



College of Business

**HOW CHANGES IN JOB DEMANDS AND JOB RESOURCES
PREDICT WORK ENGAGEMENT AND JOB
PERFORMANCE AMONG NURSES IN THE PUBLIC
HEALTHCARE SECTOR OF THE UNITED ARAB
EMIRATES: THE MODERATOR ROLE OF OVERALL
JUSTICE**

**Presented to
The Academic Faculty**

By

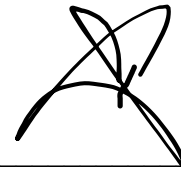
Fatima Mohammed Khamis Al Badi

**In partial fulfillment
of the requirements for the degree of
Doctor of Business Administration**

**College of Business
Abu Dhabi University**

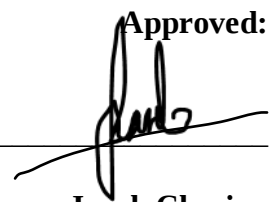
April 2023

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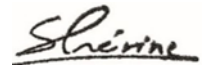


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ABSTRACT

Nurses who are more engaged in their work and have the right job characteristics and positive organizational factors, are expected to perform better. This research uses the Job Demands-Resources (JD-R) model as a theoretical lens, explored the job characteristics and organizational factors that affect work engagement and job performance of nurses in the public healthcare sector in the United Arab Emirates (UAE), with the aim of improving performance in that sector. Nurses (N = 2,369) working in the public healthcare sector in the UAE were asked to provide their perceptions on work engagement and its antecedents, their performance, and how they perceive justice in their workplace. Regardless of job demands, nurses' job performance remained unaffected by demographic factors, which was a striking finding: nurses provide quality services and manage to accomplish their tasks, at any level of demand. Also, the research proved the role of work engagement as a mediator variable. Plus, justice acted as a moderator of the relationship between job resources and work engagement, which was a new addition to literature. Nurses with low overall perceptions of justice had stronger links between job resources and work engagement. Even if the level of justice was perceived as low, work engagement remained unaffected. The originality of this research is pinpointed as work engagement is a critical issue, but it has received little attention, mainly on its relationship with performance as an outcome variable. This paper has therefore enriched literature, and it is significant for both the context and sector.

LIST OF ABBREVIATIONS

JD-R	Job Demands-Resources Model
MOHAP	Ministry of Health and Prevention
SEHA	Abu Dhabi Healthcare Company
JD	Job Demands
WL	Workload
TP	Time Pressure
JR	Job Resources
SS	Social Support
JA	Job Autonomy
POJ	Perceived Overall Justice
WE	Work Engagement
JP	Job Performance
IRP	In-role Performance
ERP	Extra-role Performance
SPSS	Statistical Package for the Social Sciences
IRB	Institutional Review Board

DECLARATION

I hereby declare that:

- This thesis has been composed solely by myself; the work contained herein is wholly the outcome of my own original work, except where explicitly expressed otherwise by avowal or reference.
- There was no prior submission of this thesis, in whole or in part, to any other educational institution.
- The institutional review board at ADU approved all procedures reported in the dissertation.

DEDICATION

This dissertation is dedicated to my beloved father, Mohammed Khamis Al Badi - may Allah bless his soul. I have felt your loss so deeply, and I miss you every single day. Regardless of the fact that you are not physically present, you have been with me all along. Thank you for your ultimate love and tenderness, kindness, and for your firm belief in me. I know how much pleasure you would take in my academic achievement, which you were asking about constantly.

I am deeply longing for you, and your heart will go on.

ACKNOWLEDGMENTS

First, my praise goes to Allah for the blessings, merit, and grace He has bestowed upon me throughout my life and during the journey of earning my Doctorate.

I owe tremendous and deep gratitude to my dearest Dad and Mom, the wisest people I have ever known, who taught me what it means to be a great person, no matter what happens in life. Proudly, you are both my role models.

Thank you to my astonishing brothers, sisters, and in-laws for the love, support, strength, and encouragement I have received during my Doctoral journey. Achieving my dream and overcoming the difficulties and setbacks would not have been possible without all of you.

Thank you to my loving husband for being patient during this journey.

Thank you to my sweet son for being there with me, and for his charming eyes that gazed at me as I held my laptop, completing my thesis instead of hugging him.

I would like to thank my amazing friends, Dr. Khawla Al Hosani, Dr. Fatima Al Muaini, and Dr Sameera Al Zaidi, who supported, pushed, and encouraged me over these years. As we all know, it was a difficult, yet amazing, journey.

My great thanks and gratitude to Dr. Sanjay Singh who was with me from the beginning of the thesis journey, who believed in me and handed me all the possible support even after he left the university. I wish you the best.

I, also, would like to praise Dr Ali Abu Rahma – may Allah bless his soul–, who ignite the learning spark and encouraged me to start the Doctoral journey, you will stay alive in my memory.

I would also like to thank my committee chair and members, Dr. Jacob Cherian, Prof. Sherine Farouk, and Dr. Moza Al Nahyan, for their support and valuable comments. Without all of us working collaboratively, this dissertation would not have been possible.

Finally, I am extremely grateful for who I am and for completing this journey, despite difficulties and losses. I have proven that I can achieve what I set my mind to.

My love for all of you.

PUBLICATIONS ARISING FROM THE DISSERTATION:

Al Badi, F.M., Cherian, J., Farouk, S. and Al Nahyan, M. (2023), "Work engagement and job performance among nurses in the public healthcare sector in the United Arab Emirates", *Journal of Asia Business Studies*, Vol. ahead-of-print No. ahead-of-print.
<https://doi.org/10.1108/JABS-06-2022-0216>

© Emerald Publishing Limited, ISSN 1558-7894

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CHAPTER 1: INTRODUCTION

1.1 Research Background

Globalization, intense competition and changes in economic structure have led to uncertainty in businesses, resulting eventually in a negative influence on work engagement and performance (Chaudhary et al., 2012; Gupta and Pandey, 2018). Thus, employees are put under extensive pressure to stay fully engaged in their work through the full use of their capabilities and competencies to support their organizations in dealing with changeable business environments. Factually, engagement has become one of the most salient concepts in the domain of management (Crawford, Rich, Buckman, & Bergeron, 2014), due to its positive, rejuvenating effects and its status as a positive and energized approach to work (Bakker & Demerouti, 2008; Cole, Walter, Bedeian, & O'Boyle, 2012). Although numerous studies have explored the role of work engagement in the relationship between the resources used at work and job outcomes, relatively little research has explored how engagement mediates the relationship between these resources and job outcomes (Bhatti, Mat, & Juhari, 2018). Moreover, work engagement is a fascinating concept that has attracted the attention of business experts, scholars, and governments, as it is considered an ideal redefinition of the evolving “employee–firm” relationship that promotes faithfulness and fulfillment and ultimately influences organizations’ performance (Schohat & Vigoda-Gadot, 2010). Nonetheless, work engagement and its correlation with job performance, particularly in the nursing sector (Bhatti et al., 2018), requires further investigation. Notably, elevated performance levels have been established as among the crucial results of work engagement, which has prompted business researchers to explore its role in diverse settings (Bailey, Madden, Alfes, & Fletcher, 2017). Also, the nursing workforce is considered a cornerstone of the healthcare sector and includes the majority of employees in this sector in any country (Al-Khadhuri, 2018). However,

regrettably, this workforce is subject to a high level of burnout due to the stressful demands in this sector (Al-Khadhuri, 2018).

According to prior literature, work engagement has an affirmative effect on job outcomes. Therefore, the interaction between work engagement and job qualities must be investigated (Oshio, Inoue, & Tsutsumi, 2018). The primary theoretical background that commonly explains the link between work engagement and a range of job features is the job demands–resources (JD-R) model (Bakker & Demerouti, 2007). This model offers a way to understand how work engagement is generated out of specific operational circumstances, namely job demands (such as: workload and time pressure) and job resources (such as social support and job autonomy), typically found in any operational context (Bakker, Demerouti, & Schaufeli, 2003a; Schaufeli & Bakker, 2004). In other words, the JD-R model is the most widely applied theory to assess the complicated relationships between job-related factors and consequences for well-being/ill-being in multiple work settings and diverse countries (Malinowska & Tokarz, 2020). It has been found that engaged employees feel an enthusiastic and effective association in their tasks, whereby they are competent to effectively carry out their work requirements (Bakker, Schaufeli, Leiter, & Taris, 2008). Moreover, work-engaged employees are considered a competitive advantage for firms (Bakker & Bal, 2010), which leads to superiority in both contextual and task performance (Christian, Garza, & Slaughter, 2011; He, Zhu, & Zheng, 2014). Actually, several studies, such as Bakker and Demerouti (2017) and Schaufeli and Bakker (2004), have demonstrated a significant and positive link between job resources and job engagement. Fundamentally, the original JD-R model proposed by Demerouti, Nachreiner, Bakker, and Schaufeli (2001b) suggested that the absence of job resources is robustly connected with disengagement (Grover, Teo, Pick, Roche, & Newton, 2018), and that engagement enhances and emphasizes the relevance of job resources, allowing employees to effectively engage in their work.

1.2 Research Motivation

Positive work characteristics commonly receive less attention in social research than to negative work characteristics and their related pressure. According to Bakker & Demerouti (2017) positive work characteristics refer to the desirable attributes or features of a job or work environment that can enhance employee well-being, job satisfaction, and performance such as job autonomy and social support; while negative work characteristics, on the other hand, refer to the undesirable or negative aspects of a job or work environment that can have detrimental effects on employee well-being, job satisfaction, and performance such as workload and time pressure. However, the former should not be discarded, given their remarkable influence on work quality, productivity, and the entire work environment (Taipale, Selander, Anttila, & Nätti, 2011). Therefore, it is imperative to research positive work-related areas (e.g., work engagement), given the dearth of literature as compared to the literature on negative aspects of work, as well as their impact on the attitudes and behaviors of employees, which, in turn, are expected to influence the results of organizations in various ways.

Work engagement is the positive state of well-being that was initially studied by scholars as the opposite of the negative condition of burnout (Bakker et al., 2008; Mauno, Kinnunen, & Ruokolainen, 2007). It is defined as an affirmative, satisfying, and job-linked mental condition characterized by dedication, absorption, and vigor (Schaufeli, Salanova, González-Roma, & Bakker, 2002a). Work engagement, therefore, has three key elements: vigor, dedication and absorption. In this context, vigor refers to high standards of power and mental elasticity during work, the desire to invest effort in work, and persistence regardless of challenges. Dedication denotes a robust engagement in work, a feeling of importance, eagerness, momentum, pride, and challenge. Finally, absorption is complete focus and being joyfully involved in the work, such that the employee feels that time is passing quickly and does not want to separate from the work (Bakker et al., 2008; Schaufeli & Bakker, 2004).

It is apparent that work engagement yields positive results and has a promising effect on the performance of both organizations and employees; it also has a favorable influence on productivity, achievements, and competitiveness (Bakker, Demerouti & Sanz-Vergel, 2014; Rich, Lepine, & Crawford, 2010; Saks, 2020). Considering the importance of attracting, hiring, and retaining talented employees for firms, engaging employees both physically and emotionally in their work is of great significance. Hence, for organizations to survive in the competitive business world, hiring talented employees is not enough; they must also entice them to use all of their abilities (Leiter & Bakker, 2010) by stimulating their work engagement due to its many positive consequences.

