), but no significant relationships were found between NA and PWBW or EWB and PWBW. To a certain extent, the current research corroborated the findings of Boers (2014).

In this study support was found for the relationship between PA and PWBW (H_{03}) with a path coefficient of .40, replicating the Boers (2014) results. It provides further evidence that experiencing positive emotions is likely to have a positive effect on an individual's level of PWBW (Dagenais-

Desmarais & Savoie, 2012). The theoretical argument underlying this relationship is Fredrickson's Broaden-and-Build theory (Fredrickson & Joiner, 2002). According to this theory positive emotions enables the broadening of an individual's cognitive context, which allows them to discover new and innovative lines of thought. Otherwise stated, positive emotions enable flexible, creative and receptive thought patterns, which enable the accumulation of resources. Therefore, in line with numerous studies indicating the influence of positive emotions on individual well-being (e.g. Keltner & Bonanno, 1997; Stein, Folkman, Trabasso, & Richards, 1997; Fredrickson, 2004; Dagenais-Desmarais & Savoie, 2012; Boers, 2014), it can be concluded that the experience of PA is likely to result in increased PWBW.

Contrary to the results of Boers (2014), support was found for the hypothesised relationship between NA and PWBW (i.e. H_{04} was rejected with a statistically significant path coefficient of -.29). In line with the Broaden-and-Build theory, it was argued here that, contrary to positive emotions, negative emotions lead to narrowed thought-action repertoires which are likely to lead to downward spirals of affect. For example, a care staff member experiencing high levels of fear, a negative emotion, is less likely to feel competent in her work, a dimension of PWBW. This finding partially corroborates the original results of Dagenais-Desmarais and Savoie (2012), where a correlation of -.357 between these constructs were reported.

Finally, in line with Boers' (2014) results, no support was found for the direct proposed relationship between EWB and PWBW (H_{05}). Although EWB emerged as a weaker predictor of PWBW than PA in Dagenais-Desmarais and Savoie's (2012) study, the complete lack of support found for the relationship in this current study was unexpected due to the strong conceptual overlap between the two constructs. However, even though this finding replicated the Boers (2014) results, this needs to be interpreted with caution. In this study there was fairly strong evidence to suggest that the integrity of the EWB scale was compromised. In chapter three the results of item analysis and CFA on this scale revealed that a strong possibility exists that method bias was present in the measure, most possibly due to the confounding impact of language proficiency on the validity of the instrument (Moyo & Theron, 2011). This was the only scale in this study in which approximately 50% of the items were negatively keyed and also the only instrument in which fairly noticeable negative results, in terms of instrument properties on this sample, were evident. When participants respond to test items in their second language, as was the case in this research, the validity and reliability of the instrument is compromised (Foxcroft & Roodt, 2005). This problem is exaggerated by the presence of negatively keyed items in a questionnaire (DiStefano & Motl, 2006), as was evident from the EWB data obtained in this study.

The results revealed that an additional path between the well-being constructs would significantly improve the fit of the model. Modification Index (MI) values exceeding the critical chi-square value of

6.64 indicate parameters that would improve the model fit if they are to be set free. Table 4.17 showed a positive MI value of 17.51 for a path from EWB to PA. PA emerged as a significant predictor of PWBW (.40) in this study, thereby corroborating the positive relationship between these constructs found by Boers (2014) and by Dagenais-Desmarais and Savoie (2012). Therefore, it can be argued that experiencing certain aspects of EWB might have a positive influence on PA, which might then, in turn, play a role in increasing PWBW. For example, a care staff member might experience more positive affective states at work if she has a good relationship with her colleagues (i.e. the Positive Relations aspect of EWB). These positive emotions might then reinforce her sense of IFW, a dimension of PWBW. Similarly, an employee might feel proud, a positive affective state, if she feels that she is effectively managing her life (i.e. EWB's Environmental Mastery). These positive emotions are then likely to impact her PWBW through, for example, increased FCW. In essence these results suggest that the effect of EWB on PWBW might be through PA, as opposed to the direct path hypothesised to exist between EWB and PWBW. Therefore, experiencing the sense of meaning and purpose that lie at the core of EWB is likely to translate into positive emotions which, in turn, could contribute to greater PWBW.