Psychology scholars have noted the importance of looking at all facets of psychology when studying positive psychology (Bhatti et al., 2018), as some researchers have focused solely on positive elements, ignoring negative facets, such as job burnout, malfunction, and weakness (Seligman & Csikszentmihalyi, 2000). For that reason, and considering work engagement a reflection of positive psychology, this study groups job demands as “negative facets” because they believed to cause burnout to employees as they require further effort; and job resources as “positive facets” due to its positive impact on employees’ engagement as they are available to them; both are understood as antecedents of work engagement, which is the “independent variable.” Through this lens, it also explores the influential role of the organizational aspect of overall justice as a moderating factor, in an endeavor to provide comprehensive guidance for the management and decision makers in the public healthcare sector of the UAE on how best to enhance and advance job performance.

As a matter of fact, the perception of justice has a significant role in influencing conduct and attitudes in the workplace (Cole et al., 2010; Greenberg, 2010). It is defined as the perceptions that employees held about fairness in their workplace (Arnéguy, Ohana, & Stinglhamber, 2020). Indeed, employees make use of overall justice to prophesy the conduct

and disposition of their firms towards them, mainly in fuzzy times like organizational changes (Lind, 2001a). So, organizational justice may work as a moderator to impact the behavior and attitudes of employees' response to a demanding working environment (Wang, Lu, & Siu, 2015). It has been found that better-perceived justice between employees may have a positive influence on work satisfaction, organizational commitment, organizational trust, and organizational citizenship behavior, and on employees' performance (Ghosh, Rai, & Sinha, 2014).

1.3 The Antecedents of Work Engagement

Work engagement is characterized by many antecedents and outcomes. Job demands and job resources are considered the antecedents, while the outcomes are the organizational outputs, such as job performance, which is the outcome that will be researched in this study. Job demands are defined according to Schaufeli and Bakker (2004) as “those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with certain physiological and psychological costs” (p. 296; see also Frins, van Ruysseveldt, van Dam, & van den Bossche, 2016; Hansez & Chmiel, 2010; Kattenbach & Fietze, 2018; Oshio et al., 2018; Schaufeli, 2017; Schaufeli & Taris, 2014). These have various impacts over different professions (Kattenbach & Fietze, 2018). In contrast, job resources are, according to Demerouti et al. (2001b), as “physical, psychological, social, or organizational job characteristics that are practical in accomplishing the objectives of the work, encourage individual progression, learning, and development and lessen physiological and psychological costs” (p. 501; see also Frins et al., 2016; Hansez & Chmiel, 2010; Kattenbach & Fietze, 2018; Oshio et al., 2018; Sardeshmukh, Sharma, & Golden, 2012; Schaufeli, 2017; Schaufeli & Taris, 2014). These assist employees in addressing job demands and attaining their objectives (Bakker & Demerouti, 2017; Grover et al., 2018). This means that when work demands are high, job resources often have a pronounced impact

on motivation and work engagement, making them especially useful for motivating employees in times of need (Bakker & Demerouti, 2017). Furthermore, job resources correlate positively with work engagement in numerous workplace settings, leading to favorable outcomes affecting behaviors, performance, and attitudes (Albrecht & Anglim, 2018). Work engagement also has positive results like organizational commitment, keeping employees in the organization, extra-role behavior, improved employee safety, and outstanding work performance (Schaufeli, 2017) due to its intrinsic and extrinsic motivational potential (Frins et al., 2016).

1.4 Work Engagement and Organizational Elements

Although the JD-R model places well-being at the heart of the model, its main objective is to predict employee behavior and business-related outputs (Bakker & Demerouti, 2017). In addition, the JD-R model links job demands, job resources, and job results, such as employee well-being and work engagement (Grover et al., 2018). These connections suggest that both in-role and extra-role performance are among the main organizational outcomes that may be influenced by the work engagement level of employees. The previous literature has confirmed that work engagement is positively correlated to positive attitudinal, behavioral, and performance outcomes, such as task performance, contextual performance, and safety outcomes (Christian et al., 2011; Nahrgang, Morgeson, & Hofmann, 2011). In addition, a recent study found that work engagement was positively related to task performance and contextual performance among nurses (Rössler, Huggelshof, & Grote, 2021).

Indeed, studies have found that overall justice predicts the behavior and attitudes of employees, overriding singular aspects of justice (Priesemuth, Arnaud, & Schminke, 2013). Moreover, it has been found that all three aspects of organizational justice namely, distributive, procedural and interactional justice, are favorably linked with work engagement (Biswas, Varma, & Ramaswami, 2013; Ghosh et al., 2014), so examining the inclusive impact of overall

justice on employee results and behavior is a valuable path, especially because the organizational justice domain is still evolving (Ambrose & Schminke, 2009).

1.5 The UAE: Country and Culture

The UAE is a Middle Eastern nation situated at the eastern tip of the Arabian Peninsula, and it is one of the Gulf Cooperation Council (GCC) countries. It was established by the late H. H. Sheikh Zayed Bin Sultan Al Nahyan in December 1971 as a federation of seven emirates, namely Abu Dhabi, Dubai, Sharjah, Ras Al-Khaimah, Ajman, Umm Al-Qaiwain, and Fujairah. The formal capital of the country is Abu Dhabi. In addition to Arabic being the authoritative language, English is spoken widely, and Islam is the authoritative religion (U.AE, 2021). According to the latest population statistics of 2021 by world population review, the UAE's population is at 9,991,089 (World Population Review, 2022); it is a mixture of various nationalities and ethnicities (including more than 200 nationalities), and males outnumber females (U.AE, 2021).

Both the economy and living standard of the UAE are solid and robust among its neighbors, as well as regionally and worldwide, whereas its economy is considered one of the most diversified among the GCC countries as it has become less reliant on oil and gas. The UAE is ranked 25 in terms of economic and political stability, as reported in the 2019 Global Competitiveness Report released by the World Economic Forum (U.AE, 2021). It is characterized as an indulgent country, with citizens from over 200 foreign countries working, residing, learning, and voyaging the UAE (U.AE, 2021). It maintains a temperate foreign policy that boosts equiponderant connections within the global society (U.AE, 2021).

1.6 The UAE Healthcare System and Nursing

The UAE's foundation in 1971 was accompanied by the setting up of governmental entities, one of which was the Ministry of Health, which is now called the Ministry of Health and Prevention (MOHAP), in addition to the initiation of local health care regulatory entities

with particular criteria, rules, and systems. Altogether, these advanced both the healthcare system and nursing services in the country (Al-Yateem, Almarzouqi, Dias, Saifan, & Timmins, 2020). The federal health authority in the country is MOHAP, which equips and furnishes both nationals and non-nationals with inclusive health care services. Then, discrete healthcare authorities in each of Abu Dhabi and Dubai have been formed that work toward the MOHAP vision. MOHAP's focus has shifted to the Northern Emirates, which are Ajman, Sharjah, Fujairah, Umm Al Quwain, and Ras Al Khaimah (U.AE, 2020a). The UAE healthcare sector is one of the most significant and remarkable service sectors in the country and has a distinctive position in the government's agenda, which assigns a considerable portion of the federal budget for this sector yearly for the delivery and advancement of quality medical services (U.AE, 2020b). The UAE healthcare sector has progressed speedily in response to the UAE government's strategic instructions for promoting quality healthcare (Koornneef, Robben, Al Seiari, & Al Siksek, 2012). Moreover, the nursing occupation plays a key role in realizing the ambition of the UAE's healthcare vision (Al-Yateem, Al-Tamimi, Brenner, Al Tawil, Ahmad, Brownie, & Slewa-Younan, 2019). In the UAE and its neighboring GCC countries, international necessity has exacerbated the need for nursing management, as well as for building employees' capabilities through a broadening of their practice roles, due to soaring rates of noncommunicable diseases, such as diabetes, and extensive dependence on non-native nursing workforces (Brownie, 2015; Hannawi & Salmi, 2014). Nonetheless, the nursing occupation in the UAE still faces many challenges, notwithstanding the existence of an obvious agenda (Al-Yateem et al., 2020).

In fact, facilities and services in the healthcare sector have expanded in both the public and private sectors (Brownie, Hunter, Aqtash, & Day, 2015). The total number of nurses in both the public and private healthcare sectors of the UAE was 55,158 as of 2018, wherein the public sector had 20,098 nurses, and the private sector 35,060 (Government of Abu Dhabi,

2021; UAESat, 2018). Male nurses in the sector as a whole accounted for 10,419, while there were 44,739 female nurses (Government of AbuDhabi, 2021; Verma & Patil, 2021). Sector-wise, in the public sector, there were 16,401 female nurses and 3,697 male nurses (Government of AbuDhabi, 2021). Analogously with other countries, nurses and midwives in the UAE are considered the backbone and cornerstone of the healthcare sector, in which their roles are mounting (Chiarella, 2008).

The 2021 Vision of the UAE, which articulates the national agenda, has six goals, and supplying high-quality healthcare is one of these. This may eventually position the country among the top nations worldwide in healthcare by 2021 (U.AE, 2020c), and the nursing workforce has been considered among the crucial participants in the evolution of this strategy. Thus, the role of nurses is unquestionable in the success of the UAE vision 2021, which requires significant engagement among nurses and provision of the best atmosphere for them to perform based, particularly because this workforce is the largest within the healthcare workforce. According to the UAE National Health Workforce Account (NHWA) report, as of 2018, there were more nurses than any other worker category in the health workforce, with a total of 55,158 nurses (Verma & Patil, 2021).

1.7 Problem Statement

Guaranteeing the work engagement of employees has been challenging for businesses and organizations alike. Consequently, researching work engagement is crucial for organizations, managers, and employees because disengaged employees are causing their organizations to struggle and lose, whereas engaged employees are a competitive advantage for their firms and participate in their success and the bottom line. However, motivating employees to become more engaged at work is not an easy undertaking because only 15% of employees globally are truly work-engagers (Jouany & Mäkipää, 2021). Indeed, only 35% of U.S. employees fall under the “engaged employees” category (Gallup, 2020). Furthermore,

keeping talented employees has become a challenge for organizations in today's rapid and ever-changing business world. In a recent study of over 600 US firms that have between 50 and 500 employees, 63.3% of firms stated that keeping employees was certainly more difficult than employing them, which means an efficient employee engagement approach is needed (Jouany & Mäkipää, 2021). For that reason, organizations' employee engagement strategies are one of the crucial factors supporting them in adapting to today's turbulent business environment (Garrard, 2021).

As a matter of fact, there is a high cost associated with the low engagement rate among employees. Unquestionably, employee engagement is among the chief priorities for many firms because of its many rewards, including elevated productivity, higher profits, enhanced morale, and low absenteeism rates (Jouany & Mäkipää, 2021). A survey of 550 executives carried out by the *Harvard Business Review* disclosed that highly engaged employees can upsurge innovation, productivity, and performance, as well as lessen the costs associated with employment and retention in environments characterized by intense competitive talent (Garrard, 2021). Moreover, building on more than 50 years of studies on employee engagement, Gallup (2020) realized that engaged employees yielded superior results for organizations than other employees throughout various sectors, regardless of the size of the firm or the nationalities involved, and in good and bad economic situations alike. Culture Works, Deloitte, ROI, and Mercer, together with Consulting LLP, in a research study of 1,500 workers, concluded that disengaged employees set back companies \$450–\$550 billion each year (Reitsma, 2022). Similarly, disengaged workforces are costing their organizations 34% of their yearly salary (Borysenko, 2019). Nevertheless, despite the aforementioned advantages of work engagement, the majority of the international working environment isn't engaged, and this has somber consequences for the achievements of firms (Jouany & Mäkipää, 2021). Moreover, it has been determined that only 41% of international employees are engaged, 38%

are disengaged, and 21% are actively disengaged in work, according to a survey study based on Peakon employee datasets from 160 countries in 2020, plus the same study revealed that among the healthcare employees, 41% are engaged, 36% are disengaged, and 23% are actively disengaged (Peakon, 2020). As a consequence, it is apparent that the issue of engagement is a serious matter that exists globally, regardless of the development level and sector type, and it costs organizations and governments a lot. This highlights the importance of conducting further scholarly work to come up with empirical implications to benefit policymakers' efforts to enhance work engagement and to reap its rewards.