5.3.2 PWBW and the JD-R Model

Individual well-being is influenced by various personal, as well as environmental factors. Research in this domain has explored the influence of multiple personal resources and job-related factors on employee well-being (Sonnentag, 2015). The widely undisputed impact of these factors as predictors of individual well-being, particularly in the employment context, justified Demerouti et al.'s (2001) Job Demands-Resources (JD-R) model as the theoretical framework for this study.

The authors of the JD-R model posited that multiple job and personal resources influence work engagement, through the moderating effect of job demands. Work engagement, as an established indicator of well-being, plays a central role in developing employee, and ultimately organisational, well-being (Schaufeli & Salanova, 2007). The aforementioned, combined with the flexible nature of the JD-R model has allowed the exploration of various job demands and resources, and their interaction, in relation to employee well-being (Bakker, 2011).

The job demands and resources included in this study were chosen with the aim of gaining further insight to the complex processes and factors underlying geriatric care staff's psychological well-being at work. An increased understanding of this intricate network of variables could enable organisational interventions tailored to effectively promote employee well-being and optimise organisational performance. The results of the structural model, as summarised in section 5.2, indicated that numerous of the included constructs contribute to PWBW either directly or through the mediating effect of other constructs. Thus, the final structural model provides an overview of the nature of one possible nomological net of variables that explain variance in PWBW.

It was proposed that PWBW would be influenced indirectly by the JD-R variables (i.e. the personal resources of Calling and OCSE, the job demands of Illegitimate Tasks, and by Job Crafting) through SWB, which was defined as HWB and EWB. Partial support was found for this proposition as support was found for H_{06}, H_{07}, H_{08}, H_{010}, H_{012} and H_{014}, but not for H_{09}, H_{011} and H_{015}. Findings for the hypotheses involving the personal resources of OCSE and Calling is discussed, followed by the results pertaining to Job Crafting. Results regarding the job demand of Illegitimate Tasks is then discussed. Finally, evidence providing support for the presence of a feedback loop in the model is discussed.

The relationship between OCSE and EWB, i.e. H_{06}, was found to be statistically significant with a path coefficient of .27. As a significant personal resource it was argued, for example, that a care staff member's belief in her ability to cope at work (OCSE) might affect her levels of Environmental Mastery, a EWB dimension that also regards the perception of the ability to effectively deal with demands. Similarly, as argued by Boers (2014) if one believes that one could successfully accomplish a task (i.e. self-efficacy), then one would be motivated to persist until one thrives in it, i.e. the Thriving At Work EWB dimension. Boers (2014) found support for this relationship with a statistically significant path coefficient of .23. The relationship that emerged between OCSE and EWB in this study is, therefore, a partial replication of Boers's (2014) results indicating support for a path between self-efficacy and EWB. This study's results also corroborates the findings by Pisanti et al. (2015) indicating that higher levels of OCSE in nursing staff were consistently related to higher well-being and lower distress levels.

OCSE also emerged as a statistically significant predictor of Job Crafting with a path coefficient of .38 (H_{08}). This provided support for the argument that individuals with high OCSE beliefs are more likely interpret job stressors as challenges (Pisanti et al. 2015). Therefore, they are more likely to engage in proactive behaviour, such as Job Crafting, that will enable them to deal with their tasks more effectively.

It was also argued that crafting one's job would have a positive impact on one's EWB (H_{09}). For example, if a care staff member feels unstimulated by her job she might craft her job to increase demands of a challenging nature, which might lead to increased levels of Personal Growth, a EWB dimension. However, with an insignificant path coefficient (-.12) support was not found for this relationship. This could possibly be attributed to the problematic conceptualisation of EWB as discussed in section 5.4.