A study that gathered its information from companies with more than 500 employees established that 71% of the managers considered the engagement of their employees among the most important elements of their firms' success (Zeidan, 2020). Also, a study of over 1,200 senior directors and executives of international and multinational firms, 10% of whom were from the Middle East, indicated that the primary challenges that they encountered were employee engagement and implementing the strategy effectively (Zeidan, 2020). As mentioned in a Gallup report, 85% of employees in the UAE are either not engaged or actively disengaged (eight out of ten employees). Thus, most employees in the UAE are not emotionally committed to their companies and are less likely to be extra productive (Maceda, 2017). That being so, this appalling situation calls for ample and profound consideration of work engagement, due to the high costs and negative consequences associated with the absence or even low levels of engagement, which eventually may help enrich the literature on engagement among employees in the UAE business environment context, as well as augment the concept of work engagement in general. It seems that work engagement is among the principal challenges that leaders and executives are confronting, so postulating some ideas for them on how to encourage and advance engagement among employees while relying on the available job demands and job resources is a path that requires further examination. Indeed, former CEO of GE and business

consultant Jack Welch declared that the prime pointers that indicate the performance of firms were employee engagement, customer satisfaction, and cash flow (Zeidan, 2020), which highlights the significance of work engagement as firms move to push their performance forward.

Although the nursing workforce is considered a cornerstone of the healthcare sector and accounts for the majority of employees of the healthcare sector in any country, regrettably, this workforce is subject to a high level of burnout due to stressful demands in this sector (Al-Khadhuri, 2018). Too few studies have focused on work engagement in vital sectors, such as health care and nursing, which require high levels of engagement at work. Likewise, the nursing workforce has the largest number of employees among the medical workforce, at least in most countries, and their work is tremendous and irreplaceable. Thus, to maintain experienced and talented nurses, it is vital to make available a supportive working environment via augmenting motivation and lessening burnout. A supportive environment may eventually lead to superior patient care (Laschinger & Leiter, 2006; Smith & Topping, 2001).

Over and above that, expenditure in the Gulf countries in the healthcare sector increased from USD \$60 billion to USD \$76 billion from 2013 to 2019, and it is predicted to keep increasing (Mehrotra, Stolz, Houalla, & Babb, 2020). This points to the importance of managing the sector to increase the work engagement of employees, and accordingly, the performance of healthcare institutions. Analogous to the styles of expenditure in the GCC, the government of the UAE was the main investor, as it invested about 69% of the overall healthcare expenditures in 2019, which was USD 16 billion (Mehrotra et al., 2020). Therefore, concentrating on the public healthcare sector in this research aims to boosting the performance of such entities by enhancing engagement among nurses, which should be possible due to the tremendous investment from the government and the supportive environment it has created for employees. In addition, inbound medical tourism in the UAE has witnessed steady growth as

tourists come seeking therapies, ranging from big operations to rehabilitation to cosmetic rectifications. Consequently, Dubai and Abu Dhabi were categorized as the 6th and 8th as finest destinations for medical tourism internationally, respectively, according to the latest Medical Tourism Index Ranking (Mehrotra et al., 2020). This is a good reason to explore the healthcare sector and search for approaches to making employees more engaged, and thereby to ultimately participate in boosting the performance of the sector.

In light of the growing concern regarding work engagement, its significance for firms and managers globally, and the factors that may lead to it or its opposite, i.e., disengagement, as well as its profitable results (and the related cost of disengaged employees), the dearth of scholarly research in this area in the UAE is astonishing. Despite the extensive research on the concept of engagement, it is still a developing domain that has drawn the interest of business scholars.

1.8 Research Gap

Despite the copious research attention and organizational interest in work engagement, there is little published research about interventions that effectively enhance work engagement (Biggs, Brough, & Barbour, 2014). As noted by Bailey et al. (2017), because healthy organizations are evolving, work engagement is considered a necessity because of its association with job performance (Tisu, Lupşa, Vîrgă, & Rusu, 2020). At the same time, and in today's turbulent and competitive business environment, employees are required not only to complete their tasks but also to ultimately enhance their firms' performance, which may put them under pressure that could impact their attitudes and behaviors. As the business environment becomes more competitive, employees are exposed to extra job stressors (Bakker, Demerouti, & Verbeke, 2004), so it is crucial to acknowledge the impact of these demands on employees in environments characterized by high job demands (Ferguson, Carlson, & Kacmar, 2015). Moreover, both aggressive competition and speedy alteration of the worldwide

economy have placed firms under excessive pressure to enhance productivity and boost the enthusiasm of employees, as well as to attract and maintain talented employees (Park, Song, & Lim, 2016). Beyond hiring talented employees, firms are concerned with making their talented employees engage with their work because engaged employees are the foundation for maintaining a competitive advantage. Despite the growing consideration of work engagement, there is an odd scarcity of studies on work engagement (Agarwal, 2014). Even though the work engagement concept has gained intensive attention recently, and many studies have been conducted to examine its role in job performance, there are still few data on the singularity of work engagement as a forecaster of job performance (Christian et al., 2011).

Work engagement as a focal element of organizational effectiveness has received interest from academics and specialists, but despite its significance, little research has been carried out on its association with social support and personal resources, which indicates a need for examining the collaborative procedures involved in work engagement (Park et al., 2016). Although some research has correlated work engagement with job performance, the evidence is scarce in comparison to studies on work engagement and other work-outcome constructs (Lazauskaite-Zabielske, Urbanaviciute, & Balsiene, 2018), wherein most of the research relating work engagement to job performance has focused on task or in-role performance (Alessandri, Consiglio, Luthans, & Borgogni, 2018; Lazauskaite-Zabielske et al., 2018). This is defined as the results and attitudes that participate directly and indirectly in the goals of organizations (Lazauskaite-Zabielske et al., 2018). Hence, this may lead to a neglect of the relationship between work engagement and extra-role performance.

The literature has found that engagement is a distinctive conception that is best anticipated by job attributes and personal resources (Ferreira, da Costa Ferreira, Cooper, & Oliveira, 2019). Building on the extant literature, only a few studies have been conducted about work engagement from an entirely positive standpoint, shifting away from the negative

perspective of “burnout.” For that reason, this research intends to follow an integrative approach in examining work engagement and its mediating role by studying its antecedents, labeled under job demands and job resources, and its consequences, namely job performance (both in-role performance and extra-role performance), by examining the moderator role of perceived organizational justice.

1.9 Focus of the Research

The importance of this research lies in the fact that, despite the importance of work engagement for all types of business, there is a striking dearth of research in this area. Further study is needed to save the costs related to disengagement and to gain the potential fruitful benefits that engagement promises to bring in the success, productivity, and performance of firms. Thus, this research concentrates on investigating the mediating role of work engagement (i.e., vigor, absorption, and dedication) among nurses by looking at the relationship between its antecedents (i.e., job demands and job resources) and the output, which is job performance (i.e., in-role performance and extra-role performance) in the public healthcare sector of the UAE. Moreover, the research will investigate the impact of the nurses’ judgments about justice as a moderating variable that might influence the strength of these relationships.

This research intends to focus only on the public healthcare sector of the UAE by covering the public entities throughout the country to come up with a clear picture of the level of work engagement and how existing job demands and job resources may impact this level of engagement, which, accordingly, will impact job performance. In addition, this research explores the impact of the overall justice that nurses carry over justice in their entities, which will definitely impact the relationships between the research constructs and, eventually, positivity in the workplace. This research was undertaken to measure the positive psychology (through work engagement) that is predicted to impact the performance of nurses, and eventually the public healthcare sector, as the UAE has an ambitious vision to have world-class

healthcare services. As nurses are the most numerous professional in the healthcare workforce, this research has concentrated on examining their perceptions.

1.10 Research Aims and Objectives

This research has the following aims and objectives:

1.10.1 Aims

The aims of this research are as follows:

- To understand the current state of the research factors in this specific context.
- To identify the key factors that influence employee engagement and performance in this specific context.
- To understand how perceptions of justice may enhance or attenuate the effects of job demands and job resources on employee engagement and performance.
- To understand the mechanisms through which job demands and job resources impact employee performance in this specific context.
- To provide evidence-based recommendations for healthcare organizations in the UAE to promote work engagement and job performance among their nursing staff by optimizing job demands, job resources, and overall justice.

1.10.2 Objectives

The following are the research objectives:

1. To study the level of job demands, job resources, overall justice, work engagement, and job performance among the local and expatriate workforce in the public healthcare sector of the UAE.
2. To investigate the relationships among job demands, job resources, overall justice, work engagement and job performance (i.e., in-role performance and extra-role performance).

3. To examine the moderating role of perceived overall justice between job demands and job resources in work engagement.
4. To uncover the mediating role of work engagement between job demands and job resources with job performance.

1.11 Research Questions

The principal research question and sub-questions for this research are as follows:

1. How can workplace positivity (“work engagement”) and job performance be increased with the support of job demands and job resources?
 - 1.1 What is the impact of job demands and job resources on work engagement?
 - 1.2 How does work engagement predict in-role performance and extra-role performance?
 - 1.3 How does perceived overall justice moderate the relationships between job demands and job resources with work engagement?
 - 1.4 How does work engagement mediate the relationships between job demands and job resources, on the one hand, and in-role performance and extra-role performance, on the other?

1.12 Scope and Delimitations of Research

This quantitative study was established to describe the perceptions of nurses in the UAE’s public healthcare sector. The research was limited to nurses in the public institutions of the UAE healthcare sector who were willing to participate in the online survey. The survey consisted of 45 questions that were selected based on approved and validated scales from the extant literature, in addition to six demographic questions. The survey questions used in this research were limited in focus to perceptions of nurses about work engagement, some job demands, job resources, overall justice in the health entities they are working in, and job

performance. Hence, direct managers' perceptions were not included in this research; only nurses' perceptions were taken into consideration.

The scope of this study is limited and focuses on nurses working only in the public healthcare sector of the UAE. Nurses working in the public entities of the UAE public healthcare throughout the seven emirates of the UAE were approached through the two main central entities: SEHA and MOHAP . One delimitation of the research was that the research concentrated only on the public healthcare sector, not both private and public healthcare entities, because the nature and rules of each are different. Another delimitation of this research is that at the time of the research, nurses had to be current employees at one of the public entities in the healthcare sector to be eligible to participate in the research and agree to participate in the research voluntarily. Nurses with different experiences and qualifications were included in this research study.

1.13 Significance of the Research

In today's turbulent business environment, attracting suitable employees without ensuring their engagement in the work is not sufficient. Hence, making available job resources that have an underlying motivational process, in addition to wise handling of job demands that have been proven to facilitate goal attainment, is essential for enhancing job performance through work engagement. Undeniably, having engaged, employable employees has abundant advantageous results, particularly related to employee well-being and performance (Van De Voorde, Paauwe, & Van Veldhoven, 2012). Indeed, despite the frequency of positive work events in the workplace, their impact is reduced due to negative events (Bono, Glomb, Shen, Kim, & Koch, 2013). Therefore, organizations should be encouraged to boost positive behavior in the workplace, based on the fact that positive aspects of work have often been overlooked in the social sciences, with a tendency to focus on negative issues such as burnout or the increasing demands of work-life (Taipale et al., 2011). Moreover, employees who are work-

engaged have a high level of energy; and they are excited about and engrossed in work, which puts them into a stream state (Macey & Schneider, 2008).

This research will benefit the managers and policymakers in the public healthcare sector, as it will define the level of the engagement of the nurses, based on the antecedents, and its impact, according to their performance. This will assist in providing a clear picture of the impact of positivity at the workplace, which will simultaneously help reduce the costs associated with disengagement. Thus, managers and policymakers may benefit from this comprehensive research that examines both the antecedents and the output of work engagement, as the idea of work engagement is an essential and significant notion, as business executives and managers consider it among the most important indicators that positively impact business performance and productivity. Because the UAE government is aiming for world-class healthcare services, according to its vision 2021, and given the tremendous expenditures of the government in the sector, this research aspires to present the benefits of participating in achieving this vision by supporting nurses' work, which is considered the largest force in the healthcare workforce category. In addition, human resources in the public healthcare sector might benefit from the results of this research by reducing attrition and facilitating the retention of talented and experienced nurses, which may reduce employment-related costs and bring out the nurses' best capabilities and experiences. Also, human resources may be better able to recognize the best combination of job demands and job resources for boosting the work engagement of employees, as well as how to revise entities' cultures in such a way that justice improves, which may enhance positivity, work engagement, and performance.

The results of this research will be shared with SEHA and MOHAP, who participated in the data collection stage, for them to use the output to encourage engagement and positive psychology among nurses under their entities. The author intends to reiterate the same research in the private healthcare sector of the UAE at a later stage, after the results of this research are

circulated, to examine the level of work engagement among the nurses in this sector. This, jointly with the current research, may lead to a beneficial and comprehensive report that aims to enhance the quality and performance of the healthcare sector as a whole. The objective here is to boost positivity in the workplace by concentrating on positive psychology, which is represented by work engagement, as this will lead to uplifting positive practices among nurses, which will eventually have positive impacts on the business outcomes and quality for various entities in UAE public healthcare. Moreover, given the dearth of research on work engagement in the UAE, despite its importance and noteworthy advantages, this research is significant because it will enhance the body of knowledge and participate in the advancement of the JD-R model.

1.14 Contributions of the Research

The main theory that explains the relationship between work engagement and job features is the job demands-resources (JD-R) model, which supplies a theoretical background to tackle this concept (Oshio et al., 2018). Consequently, JD-R has been used extensively and is quoted substantially in the literature, which supports its use in work engagement scripts (Albrecht, 2012). The model states that work engagement is generated from two particular groups of operating circumstances that exist in any operational environment, namely job demands and job resources (Oshio et al., 2018). Due to the vast variety of end products of contemporary labor, work conditions clearly differ greatly among firms (Bakker & Demerouti, 2018). Hence, the domain of the JD-R model is broad and resilient, so it can be customized to a broad set of work situations (Schaufeli & Taris, 2014). This suggests that all job characteristics may be categorized into two main classifications: job demands and job resources (Bakker & Demerouti, 2018). Accordingly, this research will expansively contribute to the theory and its related literature. The study will be conducted in the UAE public healthcare sector, so the literature of both the healthcare sector, as a sector, and the UAE, as a context, is

expected to be enriched. Moreover, the research hypotheses were established through the lens of the JD-R model, which means that the findings are expected to enhance the model, as well as contribute to the development of the literature on the examined constructs.

The present research also aims contribute to the literature on work engagement, its antecedents (i.e., job demands and job resources), and its consequences (i.e., job performance). The hypotheses of this research are consistent with the previous literature, but their greatest contribution might be in the association of job demands with work engagement, as there is a gap in the literature on this approach when compared to the association of job resources with work engagement. Indeed, the consideration of work engagement as a mediating factor and examining the impact these job attributes may have on it is what makes this research unique and comprehensive. Moreover, this research will contribute to the literature of job performance—both in-role performance and extra-role performance—by examining the influence of work engagement on it. In the extant literature, work engagement's relationship with other job outcomes has received more attention than job performance, despite its vast significance and substantial value for organizations.

Also, the current research offers a prospective contribution to the field of positive psychology, as work engagement falls under its umbrella. Thus, the findings of the current study will help practitioners, managers, decision makers, and policymakers in the public healthcare sector in the UAE in making decisions and developing policies that assist in providing a positive atmosphere in healthcare entities to ensure a high engagement level among nurses, which will eventually lead to great success in their own performance and in that of their entities.

Additionally, this research intends to extend the extant literature on overall justice and recommends empirical implications for policymakers and business scholars based on the results. It recommends treating overall justice cautiously and disseminating a unified

understanding among nurses about justice to ensure that they perceive it accurately to avoid its potential negative impacts on their engagement. Organizational justice has attracted scholars' attention due to its role in encouraging or discouraging the efforts of staff (Kumasey, Delle, & Hossain, 2019), and it may work as a moderator in influencing employees' behaviors and attitudes in responding to challenges in the workplace (Wang et al., 2015). Nevertheless, despite the comprehensive agreement on the significance of organizational justice in anticipating favorable consequences, relatively few studies have concentrated on its relationship with work engagement (Sarti, 2019). As a consequence, this research aims to fill the gap in literature, enrich justice knowledge, and reinforce its importance.

1.15 Definition of Terms

This section provides definitions of the key terms mentioned in this research.

- **JD-R model:** This is a theoretical structure that attempts to merge two autonomous research traditions: strain research and stimulus research (Demerouti & Bakker, 2011).
- **Job demands:** The aspects of a job that are physically, socially, or organizationally difficult and therefore have physiological and psychological consequences (Demerouti et al., 2001b).
- **Time pressure:** This occurs when an individual feels that there is less time than necessary (or perceived to be necessary) to complete a task and feels motivated to do so within the available time (Ordóñez, Benson, & Pittarello, 2015).
- **Workload:** This is a feeling that the requirements of a job are overriding employees' boundaries (McFadden, Mallett, & Leiter, 2018).
- **Job resources:** These are the physical, psychological, social, or organizational aspects of the job that can contribute to job performance in the following ways: (a) achieving work goals; (b) reducing work demands and their associated physiological and

psychological costs; and (c) enhancing individual growth and development (Demerouti et al., 2001b).

- **Social support:** This involves social intercourse with colleagues and supervisors that is advantageous to a person and their well-being (Taipale et al., 2011).
- **Job autonomy:** This is the extent of liberty, self-rule, and freedom the employee has in work design, decision-making, and options in completing tasks; it refers to the liberty persons have in accomplishing their work by merging the freedom to design their work with participation in the procedures of decision making and having choices in processes of doing the work. (Morgeson & Humphrey, 2006).
- **Positive psychology:** As described by Gable and Haidt (2005), this is the study of how people, groups, and firms accomplish their most impressive or ideal accomplishments by examining what they do and how they do it (Miglianico, Dubreuil, Miquelon, Bakker, & Martin-Krumm, 2019).
- **Work engagement:** This is a positive, productive mindset characterized by vitality, dedication, and absorption in one's work (Schaufeli et al., 2002a, p. 74).
- **Overall justice:** This is an international assessment of the organization's justice based on the experiences of a person in addition to the experiences of other people (Ambrose & Schminke, 2009).

1.16 Assumptions

There are four assumptions in this research. First, only nurses from the public healthcare sector of the UAE's various healthcare entities participated in this research, and they responded well to all the questions. Second, nurses voluntarily participated in providing their perceptions, and there were no external factors that influenced or shaped their responses. Third, nurses and their entities were aware of the nature of this research, as the data were collected centrally through SEHA and MOHAP. The fourth assumption is that nurses would provide

unprejudiced answers, which may assist in the generalizability of the results to the target population.

1.17 Research Limitations

Some possible limitations of this research include the below:

- Sample size: it may be small, which could limit the generalizability of the findings to the larger population of nurses in the UAE.
- Sampling technique: the sampling technique used in the study may not be representative of the entire population of nurses in the UAE, leading to a biased sample.
- Response rate: the response rate of the study may be low, which could limit the validity of the findings as the responses may not be representative of the entire population.
- Data collection: the data collected relies solely on self-reported measures, which may be subject to social desirability bias, leading to inaccurate or incomplete data.
- Language barriers: it may affect the accuracy of the data collected as English may not be the first language for some nurses.
- Cultural differences: it may affect the validity of the study findings, as the UAE has a diverse population with various cultural backgrounds, which could influence the interpretation of the results.
- Time constraints: they may limit the scope of the study, leading to incomplete or insufficient data being collected.
- Researcher bias: it may affect the study findings, as the researcher's beliefs, experiences, and attitudes could influence the interpretation of the data.

1.18 Structure of the Dissertation

The structure of this dissertation is presented in Table 1. Chapter 1 provides the background and motivation for the research, explains how the subject was selected, addresses

the problem statement, provides the research questions and objectives, describes the significance and scope of the research, and defines key terms and the expected contributions. Next, Chapter 2 provides an overview of the literature through the inclusion of the theoretical lens and models used as a basis for the dissertation research, as well as the recent relevant empirical literature that serves the purpose of the dissertation. Then, Chapter 3 provides the research methodology and data collection by presenting the design of the research, data collection and procedures, sampling, analytical methods, and quality criteria. After that, Chapter 4 describes the results of the collected data and the statistical approaches that were used. Finally, Chapter 5 interprets the results and analyzes them in light of the research objectives and in association with the extant literature, and it presents the conclusions by discussing the study's limitations, the implications of the results, and areas for further research.

Table 1: *Structure of the dissertation*

Chapter	Content
Chapter 1	Introduction <i>Objective:</i> To deliver the research topic incorporating the background and motivation, the problem statement, the research questions and objectives, the significance and scope of the research, along with the expected contributions and the definitions of key terms.
Chapter 2	Literature Review <i>Objective:</i> To present a review of the extant literature by presenting the theoretical lenses and models that were used as a backbone and support for the research alongside recent empirical literature that is relevant to the dissertation.
Chapter 3	Research Methodology and Data Collection <i>Objective:</i> To describe the research methodology by presenting the design of the research, participants and instruments, data collection and procedures, sampling, analytical methods, and quality criteria.
Chapter 4	Research Data Analysis and Results <i>Objective:</i> To present the results of the data collection and the statistical approaches used.
Chapter 5	Research Discussion and Conclusion <i>Objective:</i> To interpret and analyze the results in light of the research objectives and in association with the extant literature, as well as to present the limitations and implications of the study and to suggest an agenda for further research.