The construct of Calling has been shown as a relevant predictor of nursing staff well-being, but researchers have found mixed results for this relationship. In line with Kwon's (2013) finding that

Calling was one of the most salient predictors of nurse happiness it was hypothesised that Calling would be positively related to PA (H_{010}) and negatively related to NA (H_{011}). With a statistically significant path coefficient of .47 support was found for the positive relationship between Calling and PA, but the path coefficient (-.14) for the former mentioned with NA was not statistically significant. It could be argued that the nature of the Calling construct as a positive psychological capacity would be expected to be a stronger predictor of other positive constructs such as PA. For example, experiencing the sense of meaning in one's work (i.e. Calling) would be more likely to increase one's interest in the work (i.e. a positive emotion), than it would be to impact one's levels of fear of reprimand (i.e. a negative emotion). Similarly, Calling might have a greater impact on the extent to which a new care staff member feels determined to perform (i.e. a postive emotion) than on her levels of nervousness (i.e. a negative emotion). Calling emerged as a significant predictor of EWB (H_{012}) with a path coefficient of .43. Calling is conceptualised as a career with great importance for an individual's life meaning (Duffy & Dik, 2013) and EWB regards an individual's experience of fulfilment and purpose (Ryff, 1995; Waterman, 1993). Thus, support for this path makes theoretical sense as the eudaimonic sense of meaning and purpose is central to both of these constructs. These results provide some insight to the complex relationship of Calling with the various aspects of subjective well-being.

Illegitimate Tasks emerged as a significant predictor of NA (H_{013}) with a coefficient of .22, but not of PA (H_{014}). In light of these results it can be argued that the inherent negative nature or psychological experience of Illegitimate Tasks would be a stronger predictor of negative emotions and mood states, than its positive counterparts. However, the results did reveal that Illegitimate Tasks have an indirect effect on PWBW, a positive psychological state, through the mediation of NA. This implies that the perception of demands of an unnecessary or unreasonable nature leads to increased negative emotions which, in turn, adversely affects the employees' PWBW. For example, if an unexperienced care staff member is left in charge of an entire frail care ward it would constitute an Unreasonable Task which is likely to evoke anxiety or fear, both negative emotions. These negative emotions are likely to adversely affect the employee's DIW and feelings of TW, both dimensions of PWBW. The same reasoning might hold for a care staff member required to perform tasks perceived as unnecessary, like recapturing patient data due to insufficient procedures. For example, physically writing out hourly patient reports and then having to rewrite the reports at the end of the shift might lead to frustration, a negative emotion, which could result in decreased PWBW.

Lastly, H_{07} posited that PWBW would have a positive impact on OCSE. The reasoning underlying this hypothesis was Hobfoll's (1989) Conservation of Resources theory stating that resources are crucial to the process of well-being and that individuals invest their resources to obtain more resources, resulting in resource gain spirals. It was argued that PWBW could be considered such a resource, leading to the accumulation of other personal resources. For instance, an employee with confidence

in her ability to effectively perform her work (i.e. the FCW PWBW dimension) is likely to have increased belief in her ability to cope at work, i.e. OCSE. Similarly, her OCSE beliefs might be positively affected if she feels that her supervisor acknowledges her contribution, i.e. the PWBW dimension of PRW. The statistically significant relationship (.34) provides support for the resource gain spiral from PWBW to OCSE. It was argued that PWBW can be considered as one such valuable resource that may enable this accumulation of resources, in this case OCSE.

This argument for the presence of a resource gain spiral is further substantiated by the presence of a high modification index (MI) value (17.51 as per Table 4.17) indicating the need for a path from EWB to PA. The reasoning underlying this is as followed: the results in this research provided evidence that PA is a significant predictor of PWBW and PWBW is, in turn, significantly related to OCSE which has a positive relationship with EWB. Therefore, if the suggested path between EWB and PA would be added in future research, and support has indeed been received therefore, this would 'close' this feedback loop and could be considered prominent evidence of a significant resource gain spiral in terms of the effect of HWB on PWBW, which influences personal resources (such as OCSE), which in turn again affects EWB, which predicts HWB.

5.3.3. Moderating effects

In this study two moderated multiple regression analyses were conducted in order to investigate the impact of two moderating effects on the PWBW of geriatric care staff. A moderating effect exists when the introduction of a third variable alters the magnitude or direction of the relationship between the initial variables. Due to the presence of collinearity, which could affect the statistical support for the moderating effects (Little et al. 2006), mean-centering was used to create the interaction terms (see section 4.6 for a delineation of the mean-centering process).