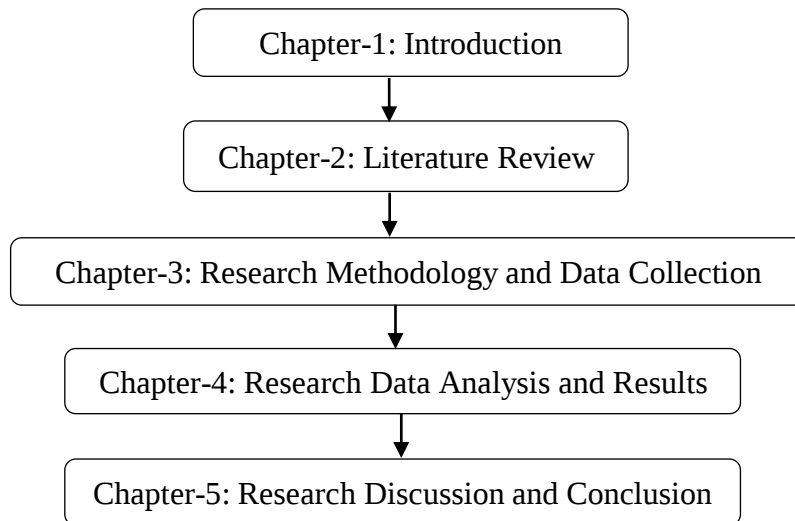


Figure 1. Layout of the dissertation.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Preceding the 1980s, the person–organization relationship seemed predictable and steady (Agarwal, 2014), but this traditional relationship has shifted radically over the years. Less loyalty from both sides, in addition to a low level of commitment from employees toward their organizations, has risen to the surface since the 1990s (Schohat & Vigoda-Gadot, 2010). As a matter of fact, lately, the employee–organization relationship has faced great, indisputable volatility (Maguire, 2002), for some reasons including the economic downturns that result in cost-cutting measures such as layoffs, pay cuts, and reduced benefits, which can lead to reduced job satisfaction and trust in the organization (Bamberger & Bacharach, 2018). Consequently, it is imperative to study and comprehend the specificity of workplace environments in diverse contexts to boost employees’ sense of responsibility and to exploit their greatest competencies to improve organizations’ performance and create better opportunities for competitive advantage. It is also important to encourage organizations to provide the most appropriate job characteristics in the workplace to foment positive attitudes among employees and encourage their engagement.

As an approach to characterizing the person–organization relationship, three concepts have been proposed to depict this relationship: organizational commitment, job involvement, and organizational citizenship behavior. These conceptions can promote loyalty and commitment among employees and advance the performance of organizations (Schohat & Vigoda-Gadot, 2010).

Latterly, the concept of employee engagement has been alluded to as a possible redefinition of the person–organization correlation (Schohat & Vigoda-Gadot, 2010). Thus, this research concentrates on work engagement as the leading link in the person–organization relationship, supporting a positive psychology philosophy in firms to stimulate job performance. Having employees with high work engagement is what really matters in today’s turbulent and unpredictable business environment. However, despite the importance of work engagement, and although this concept has grabbed the attention of scholars, most studies on work engagement have drawn on data from Western countries, and the concept has been examined less in Asian countries (Pattnaik and Panda, 2020). Moreover, having a talented workforce is undoubtedly very important for firms, but having an engaged workforce is an essential advantage, too (Leiter & Bakker, 2010). Thus, engaged employees are considered a backbone for their organizations if they are to maintain a competitive advantage (Macey, Schneider, Barbera, & Young, 2011). Additionally, according to Seligman and Csikszentmihalyi (2000), employee engagement is rooted in what has been recently called positive psychology (Schohat & Vigoda-Gadot, 2010), which emphasizes an additional prominence of this concept.

Scholars appear to have recognized the importance of positive psychology as a rigorous approach to thinking about positive experiences (Seligman, 2012). It is defined by Gable and Haidt (2005) as the study of conditions and practices that lead to positive performance and thriving for groups, organizations, and individuals (Miglianico et al., 2019). Therefore, this

research focuses on work engagement in organizations because of its role in influencing work-related outcomes. Globalization, intense competition, and changes in the economic structure have led to uncertainty in businesses, which eventually has had a negative influence on work engagement and performance (Chaudhary, Rangnekar, & Barua, 2012; Gupta & Pandey, 2018). As a result, employee engagement is highly regarded, since it is associated with high job performance (Rich, Lepine, & Crawford, 2010). Additionally, researchers are finding evidence that connects work engagement with positive organizational behavior, which requires more investigation into positive psychological states, as well as employees' attitudes and characteristics (Bakker & Schaufeli, 2008; Luthans & Youssef, 2007).

There is no doubt that job characteristics are significant antecedents of job engagement and the subsequent outcomes (Crawford, Lepine, & Rich, 2010; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001a; Nahrgang et al., 2011). Research has shown a positive correlation between job resources and work engagement and job performance, such as in the study by Demerouti et al. (2001a), which found that job resources, based on the JD-R model, promote work engagement, whereas there was no consistency found in the influence of job demands on work engagement. Subsequently, the literature stated that both hinderance and challenge stressors were negatively linked to job-related outcomes. Several studies provided evidence of a positive association between challenge stressors and preferable work-related outcomes and a negative link between hindrance stressors and job results (Abbas & Raja, 2019), such as Podsakoff, LePine, and LePine (2007), which found a positive relationship between challenge stressors and job satisfaction and a negative relationship between challenge stressors and turnover intentions. In contrast, LePine, Podsakoff, and LePine (2005) found a favorable association between challenge stressors and job performance. The JD-R model does provide insight into the psychological effects of job characteristics and job design on employee attitudes, behaviors, or welfare. In spite of its extensive use within occupational health

psychology, the model also has significant implications for the design and structure of the workplace, as it examines all aspects of work conditions (Yuan, Li, & Tetrick, 2015).

Moreover, due to the employee-related issues that firms are now facing, employees' individual achievements are essential (Miglianico et al., 2019). Work engagement may promote competitiveness and prosperity for organizations, features believed to be a necessity in the current turbulent business environment (Hoole & Bonnema, 2015). In such a rapidly changing business environment, having sustainable performance is crucial for creating and sustaining a competitive advantage (van der Walt, 2018). Work engagement means that employees will remain focused, devoted, and vigorous at work, ultimately leading to better performance (Leiter & Bakker, 2010). Employees, on the other hand, exhibit a variety of motives, mentalities, and disciplines, as well as varying abilities to perform at high levels (Llopis, 2012). Due to the fact that thriving and engagement at work are not skills best developed through training (Spreitzer, Lam, & Fritz, 2010), businesses need to create a working environment that nourishes and promotes thriving and work engagement (van der Walt, 2018). This points to a need for this specific research, since it aims to provide managers, firms, and practitioners with some predecessors and outcomes of work engagement to reinforce work engagement as one key employee attitude that impacts the workplace overall. In addition, work engagement is proving to be of great importance to businesses due to its influential role in helping produce positive work results (Bakker & Albrecht, 2018; Schaufeli, Salanova, González-Romá, & Bakker, 2002b). It also allows for the smooth implementation of changes and enhances the performance of employees (Kim, Kolb, & Kim, 2013). Hence, employee engagement is associated with several potential benefits (Chami-Malaeb & Garavan, 2013; Whitman, Van Rooy, & Viswesvaran, 2010).

It is worth mentioning that, in addition to influencing employee attitudes and reactions (Masterson, Lewis, Goldman, & Taylor, 2000), justice perceptions have been shown to have a

significant impact on conduct and attitudes at work (Cole, Bernerth, Walter, & Holt, 2010; Greenberg, 2010). As such, this field is an attitude science that reflects how employees perceive moral judgments within their organizations (Hosmer & Kiewitz, 2005). Lately, scholars have agreed that the singular emphasis on the influences of a particular kind of justice may not cover the intensity and richness of people's perception of justice (Ambrose & Schminke, 2009). Hence, scholars have urged others to concentrate on overall fairness in assessments, as they may offer a comprehensive understanding of justice in the organizational environment (Ambrose & Arnaud, 2005; Lind, 2001a, 2001b; Lind & Van den Bos, 2002). Accordingly, justice has proven to be significant in terms of work-related outcomes at all levels (Hosmer & Kiewitz, 2005) because it has the potential to influence both citizenship behaviors and work engagement (Greenberg, Colquitt, & Zapata-Phelan, 2005; Shao, Rupp, Skarlicki, & Jones, 2013). By examining work engagement as a mediator between work antecedents and work results to reinforce the proposition of the JD-R model that work engagement is a mediator, this research participates in the literature of overall justice by exploring the moderating role that overall justice plays in the connection between work antecedents and work engagement. The importance of fairness perceptions to engagement is also demonstrated by the fact that fairness supports working feelings and energies that contribute to a positive effect of organizational resources on work engagement (Crawford et al., 2010; Freeney & Fellenz, 2013), demonstrating the relevance of justice perceptions to work engagement. Accordingly, concentrating on enhancing the work engagement in today's business environment to boost positive psychology, promote the person-organization relationship, and eventually boost the performance and competitive advantage of firms is an area worth investigating, especially in the service sector of the UAE, because recently the country has been concentrating on the plan to diversify the economy, as its services sector is participating in the economy at 46.4%, and the healthcare sector, the context of this research, is one of the main industries in the services

sectors in the region (Callen, Cherif, Hasanov, Hegazy, & Khandelwal, 2014; Solutions., 2020).

2.2 Theoretical Lens and Conceptual Foundations

This study is built principally on the job demands–resources (JD-R) model, which is regarded as the fundamental backbone of the research and is employed for gauging, evaluating, and scrutinizing the research’s hypotheses. The JD-R model was found to be the most prevalent theory embraced by business scholars in the domain of work engagement/positive psychology because it is a holistic and comprehensive model that syndicates a wide variety of antecedents and organizational outcomes.

2.2.1 Job Demands–Resource (JD-R) Theory.

Herzberg (1968), Hackman and Oldham (1976), and Karasek (1979) are among many models that have been developed and suggested to capture the influence of job characteristics on employee well-being and their implementations (Bakker, 2013). According to Kühnel, Sonnentag, and Bledow (2012), the JD-R model has its roots in the demand–control model (Karasek, 1979) and the effort–reward imbalance model (Siegrist, 1996); however, the domain of the JD-R model is much broader than that of the other models, such as the Effort Reward Imbalance (ERI) model and Job Demands Control (JD-C) model, because it hypothetically comprises all job demands and job resources (Schaufeli & Taris, 2014). In 2001, the JD-R model was introduced by Demerouti and his colleagues in their endeavor to comprehend the antecedents of burnout (Schaufeli, 2017). They relied on the meta-analysis study of Lee and Ashforth (1996), where 13 job resources and eight job demands were recognized as potential reasons for burnout (Schaufeli & Taris, 2014). In fact, the early version of the JD-R model suggested two approaches to the evolution of burnout: extravagant job demands and the shortage of job resources (Demerouti et al., 2001a; Schaufeli & Taris, 2014). Accordingly, previous research has offered evidence that demands were related to exhaustion, and limited

resources were attached to disengagement (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003c; Bakker et al., 2004; Demerouti et al., 2001a; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

As mentioned earlier, the JD-R model was primarily presented to comprehend burnout. Three years later, Schaufeli and Bakker (2004) published a modified version of the theory that inserted work engagement alongside burnout as an approach to add a positive psychological twist and to have a more enhanced model that measured both positive and negative conditions (Schaufeli & Taris, 2014). Previously, according to Siegrist (1996), academics concentrated on the negative aspects of the work; however, the JD-R model introduced the positive aspects of work in a form of work engagement, moving beyond the negative aspect of “burnout.” Under those circumstances, work engagement was added to the model for the purpose of comprehending the positive satisfying psychological state (Schaufeli W. B., 2017). Therefore, work engagement is interpreted as a positive, satisfying mental state associated with working-related activities distinguished by vigor (an abundance of energy and mental elasticity), dedication (emphasis, enthusiasm, and a sense of achievement), and absorption (concentration and enjoyment of work) (Schaufeli & Taris, 2014, p. 46). In other words, work engagement is an employee’s experience of the work if they see the activity as engaging, significant, and interesting and wish to put all their energy into it (Bakker, Albrecht, & Leiter, 2011; Rich et al., 2010).

The core postulation of the JD-R model (Demerouti et al., 2001a) asserted that because employees in different firms are challenged by varied working settings, gathering the features of these working settings into two comprehensive categories, job demands and job resources, may present a comprehensive model that can be utilized in diverse professional frameworks, regardless of the specific requirements and resources involved (Bakker, Demerouti, de Boer, & Schaufeli, 2003b). Hence, the domain of the JD-R model is broader and more flexible, such

that it can be customized for various sets of work environments, and this has attracted the attention of researchers and practitioners (Schaufeli & Taris, 2014).

Based on those conditions, job demands are defined as the social, organizational, or physical features of the job that require constant mental or physical determination. Consequently, these are related to specific psychological and physiological costs. On the other hand, job resources are defined as the social, psychological, physical, or organizational features of the job that can perform one of the following: (a) be practical in attaining work objectives; (b) lessen job requirements at the associated psychological and physiological costs; or (c) encourage individual progression and development (Demerouti et al., 2001a, p. 501). According to the model, job demands cost energy. Job resources influence work engagement and motivation particularly when job demands are high, so they are especially useful and motivating when needed (Bakker & Demerouti, 2018). In addition, the JD-R model strongly anticipates how job demands drain people via the impairment process that leads to burnout and strain and how job resources boost engagement via the motivational process (Albrecht & Anglim, 2018; Bakker & Demerouti, 2017; Demerouti et al., 2001a; Grover et al., 2018; Schaufeli & Taris, 2014). Hence, it explains how job demands and job resources generate two distinct psychological procedures: a motivational approach and a well-being decay approach (Demerouti et al., 2001a). It distinguishes between the energetic process that connects job demands to burnout and the motivational process that associates job resources with work engagement (Bakker & Demerouti, 2007). In regards to a motivational approach, Albrecht and Anglim (2018) confirmed that a positive link was found between job resources and job engagement in several workplace conditions, such as in the studies of Crawford et al. (2010) and Halbesleben (2010). These, in turn, have encouraging outcome impacts on employee behaviors, performance, and attitudes (Christian et al., 2011; Nahrgang et al., 2011). The well-being decay approach of the JD-R model confirmed in previous studies (Alarcon, 2011;

Nahrgang et al., 2011) that job demands have negative consequences on employee well-being and performance (Albrecht & Anglim, 2018).

When the JD-R model was initially developed, it merely considered the aspects of the work environment; nonetheless, the majority of psychological systems postulate that human attitudes are a product of the relationship between personal and environmental elements, which is predicted to incorporate personal resources into the JD-R model (Schaufeli & Taris, 2014). Personal resources are defined as “aspects of the self that are generally linked to resiliency and refer to individuals’ sense of their ability to control and impact upon their environment successfully” (Xanthopoulou et al., 2007, pp. 123–124). Consequently, the JD-R model demonstrated how job resources and personal resources directly affect work engagement, which subsequently impacts job results (Albrecht, 2012). What’s more, the revised version of the JD-R model incorporates engaging leadership, which, by reducing demands and increasing job resources, has an indirect effect on avoiding burnout and mounting engagement (Schaufeli W. B., 2017). So far, leadership has been integrated into the JD-R model as a job resource, such as in the study by Breevaart, Bakker, Hetland, Demerouti, Olsen, and Espevik (2014).

2.3 Constructs of the Research

This study uses the following constructs:

2.3.1 Job Demands

- ***Workload***

An excessive workload gives employees the sensation that the work-related demands exceed their limitations (McFadden et al., 2018), which Byrne (1994) defined as the time and the obtainable resources available for tackling the demands (Montani, Vandenberghe, Khedhaouria, & Courcy, 2019). Thus, workload is strongly associated with the exhaustion aspect of burnout (Maslach, Schaufeli, & Leiter, 2001), which has been classified as one of many elements associated with extreme job demands (Bakker, Schaufeli, Sixma, Bosveld, &

Van Dierendonck, 2000). As a matter of fact, the job compression that results from both the quality and quantity of work-related demands may lower employees' energy for meeting the requirements of the workload (McFadden et al., 2018). Also, workload is a quantitative trait of job demand that indicates the amount of work that ought to be accomplished in a particular time scope (van Woerkom, Bakker, & Nishii, 2016). Accordingly, a heavy workload is explained as the sensation of the existence of many demands in comparison with the available time and resources to handle them (Montani et al., 2019), which may transcend the boundaries of employees (McFadden et al., 2018).

- ***Time Pressure***

Time pressure is a challenging demand that occurs due to the insufficiency of time to achieve the required duties and responsibilities of a particular job (Ohly & Fritz, 2009; Schmitt, Ohly, & Kleespies, 2015; Sharma & Bhatnagar, 2017; Teuchmann, Totterdell, & Parker, 1999) or that requires harder work to accomplish a task faster to be on time (Sharma & Bhatnagar, 2017). Thus, time pressure results from the scarcity of time that leaves a person scanty in dealing with various demands and anticipations. Individual variations may influence how people may react to the circumstances they face, and often there is not enough time for people to perform all the tasks they are willing to do (DeVoe & Pfeffer, 2011).

2.3.2 Job Resources

- ***Social Support***

In the past, social support was defined as the interpersonal relationships that could impact an individual's psychological and social well-being, according to Caplan (1974). More recent definitions, such as those by Cohen and Wills (1985) and Shumaker and Brownell (1984), have characterized social support as information received from individuals who care for, value, esteem, and love the recipient. Plus, it is social communication with co-workers and managers that is beneficial to the well-being of an individual (Taipale et al., 2011). According

to Santini and colleagues (2015), social support can be measured in terms of the frequency of supportive actions provided by others, but it is ultimately a subjective experience of feeling supported. Also, social support, along with supervisor support and workplace environment, is considered a type of job resource grounded in the JD-R model (Crawford et al., 2010). It works as socio-emotional care to absorb strain at the workplace (Halbesleben, 2006; Taipale et al., 2011). Therefore, social support alleviates negative stress consequences by helping employees deal with stress (Schreurs, Hetty van Emmerik, Günter, & Germeys, 2012).

- ***Job Autonomy***

Job autonomy is the extent to which a person has the freedom to plan their work, make decisions, and pick approaches that they consider best for performing their duties. In other words, it is the freedom that they have to perform their duties in a way that allows them to incorporate their freedom into work planning, decision-making, and approach choices (Morgeson & Humphrey, 2006). This has been categorized as a job resource (Demerouti et al., 2001a; Schaufeli, Bakker, & Van Rhenen, 2009) to help in coping with job demands (Grover, Teo, Pick, & Roche, 2017). It is assessed through the capabilities of employees to impact their individual work arrangements, and it has two main elements: skill prudence and decision power (Taipale et al., 2011). Both control and autonomy at the workplace are principal job resources because they help employees handle job demands (Grover et al., 2017).

2.3.3 Work Engagement

The concept of engagement was established initially by Kahn (1990), who proposed that engaged employees were more involved in their job-related responsibilities. In 2006, the concept advanced by differentiating between job and organizational engagement to reveal employees' diverse roles (Saks, 2006). After that, Maslach and Leiter (2006) addressed work engagement as an opposing point of burnout, and burnout measurements were used to measure engagement. But, Schaufeli et al. (2002b) argued that engagement is a discrete and isolated

concept and it should have its own unique scale for measurement. Thus, work engagement was defined as a state of mind depicted by vigor, dedication, and absorption, and they initiated the Utrecht Work Engagement Scale (UWES) as a measurement scale (Schaufeli et al., 2002b). In this scale, vigor indicates high liveliness and mental elasticity during work, dedication refers to being extremely involved in work responsibilities and feeling its related importance, eagerness, and challenges, while absorption is the situation of being fully focused on work and feeling positive fascination with it (Knight, Patterson, & Dawson, 2017).

Due to the affirmative role of work engagement in work outcomes, it is essential to examine its association with job features (Oshio et al., 2018). The JD-R model is the main theory that has tackled, addressed, and explained the relationship between work engagement and job features (Bakker et al., 2003a; Demerouti et al., 2001a; Schaufeli & Bakker, 2004).

2.3.4 Job Performance

Job performance encompasses two components: in-role performance and extra-role performance (Beta, Zulkifli, Abd Rahim, Ahmad, & Mohamad, 2019). Task performance indicates the behaviors of employees who participate in the core performance of the firm, while contextual performance indicates the behaviors of employees who participate in the social and psychological essence of the firm (Bertolino, Truxillo, & Fraccaroli, 2013). According to the literature, task performance and contextual performance are synonymous with in-role and extra-role performance, respectively. Thus, in-role performance describes any conduct that is identified by the official rewarding structures that are considered one of the required components as explained in the job description (Yavas, Babakus, & Karatepe, 2013), and information and abilities are its significant attributes (Goodman & Svyantek, 1999). Extra-role performance (synonymous with organizational citizenship behaviors), in contrast, considers all the behaviors and attitudes that are not straightforwardly or clearly acknowledged by the official reward schemes (Piercy, Cravens, Lane, & Vorhies, 2006) and not necessitated by the

profession. These may contribute to augmenting the working competence and usefulness of the firm (Adil, Kamal, & Shujja, 2019).

2.3.5 Perceived Overall Justice

Despite the variance that exists between the organizational justice elements, most scholars (such as Krings & Facchin, 2009) relied on the three-factor model, which consists of distributive justice, procedural justice, and interactional justice. Consequently, researchers have recently proposed switching from concentrating on a particular dimension of justice to the contemplation of overall justice (Ambrose & Schminke, 2009; Patel, Budhwar, & Varma, 2012). Indeed, the attitudes and results of employees have been better investigated by evaluating the perceptions of overall justice instead of the different individual types of justice (Priesemuth et al., 2013). Hence, overall justice reflects a more precise illustration of the justice experiences (Barclay & Kiefer, 2014). Organizational justice/overall justice has been studied and linked to various and significant work results, including job and pay fulfillment, organizational obligation, organizational citizenship behaviors, organizational identification, perceived organizational support, and leader–member exchange (Olkkonen & Lipponen, 2006; Roch & Shanock, 2006; Sarti, 2019). What’s more, overall justice is considered the proximal driver of results (Ambrose & Schminke, 2009; Priesemuth et al., 2013), wherein employees react to the whole evaluation of justice (Greenberg, 2001). That means that employees will respond to their comprehensive justice experience. This means that overall justice has a close relationship to work results, which offers practitioners, employers, and staff a uniform understanding of justice that is more precisely illustrative of the organizational justice conception (Ambrose & Schminke, 2009; Shapiro, 2001). Accordingly, the perceived overall justice represents a comprehensive assessments of a firm’s justice that relies on both individual experiences and the experiences of others, which provokes attitudes (Ambrose & Schminke, 2009). Thus, the increasing importance of overall justice is attributed to the fact that focusing

on one dimension of organizational justice may not precisely reflect the employees' justice experiences; in addition, the concentration on overall justice may overcome the restrictions of previous justice analyses restrictions (Ambrose & Schminke, 2009; Barclay & Kiefer, 2014; Priesemuth et al., 2013).