Hypothesis 15 posited that Job Crafting would act as a moderator in the relationship between Calling and EWB. It was argued that a care staff member with a sense of Calling in her work will experience increased EWB if she actively engages in Job Crafting behaviour to align her work more closely to her preferences. With $p > .05$ (Table 4.26) the results from the moderated regression analysis did not provide support for hypothesis 15. Therefore, the inclusion of the Calling*Job Crafting interaction effect in the regression model failed to explain unique variance in EWB.

Hypothesis 16 stated that the interaction effect between Calling and Illegitimate Tasks would have a negative effect on EWB. It was reasoned that experiencing a sense of Calling at work would lead to greater levels of EWB, but that the presence of hindering demands, particularly Illegitimate Tasks, would diminish this relationship. This reasoning is in line with the JD-R model that posits that job demands moderates the relationship between personal resources and indicators of well-being. Thus, the interaction effect (Calling*Illegitimate Tasks) would negatively influence EWB. The inclusion of

this interaction effect in the regression model also failed to explain unique variance in EWB and thus, hypothesis 16 was also rejected.

The lack of support found for these two moderating effects could possibly be attributed to the problematic operationalisation of EWB. In order to establish whether these interaction effects do indeed have a significant influence on care staff's EWB it should be tested again.

5.4. Limitations to the study

The fact that the data was collected by means of self-report measuring instruments is one of the most apparent shortcomings of this study. Although this method of data collection is prevalent in the social sciences, it does have some disadvantages (Babbie & Mouton, 2002). First, it poses the problem of common method variance, which implies that inferences made by the researcher (e.g. correlations between variables) may be artificially inflated. Second, self-report data may be prone to response biases from the respondents that can result in inaccurate reflections of the constructs being measured. Response bias refers to the tendency of respondents to respond in a particular way to items, independent of the intended content, yielding systematic variance that is irrelevant to the content under study (American Educational Research Association, 1999). As this study relied solely on self-report measures the results should be interpreted with this possible limitation taken into account.

It should also be noted that even if good model fit is obtained in SEM it does not imply causality. The structural model that was evaluated hypothesised specific causal relationships between the various variables comprising the model, but good model fit and significant path coefficients constitute insufficient evidence to conclude the existence of causal linkages. This limitation is not due to the analysis technique that was utilised, but due to the *ex post facto* research design (Kerlinger & Lee, 2000). However, the structural model in itself does give a sense of how the nomological net of variables, possibly accounting for variance in PWBW of geriatric care staff, may look.

The PWBW structural model was developed in order to explain variance in the PWBW of geriatric care staff employed in South African aged care facilities. The model was however tested on a non-probability, convenience sample of geriatric care staff employed by four aged care facilities managed by the same management company. Therefore, it cannot be claimed that the sample was representative of the population of South African geriatric care staff. Great caution should be taken when generalising the results of this current study to the target population. Replication of this study is encouraged.

Another limitation regards the factor structure of the EWB construct that was utilised in this study. The results of the CFA conducted on Ryff's EWB scales revealed evidence of a different factor

structure obtained in the current sample, than what was claimed by the developer of the instrument. Excessively high correlations were found between the dimensions of Autonomy and Environmental Mastery as well as between Personal Growth and Purpose. Due to the presence of this multicollinearity, a bi-factor was incorporated into the EWB measurement model as it takes into account the loadings on the respective items as well as loadings on the higher order EWB construct. These four highly correlated dimensions were accordingly collapsed into two respective dimensions, resulting in a EWB factor structure consisting of a bi-factor and four sub-dimensions as opposed to the original six factor structure proposed by Ryff (1989).

It is possible that the aforementioned limitation arose as a result of the demographics of the sample in conjunction with the format of the questionnaire. The large majority, i.e. 81.10% (see Table 4.2), of the sample indicated English as their second language. The EWB scale was administered in English and contained multiple items that were negatively stated and needed to be reverse scored. Negatively stated items have been used extensively in survey development to guard against respondent bias, as described earlier in this section (Cronbach, 1950). However, most of the research on this practice has indicated problems with internal consistency, factor structures, and other statistics when negatively worded items are used either alone or in conjunction with directly worded items (Barnette, 2000). Negatively stated items could result in a method effect likely to confound the data and obstruct the researcher's view of the content under study, i.e. factorial validity (DiStefano & Motl, 2006). Some research has pointed to the differential ability of respondents to deal with negatively stated items (Barnette, 2000). For example, Melnick and Gable (1990) found that adult respondents with lower education levels were more likely to provide inconsistent responses when mixed item types were used. Similarly, it might be argued that the adverse consequences of the method effect resulting from negatively stated items can be intensified if the questionnaire is not presented to the respondent in his or her first or mother language. This issue is of particular relevance in South Africa due to the multicultural nature of the society (Foxcroft, 2004). Nonetheless, failure to find support for the EWB factor structure as proposed by the original author (Ryff, 1989) is considered an important limitation in this study.

5.5 Recommendations for future research

The PWBW model was developed and tested in order to gain a better understanding of the complex nomological network of latent variables that underlie the psychological processes that determine geriatric care staff's PWBW. However, successfully and accurately explaining variance in psychological phenomena is no simple feat and it is highly unlikely that any research will be able to do so in isolation. The collaboration of researchers, building upon each other's work, is needed in order to develop comprehensive models to attempt to closely approximate reality. This section makes recommendations for future research based on the findings of this study. These recommendations

specifically regard the significance of the hypothesised paths as well as paths that, if included, would significantly improve the fit of the model.

The empirical testing of hypotheses that have been developed through theorising, in response to the research initiating question, should be clearly separated from any subsequent attempts to modify the original comprehensive model based on findings derived from the study (Van Deventer, 2014). This section delineates some of the ways that the PWBW model presented in this study could be refined in order to improve its fit. The possible structural model modifications for future studies consider whether the insignificant paths in the current model should be removed and whether any additional paths should be added.

Whether or not an insignificant path should be removed depends on the strength of the theoretical argument that led to its inclusion in the model. The results from the statistical analyses performed indicated that six path coefficient estimates in the PWBW structural model were statistically insignificant ($p < .05$).

It is argued here that the insignificant nature of the paths containing the construct of EWB could possibly be due to the operationalisation challenges related to this construct, experienced in this study. The arguments, presented in chapter 2, that underlie the hypothesised relationships between Job Crafting and EWB, as well as the relationship between EWB and PWBW, were based on a strong body of research evidence, and therefore it is reasonable to expect that these arguments may be theoretically sound. It is recommended that these paths should therefore be retained in the model in a follow-up study.

A lack of support was found for the hypothesised influence of Illegitimate Tasks on PA, whilst Illegitimate Tasks were found to be a significant predictor of NA. A possible explanation for this result was discussed in section 5.3, but nonetheless, it is contended that these two paths should be retained and retested to gain insight to Illegitimate Tasks' relationship with HWB.

Lastly, evidence was not found for the hypothesised influence of Calling on NA. Calling was however found to have significant relationships with PA (.47) and EWB (.43). As discussed in section 5.3 these results may be due to the positive nature of the Calling construct. It is however, suggested that the relationship between Calling and the various well-being indicators is included in future studies in order to clarify this seemingly complex relationship.

The aforementioned recommendations are all based on the findings regarding the hypothesised paths included in the original PWBW structural model. In addition to this, it is also necessary to comment on the paths that, if included, would significantly improve the fit of the model. The modification indices

for the gamma (Table 4.16) and beta (Table 4.17) matrices indicated that the addition of multiple paths between the exogenous and endogenous variables, not currently included in the model, would significantly improve the model fit. These include paths from a) Calling to PWBW, b) Calling to Job Crafting, d) Job Crafting to PWBW, e) PWBW to Job Crafting and f) Illegitimate Tasks to PWBW.