2.4 Literature Review: An Appraisal and Critical Reviews

In accordance with the JD-R model (Demerouti et al., 2001a), which categorizes job characteristics into two core categories (job demands and job resources) (Xanthopoulou et al., 2007), job characteristics have a profound effect on burnout, job strain, and work engagement (Bakker & Demerouti, 2007). The JD-R model proved to be the most commonly used theory for studying burnout and engagement in work because of its holistic approach. As a matter of fact, JD-R is a well-adjusted approach that aims to determine the features of welfare—both the negative and positive sides (i.e. work engagement and burnout)—by linking them with motivational process and stress, respectively (Bakker & Demerouti, 2007). According to the JD-R model, job demands tend to lead to burnout, while insufficient job resources are responsible for disengagement (Demerouti et al., 2001a). Additionally, the theory also claims that health deficiencies are often related to job demands, while motivational procedures are primarily connected to job resources (Demerouti & Bakker, 2011). Accordingly, examining the influence of some common demands and job resources, present in almost all industries and across different cultures, on work engagement is important to enrich the literature and to provide practical implications for policymakers to manage these job characteristics to boost work engagement and job performance. For instance, previous research found that sleep problems, exhaustion, and unhappiness were positively correlated with job demands, such as work pressures, emotional demands, and role ambiguity (Halbesleben & Buckley, 2004), whereas autonomy, social support, and performance feedback are job resources that underlay a motivational process that can lead to work-related learning, organizational commitment, and

work engagement (Demerouti et al., 2001a; Salanova, Agut, & Peiró, 2005; Taris & Feij, 2004).

. A review of previous research confirmed that job demands were the most prominent predictor of negative job outcomes, based on the JD-R model's prime proposition (Bakker et al., 2003c, 2004), whereas job resources are expected to be the primary source of work engagement (Hakanen, Bakker, & Schaufeli, 2006). Likewise, job resources are important predictors of work motivation, learning, commitment, and engagement, whereas job demands are the most essential predictors of job strain (Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008). So, this research relies on the importance of investigating the less-researched area, that is, the impact of job demands on work engagement. These characteristics are an integral part of the work environment, and employees have different capacities and perceptions that require more consideration to come up with appropriate resolutions to increase employee engagement and to extend eventually to enhanced job performance. In addition, job characteristics differ from occupation to occupation due in part to the uneven availability of these characteristics from job to job. This means that certain job demands and job resources do not have the same influence or meet the primary assumptions of the theory (Demerouti et al., 2001a). In addition, a company's work environment greatly influences how eager and lively employees are about their work, as well as how concentrated they are (Bakker & Demerouti, 2014; Demerouti et al., 2001a). The fact that job characteristics (i.e., job requirements and job resources) differ among work environments in various contexts translates into different types of influences on employees, as the availability of such characteristics affects employee engagement/burnout. For example, depending on the nature of the job and/or industry, the availability of job resources may not necessarily boost engagement levels, as employees may struggle to meet job demands, or vice versa, the demands of jobs may motivate employees and thereby raise engagement levels, but with a maximum limit and in accordance with the job or

industry. Nonetheless, previous work has largely focused on negative job elements, such as impaired health, repetitive stress, and burnout (Bakker & Demerouti, 2007). Furthermore, most theoretical approaches to job-related health and welfare emphasize work pressure and the draining effects of work while omitting positive workplace influences, such as engagement (Schaufeli et al., 2009). Researchers have recently changed the focus of burnout studies to focus on the positive aspect of work engagement (Kim, Shin, & Swanger, 2009), which will be approached by exploring the holistic influence of its antecedents, that is, job demands and job resources.

2.5 Hypotheses

By reviewing the literature, the author endeavored to establish a solid foundation for scrutinizing and investigating the suggested hypotheses for the purpose of participating in, expanding, and enriching the extant literature, both theoretically and practically.

2.5.1 Job Demands and Work Engagement

While several scholars have researched work engagement, very few have empirically explored the negative relationships between job demands and engagement in the workplace (however, see Nahrgang et al., 2011). Also, decreasing employee burnout and increasing work engagement have been linked with enhanced performance (Bakker & Leiter, 2010). In addition, job burnout has been found to have a corrosive impact on engagement (Schaufeli & Bakker, 2003; Schaufeli et al., 2002b). In light of the fact that job demands have a positive effect on burnout, Bakker et al. (2008) reported that work engagement plays a key role in job health psychology when its positive effects are considered, and in the JD-R, “work engagement” was understood as a positive psychological state warding against “burnout” (Schaufeli & Taris, 2014), it can be concluded that job demands may lower work engagement and ultimately affect job performance. However, the association between work demands and engagement in the workplace is ambiguous and volatile, although the relationship between job resources and

participation in the workplace is well established. As a matter of fact, extensive evidence suggests that job resources, such as autonomy and development opportunities, positively correlate with work engagement (e.g., Halbesleben, 2010); however, few studies have examined the relationship between job demands and engagements (Breevaart & Bakker, 2018).

The JD-R model, for instance, ignores the direct relationship between job demands and job engagement (Radic, Arjona-Fuentes, Ariza-Montes, Han, & Law, 2020), noting only that a scarcity of job resources and high job demands may lead to employees becoming disengaged from their work (Demerouti et al., 2001a). Although this model has been used as a theoretical background for the existing literature, the results have been conflicting (Radic et al., 2020). Likewise, the relationship between job demands and work engagement is fuzzy (Sawang, 2012), and the findings in the literature have been inconsistent. To illustrate, job demands seem to have a direct negative impact on engagement (Breevaart & Bakker, 2018; Oshio et al., 2018), and literature on various industries, such as tourism and hospitality (Schaufeli, 2017), has confirmed that job demands dampen engagement (Bakker, 2015). It has also been shown that excessive physical demands are negatively correlated with job satisfaction (Humphrey, Nahrgang, & Morgeson, 2007); as a result, it can be assumed that work engagement would also be negatively impacted by job demands as job satisfaction is closely related to work engagement, as employees who are engaged in their work tend to be more satisfied with their job. Additionally, high demands of a job can have detrimental effects on workers' engagement (Pieters & Matheus, 2020). In connection with that, insecurity and time pressure have been found to reduce work engagement (Saari, Melin, Balabanova, & Efendiev, 2017). Moreover, job demands like those found in teaching, which is an extremely demanding occupation, have an inverse relationship with work engagement (Hakanen et al., 2006). Conversely, Schaufeli and Bakker (2004) found that job demands did not directly influence work engagement. Consequently, given the results of this literature review, further consideration is needed to

clarify the relationship between job demands and job engagement. This will be done using the JD-R model to support the extant literature, as well as to provide empirical evidence for human resources personnel and policymakers to tailor their job attributes and work environment to meet properly the needs of their employees. Additionally, workload and time pressure are two of the most widespread job demands that have been examined in the extant literature, due to the nature of today's business environment. Accordingly, this research proposes the following hypothesis, based on the JD-R model and prior literature indicating a relationship between job demands and employee engagement:

- **H1:** *Job demands negatively influence work engagement.*

2.5.2 Job Resources and Work Engagement

Social support in the workplace refers to support employees receive from both co-workers and supervisors. Accordingly, Korunka, Kubicek, Schaufeli, and Hoonakker (2009) acknowledged that most researchers point to both supervisory and co-worker support when describing the link between social support and engagement at work. By reviewing the extant literature, supervisor support has been found to be positively associated with work engagement (Bakker & Demerouti, 2007; James, McKechnie, & Swanberg, 2011), and co-worker support has also been positively linked with work engagement (Schaufeli & Bakker, 2004; Xanthopoulou et al., 2008). Work engagement and organizational commitment are also affected by job resources, such as performance feedback and social support (Bakker et al., 2003a, 2004). The aforementioned literature has likewise confirmed that work resources, including job autonomy, learning opportunities, rewards, social support from colleagues and supervisors, feedback on performance, and skill variety have all been shown to strongly predict work engagement (Bakker & Demerouti, 2007; Demerouti et al., 2001a; Llorens, Bakker, Schaufeli, & Salanova, 2006; Mauno et al., 2007; Schaufeli & Bakker, 2004; Schaufeli et al., 2009). Furthermore, social support plays a beneficial and substantial role in work engagement

(Crawford et al., 2010), so co-worker and supervisor support is an important aspect of job resources that positively impacts engagement at work (Christian et al., 2011; Halbesleben, 2010). Therefore, job resources play a vital role in promoting positive work-related outcomes, as they are expected to foster employee engagement and ultimately enhance performance in the workplace. By considering the abovementioned literature, managers and decision makers can make better decisions about which resources to make available, choosing those that are proven to be useful for creating a thriving positive psychology at the workplace (that is, work engagement), impacting employees' attitudes and behaviors and enhancing the competitive edge of organizations.

As a result of their expectation that their managers will support them in acting independently, employees who perceive that they have autonomy in the workplace are likely to appropriately evaluate their job demands and be able to treat them positively (Grover et al., 2017). Therefore, it is essential that employees have a great deal of job autonomy, as it will positively impact their performance (Karasek, 1979). Employees who have more autonomy also engage more in their work thanks to the sense of activation and loyalty associated with autonomy, which spur further engagement (Bakker & Demerouti, 2007). In the workplace, there is no escape from the need to meet job demands, so employees who are supported by their supervisors and co-workers, as well as those who can manage their responsibilities independently, are likely to be more engaged, which should translate into better job performance. Consequently, being autonomous at work and receiving social support can buffer the negative effects of work demands on employee attitudes, thus contributing to a positive workplace environment and boosting employee engagement. In today's turbulence-ridden and rapidly changing business environment, providing appropriate job resources, enhancing positive psychology, and positioning a firm effectively among competitors may be some of the factors that managers, policymakers, and decision makers should consider. Undoubtedly,

people with greater autonomy are better able to complete their own activities, leading to a reduction in pressure, power consumption, and fatigue (Sardeshmukh et al., 2012). According to the JD-R model, employees who feel autonomous are likelier to be engaged at work, since job resources are motivating (Bakker & Bal, 2010) and help them attain their goals (Bakker & Demerouti, 2007). It is clear that job autonomy and social support are among the most noteworthy aspects of job resources (Buch, Dysvik, Kuvaas, & Nerstad, 2015), since both factors are linked to work engagement (Bakker & Demerouti, 2007; Hakanen & Roodt, 2010). Additionally, colleagues' support and autonomy are also work resource factors that play a role in motivating workers to become engaged in their work, to remain committed to their companies, and to learn at work (Taipale et al., 2011). As vigor is a one factor of work engagement, thus the relationship between commitment and autonomy with vigor is stronger than the linkage between commitment and autonomy with fatigue (Demerouti, Mostert, & Bakker, 2010). In much the same way, whereas job autonomy is negatively correlated with cynicism and fatigue (Schaufeli & Bakker, 2004), it is positively linked to dedication and vigor, given that both vigor and dedication are essential components of engagement in the workplace (Mauno et al., 2007). Autonomy also has a positive correlation with engagement in work (Mauno et al., 2007; Saks, 2006), whilst it has a negative correlation with emotional distress and burnout (Littman-Ovadia, Oren, & Lavy, 2013).