The significant relationship (path coefficient = .47) between Calling and PA (H_{10}) and the latter mentioned variable's relationship with PWBW (H_{03}) provides support for the argument that an employee who experiences a sense of Calling in their work is more likely to experience positive emotions at work, which would in turn result in increased PWBW. However, the suggested direct path from Calling to PWBW returned the highest MI value (126.49). It can be argued that a care staff member experiencing Sense And Meaning, as a dimension of Calling, is likely to experience a DIW as well as an experience of TW, both of which are dimensions of PWBW. Furthermore, if an individual identifies with their work and experiences a positive Person-Environment Fit At Work, another dimension of Calling, it is likely to result in a heightened sense of the PWBW dimension of IFW. Hence, the addition of a direct path from Calling, apart from the indirect paths indicated in the current model, may be important in accounting for more variance in PWBW. This suggests that Calling may be a much more influential construct in predicting different aspects of well-being at work, as indicated in this research, than originally thought. Not only does Calling seem to influence PWBW through its effect on PA, it also exerts a fairly similar direct effect on EWB (i.t.o. strength of path coefficients). However, the current results seem to suggest that it also would exert a direct effect on PWBW on its own, thus leading to the conclusion that Calling predict different aspects of well-being in different ways.

The results also indicated the need for a path between Calling and Job Crafting with a modification index value of 18.96. The addition of such a path in future research would also be theoretically justified. It could be argued that an employee that experiences a sense of Calling in their work would be more likely to craft their work in such a way that optimises the sense of meaning derived from it. This could, in turn, lead to increased PWBW as indicated by the need for a direct path between Job Crafting and PWBW (as evident in Table 4.17 with a MI value of 45.57). This bi-directional relationship could be theoretically justified. For example, engaging in Job Crafting dimension of Increasing Social Resources one could affect one's experience of positive relationships in the workplace, i.e. the PWBW domain of IFW. Job Crafting through increasing challenging demands, for example, could lead to a greater sense of fulfilment at work, i.e. the PWBW domain of TW. Experiencing increased levels of PWBW could then lead to an increased likelihood to engage in Job Crafting, as indicated by a large and positive MI value of 39.24 for a path from PWBW to Job Crafting. For example, if an individual experiences an increased level of competency and PRW, then he or she would be more likely to increase the challenging demands of the job.

A positive MI value of 10.81 suggested the addition of a direct path between Illegitimate Tasks and PWBW. From this it can be inferred that, in addition to merely having negative affective consequences, the experience of Illegitimate Tasks may also directly impact on an individual's work-related well-being. This is in line with Crawford et al.'s (2010) argument that hindering job demands, such as the Unreasonable and Unnecessary Tasks entailed in the concept of Illegitimate Tasks, has the potential to thwart well-being.

5.6 Managerial Implications

Impaired well-being of employees adversely impacts organisations primarily through the loss of productivity (Hafner et al. 2015). The closely related nature of work, health and well-being is well-documented and need to be addressed together (Black, 2008). Literature on the concerning levels of well-being experienced by nursing staff, which constitute the largest group of employees in the health care industry (Giallonardo, Wong, & Iwasiw, 2010), is abundant. Increased understanding of the factors which contribute to nursing staff's well-being is crucial in enabling the implementation of management practices that could optimise well-being and consequently performance. The value of the present study is in the exploration of some of the antecedents of PWBW.

This research responded to Demerouti and Bakker's (2011) call to further explore the slightly neglected role of personal resources in the JD-R model. This study's findings corroborate Xantopoulou et al.'s (2009) observation that personal resources are particularly beneficial to organisational health outcomes. In order to cultivate a workforce with healthy levels of psychological well-being it is suggested, based on the research results attained through this study that organisations, firstly, develop tailored selection procedures to incorporate consideration of personal resources such as Calling. An individual's sense of Calling to a specific occupation is unlikely to change significantly and it is therefore suggested that a measure of Calling should be incorporated into nursing staff selection procedures. The further reasoning behind this recommendation is twofold. First, Calling is particularly relevant for the health care sector as these employees have been found to experience higher levels of Calling than employees in other economic sectors (Hagmaier & Abele, 2012). A second reason pertains to the fact that support was found in this study for the relationship between Calling and well-being (both EWB, HWB and indirectly PWBW), implying that experiencing a sense of Calling at work would naturally lead to higher levels of PWBW.

Second, organisations could implement intervention programmes designed to develop personal resources such as OCSE. According to Bandura (1997) self-efficacy beliefs play a crucial role in performance, as it regards belief in one's ability to effectively deal with the demands of various life domains. Employees with high self-efficacy beliefs are likely to exert greater effort in order to successfully complete tasks (Schaufeli & Salanova, 2007). In a study specifically regarding nursing

staff, Pisanti et al. (2015) found that higher levels of OCSE were related to higher levels of well-being, even when controlling for the effects of various other job demands and resources. As demonstrated by researchers such as Görgens-Ekermans, Delport and Du Preez, (2015) and Ouweneel, Le Blanc and Schaufeli (2013) his type of state-like resource can be developed through training initiatives.

Third, organisations could attempt to minimise hindering job demands such as Illegitimate Tasks. Nursing staff are faced with direct care tasks and indirect care tasks (or non-nursing tasks), of which direct care tasks are more central to the occupation (Gabriel, Diefendorff & Erickson, 2011). Direct care tasks involve nursing tasks that require extensive nurse-patient interaction, such as feeding, bathing and comforting patients (Aiken et al. 2001). Indirect care tasks, involving less nurse-patient interaction includes reviewing diagnostic test results and more administrative duties such as data capturing and patient history reviews (Aiken et al. 2001). A task is considered illegitimate if the employee believes that it should not be expected from them based on the perception of it being unreasonable or unnecessary. Although illegitimacy may be perceived in both direct and indirect care tasks, it is more likely that the latter mentioned might be perceived as illegitimate. To this end it is recommended that organisations structure care staff tasks with minimal indirect care tasks. For example, the recapturing of data due to inadequate administration procedures is likely to be perceived as an Illegitimate Task of an unnecessary nature. Organisations are also advised to clarify expectations for, and reasoning behind tasks, in order to minimise the likelihood that a task would be perceived as illegitimate.

5.7 Conclusion

The overarching purpose of this study was to explore a nomological network of variables hypothesised to explain variance in PWBW. The current model was developed within the positive psychology paradigm with the established Job Demands-Resources model (Demerouti et al. 2001) and Boers' (2014) conceptualisation of well-being serving as the primary theoretical foundation. The framework of variables was chosen with consideration of Hobfoll's (1989) COR theory as well as Fredrickson's (2001) Broaden-and-Build theory. The variables included Calling, Illegitimate Tasks, Job Crafting and OCSE as antecedents of employee well-being, conceptualised as HWB, EWB and finally PWBW.

This study provided relevant insight to some of the underlying processes that influence PWBW that could assist organisations to design interventions specifically tailored to increase the PWBW of geriatric care staff members.

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APPENDIX A – INFORMED CONSENT

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CONSENT TO PARTICIPATE IN RESEARCH

EMPIRICAL EVALUATION OF A STRUCTURAL MODEL OF PSYCHOLOGICAL WELL-BEING AT WORK

You are asked to participate in a research study conducted by Mrs Christel Vermaak from the Industrial Psychology Department at Stellenbosch Univeristy. The results obtained will contribute to the completion of a Masters of Commerce degree in Industrial Psychology. You are selected as a possible participant in this study because you can give valuable input to the data gathering process of this study.

1. PURPOSE OF THE STUDY

Boers (2014) developed a structural model of psychological well-being at work (PWBW) in an attempt to depict how positive psychology variables can be combined in a dynamic depiction of the nomological net of variables underlying the phenomenon of PWBW. As an adaption to the Boers (2014) model, this study aims to propose a nomological network of variables that provides a plausible explanation for the variance in the PWBW of geriatric care staff. The proposed model was developed at the hand of the JD-R model, which serves as the theoretical underpinning of the study, and PWBW is conceptualised in line with Boers' (2014) study.

2. PROCEDURE

If you volunteer to participate in this study, you will be asked to evaluate yourself by means of filling out a composite questionnaire. There are no right or wrong responses; we are

merely interested in how you view yourself. The completion of the composite questionnaire will require approximately 30 minutes of your time.

3. POTENTIAL RISKS AND DISCOMFORTS

This is a relatively risk-free study. The only potential risks and/or discomforts that could result from participating in this study include the time that is required to fill out the questionnaire and the potential discomfort of having to evaluate yourself. A reflection on what you may consider as illegitimate tasks as part of your job (i.e. non core tasks that you are required to fulfil) is part of the questionnaire. This may make you think about things that you have to do on a daily basis, which you may not enjoy particularly. You should understand that none of this data will be shared with any person in a management position, and that you will not be required to write your name on the questionairre. Moreover, you will also be asked to think about the emotional labour of your job (i.e. the extent to which you regulate your emotional display in an attempt to meet organisationally-based expectations specific to your job roles). Reflecting on your daily emotional experiences may cause some discomfort. If you experience any severe emotional distress during the completion of the questionnaire, please be advised that you have the right to discontinue participation at any stage, or decide not to complete some of the items in the questionnaire. The data will only be utilised for research purposes and no consequences, positive or negative, will result from the findings.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participation in this study has no direct benefit, monetary or otherwise, to the individual participant. The benefits of the knowledge obtained from the study's results will be focused on helping organisations to develop human resource practices to ensure the development of employees' strength and positive personal resources through training initiatives, as well as through the establishment of a corporate culture of positive well-being.

5. CONFIDENTIALITY AND ANONYMITY

The information that you provide will be kept completely confidential. You will not have to fill in your name on the questionnaire; hence your responses will be anonymous. The results

of this study will be published in the form of an academic thesis and academic peer-reviewed article in an academic journal and confidentiality of all data will be maintained at all times.

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. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

7. IDENTIFICATION OF INVESTIGATORS

If you have any concerns about the research, feel free to contact Christel Vermaak (vermaakchristel@gmail.com / 083 6322 969) or Dr G Görgens (ekermans@sun.ac.za / 021 808 3596).

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, Stellenbosch University.

CONSENT FORM (please tick the appropriate box):

I hereby consent to voluntarily participate in this study. I agree that my data may be integrated into a summary of the results of all the questionnaires without identifying me personally. ☐

I don't want to participate in this study. ☐

APPENDIX B – ETHICAL CLEARANCE

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Approved with Stipulations
New Application

16-Feb-2016
Vermaak, Christel C

Proposal #: SU-HSD-001798

Title: **THE DEVELOPMENT AND EMPIRICAL EVALUATION OF A STRUCTURAL MODEL OF THE PSYCHOLOGICAL WELL-BEING AT WORK OF GERIATRIC CARE STAFF**

Dear Mrs Christel Vermaak,

Your **New Application** received on **03-Dec-2015**, was reviewed
Please note the following information about your approved research proposal:

Proposal Approval Period: **15-Feb-2016 -14-Feb-2017**

The following stipulations are relevant to the approval of your project and must be adhered to:
The REC concurs with the DESC's recommendation that the language used in the informed consent form be simplified so that participants can readily understand the purpose of the study and what is required of them. The researcher is therefore advised to consider the DESC's comments in the DESC report and to respond to the comment below:

1) INFORMED CONSENT PROCESS
The research proposal and the application for ethical clearance indicate that informed consent will be obtained from all research participants. An informed consent formulation has been integrated as a preamble into the composite research questionnaire. The signature section has been replaced with two tick boxes. The research questionnaire carries the Stellenbosch University logo.
The language and technical editing of the informed consent formulation is beyond reproach. Nonetheless the DESC is concerned whether participants can be reasonably expected to understand the section of the informed consent formulation that describes the purpose of the research in rather technical terms. The DESC was wondering whether there is anyway this can be simplified for the participants. The DESC is firstly questioning whether it will be fair to put the participants under the burden of trying to understand this explanation and secondly whether it does not raise the chances that some will not understand the explanation but still decide to agree to participate. Will it be ethical to expect the participants to consent when there is a known reasonable possibility that they might not understand the explanation of the purpose of the research. The researcher is requested to consider simplifying the explanation of the purpose of the research.

Please provide a letter of response to all the points raised IN ADDITION to HIGHLIGHTING or using the TRACK CHANGES function to indicate ALL the corrections/amendments of ALL DOCUMENTS clearly in order to allow rapid scrutiny and appraisal.

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your **proposal number** (**SU-HSD-001798**) on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 218089183.

Included Documents:

DESC Report - Theron, Carl

REC: Humanities New Application

Sincerely,

Clarissa Graham
REC Coordinator
Research Ethics Committee: Human Research (Humanities)