In essence, this thesis report is an intentional review of the role of social support and job autonomy as job resources that may boost motivational function for both job demands and work engagement. This also involves describing its widespread prevalence in the literature, because it is indisputable that workload as a job demand and job autonomy as a job resource are key aspects of most jobs (Karasek, Brisson, Kawakami, Houtman, & Bongers, 1998). Hence, managers and decision makers may be able to utilize the outcomes of this research to promote job resources, namely social support and job autonomy, to foster a positive work

environment that encourages employees to be engaged. The involvement of these two job resources together has been deliberately explored, as employees with job autonomy but without the support of their supervisors and colleagues are less likely to reach their full potential, as their motivation may be negatively impacted. Moreover, this research seeks to help managers grasp the crucial role that might be played by the antecedents of work engagement in boosting job performance and positive psychology within companies. It is therefore believed in this research that job autonomy and social support have a positive correlation with work engagement as a way to enhance work engagement through the evaluation of the resources within organizations, identifying their importance for enhanced work engagement, and achieving a competitive advantage, while simultaneously reducing employee turnover and recruitment costs. Considering the distinguished role that both job autonomy and social support play in the workplace, and with the backing of the JD-R model, the following hypotheses were expressed:

***H2a:** Social support positively influences work engagement.*

***H2b:** Job autonomy positively influences work engagement.*

***H2c:** Job resources positively influence work engagement.*

2.5.3 Work Engagement and Job Performance

Work engagement has been shown to have a positive link with job performance (Bakker & Bal, 2010; Xanthopoulou et al., 2008), as engagement at work was predicted to affect both the performance of self-employed people and salaried workers (Gorgievski, Bakker, & Schaufeli, 2010). There is no question of whether engaged employees with higher energy levels perform more successfully (Lazauskaite-Zabielske et al., 2018). Consequently, highly engaged employees tend to demonstrate superior performance over time (Bakker & Bal, 2010). Additionally, job performance improves when employees are surrounded by a positive and energetic motivational state of mind, marked by emotion (dedication), vitality (vigor), and

mental activity (absorption) on the job, as these conditions inspire and encourage hard work and good performance (Alessandri et al., 2018). Moreover, higher work engagement is linked to higher job satisfaction, higher organizational commitment, and improved performance, as well as lower turnover and absenteeism rates (Schaufeli & Bakker, 2004). Consequently, having highly engaged employees is essential for the success of organizations, as this directly affects the results of their work. Since ensuring an appropriate work environment is key to having highly engaged employees, work environments must be adapted. When workers felt more influential, this led to more work engagement, which in turn led to improved performance (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009b; Xanthopoulou et al., 2008).

The degree to which employees are engaged at work has a positive relationship with in-role performance and extra-role performance (Halbesleben, 2010; Halbesleben & Wheeler, 2008; Schaufeli, Taris, & Bakker, 2006b). Vigor and dedication, as components of work engagement, mediate the link between job characteristics and nurses' contextual and task performance (Bhatti et al., 2018). It has also been demonstrated that work engagement is related to both extra-role performance and in-role performance as components of job performance (Christian et al., 2011). Similarly, work engagement and active learning, task performance, and contextual performance were also significantly correlated, especially for employees who were conscientious (Bakker, Demerouti, & ten Brummelhuis, 2012). A significant link has been demonstrated between work engagement and both in-role and extra-role performance (Lorente, Salanova, Martínez, & Vera, 2014). Additionally, work engagement was found to be correlated with organizational performance, task performance, extra-role performance, and morale (Bailey et al., 2017). Indeed, three decades of research into work engagement and work performance measures (subjective and objective task performance) have shown a positive association between these two (Bakker et al., 2012; Saks & Gruman, 2014). Work engagement contributes to a harmonious environment and is a strong predictor of

organizational citizenship behavior (Matta, Scott, Koopman, & Conlon, 2015). Additionally, employees with home-longing experience less engagement in their work due to their inability to utilize everyday job resources, which leads to low job performance (Bakker, Du, & Derks, 2019). This shows the value of the antecedents and perceptions of employees regarding work engagement. In addition, work engagement plays a significant role for organizations due to its influence on work-related outcomes (Demerouti & Cropanzano, 2017). However, the studies that examined the relationship between work engagement and performance were lesser as opposed to the studies that examined the association between work engagement and other outcomes (Lazauskaite-Zabielske et al., 2018). As a result, and in light of the available literature, it is both comprehensible and evident that engagement at work is positively correlated to job performance (i.e., in-role performance and extra-role performance), which may motivate managers to tailor the work environment to be more suitable for workers as a way to increase employees' work engagement and job performance, and thus the performance of the organization. This study, which draws upon the extant literature and the JD-R model, is intended to shed more light on the impact of work engagement on in-role and extra-role performance by testing the following hypotheses:

***H3a:** Work engagement positively influences in-role performance.*

***H3b:** Work engagement positively influences extra-role performance.*

***H3c:** Work engagement positively influences job performance.*

2.5.4 The Mediating Role of Work Engagement

Job demands are regarded as a source of ill health, while motivational procedures are a consequence of work resources (Demerouti & Bakker, 2011). Thus, as work engagement is the inverse of burnout, job demands negatively impact engagement. The JD-R model also proposes that job demands are mainly predictive of negative work results (Bakker et al., 2003c, 2004), whereas job resources are primarily predictive of work engagement (Hakanen et al.,

2006), therefore job demands are predicted to negatively influence work engagement since they correlate positively with negative outcomes. Bakker et al. (2008) found that job demands positively impacted burnout. To take advantage of this, in one study, work engagement was incorporated into occupational health psychology to emphasize the positive results of work (Schaufeli & Taris, 2014). Therefore, the researcher can deduce that job demands negatively affect work engagement, which points to a need to explore this relationship, since it is likely to impact job performance later on.

Interestingly, workload and time pressure have an obscure relationship with work engagement. This is because of two opposing situations: in some cases, employee busyness signifies employee importance, which might enhance work engagement, yet in others, a heavy workload may lead employees to have negative feelings toward an organization (Oshio et al., 2018). As a result, further investigation of the relationship between job demands (such as workload and time pressure) and engagement is needed to illuminate this ambiguous bond so managers can adapt the workplace accordingly to achieve better performance and a sustainable competitive advantage.

In contrast, numerous studies have shown a correlation between work engagement and both objective and subjective tasks over the past three decades (Bakker et al., 2012; Saks & Gruman, 2014). Work engagement and in-role performance have also been found to be significantly correlated (Halbesleben, Wheeler, & Shanine, 2013). By the same token, the link between task performance and work engagement appears to be positive (Geue, 2018). Similarly, it has been shown that work engagement correlates positively with job performance and innovation (Chughtai & Buckley, 2011). In addition, there was a positive correlation between challenging job demands, such as workload and cognitive demands, and job performance (LePine et al., 2005). However, the presence of both insecurity and time pressure undermines work engagement (Breevaart & Bakker, 2018; Oshio et al., 2018), and both

insecurity and time pressure contribute to lower work engagement (Saari et al., 2017). In addition, there is evidence that preventing burnout and improving work engagement are associated with better employee performance (Bakker & Leiter, 2010), and burnout is associated with decreased work engagement (Schaufeli & Bakker, 2003; Schaufeli et al., 2002b). Therefore, a relationship between workload (job demand) and work engagement would be expected, as burnout is the reverse of work engagement. Consequently, job demands lower engagement at work (Bakker, 2015), a finding also confirmed by studies in the tourism and hospitality industries (Schaufeli, 2017).

As well as mediating the relationships between transformational leadership and self-efficacy in extra-role performance (Salanova, Llorens, & Schaufeli, 2011), work engagement also mediated the relationship between procedural justice and job performance, as well as extra-role customer service (Karatepe, 2011). In addition, it has been demonstrated that work engagement can be used to guide organizational citizenship behavior (Matta et al., 2015), as work engagement and organizational citizenship behavior have been found to be positively correlated (Halbesleben, Harvey, & Bolino, 2009). Furthermore, psychological contracts and work engagement have been linked with job satisfaction and contextual performance (Rahman, Rehman, Imran, & Aslam, 2017). Engaged employees are more attentive and focused on their work tasks, so work engagement positively impacts task performance (Christian et al., 2011). Work engagement is additionally positively correlated with both organizational citizenship behavior at the level of the organization and the individual (Halbesleben et al., 2013). In addition, work engagement mediates the relationship between perceived organizational support, core self-evaluation, two aspects of job performance, and value congruence (Rich et al., 2010). Because firms expect more from their employees, it is necessary to motivate and reinforce employee engagement as an approach to bettering both the in-role and the extra-role performance of employees. The current research thus hypothesizes, within the JD-R model

framework, that employee engagement has a mediating influence on the relationship between job demands (workload and time pressure) and job performance (in-role performance and extra-role performance), so:

***H5a:** Work engagement mediates the influence of job demands on in-role performance.*

***H5b:** Work engagement mediates the influence of job demands on extra-role performance.*

***H5c:** Work engagement mediates the influence of job demands on job performance.*

Indeed, social support addresses both supervisory and peer support (Korunka et al., 2009), and a positive correlation between supervisor support and work engagement has been found (Bakker & Demerouti, 2007; James et al., 2011). In addition, job resources that depend on social support have been shown to positively affect engagement at work (Crawford et al., 2010). Job resources, such as performance feedback and social support, are important for commitment to organizations and worker engagement (Bakker et al., 2003a, 2004). The relationship between co-worker support and work engagement has also been well established (Schaufeli & Bakker, 2004; Xanthopoulou et al., 2008). Both supervisory and coworker support have been shown to be important job resources that are positively associated with work engagement (Christian et al., 2011; Halbesleben, 2010). In addition, a positive correlation was found between a set of occupational resources and the degree of work engagement, including both colleagues' and supervisors' support, learning opportunities, skill variety, job autonomy, rewards, and performance feedback (Bakker & Demerouti, 2007; Demerouti et al., 2001a; Llorens et al., 2006; Mauno et al., 2007; Schaufeli et al., 2009; Schaufeli & Bakker, 2004). According to 48 studies, employees' job engagement positively correlates with task performance (Kim & Koo, 2017), and it influences both innovative work behavior and in-role performance (Chughtai & Buckley, 2011). Employees who are engaged are incontrovertibly

more vigilant and dedicated to their jobs, which ultimately results in boosting the relationship between work engagement and task performance (Christian et al., 2011). Managers should pay attention to this if they want to improve profitability. The relationship between work engagement and organizational citizenship behavior is also significant and compatible (Matta et al., 2015). Furthermore, psychological contracts and work engagement were found to be positively correlated with employee job satisfaction and contextual performance (Rahman et al., 2017). Additionally, work engagement is strongly correlated to organizational citizenship behavior (Halbesleben et al., 2009), pointing to the need for further research into these relationships to produce a positive psychological climate within organizations.

On the other hand, employees with more autonomy find their work more enjoyable and engaging because autonomy increases activation and loyalty, both of which result in increased engagement (Bakker & Demerouti, 2007). High levels of autonomy and social support are also significantly related to work engagement (Bakker & Demerouti, 2007; Hakanen & Roodt, 2010). In a similar fashion, social support and job autonomy were found to be motivational approaches that encourage and enhance learning, work engagement, and organizational commitment (Taipale et al., 2011). Additionally, work engagement was strongly associated with in-role performance (Halbesleben et al., 2013), as well as task performance (Geue, 2018). In light of this, managers and policymakers have a responsibility to support this promising strategy by tooling up resources that may encourage employees to better engage in their work and gain the best outcomes. Furthermore, work engagement has been shown to be significantly correlated with both objective and subjective task performance (Bakker et al., 2012; Saks & Gruman, 2014). In fact, job engagement and autonomy have been shown to be highly correlated (Mauno et al., 2007; Saks, 2006). Daily autonomy and workload have been proven to be positively connected with daily engagement at work (Demerouti, Bakker, & Halbesleben, 2015). Additionally, job autonomy was positively correlated with both career commitment and

work engagement, whereas it was negatively correlated with emotional distress and burnout (Littman-Ovadia et al., 2013). Similarly, the association between autonomy and commitment and vigor is stronger and more significant than that between autonomy and commitment and exhaustion (Demerouti et al., 2010). There is, then, a positive correlation between work engagement and organizational citizenship behavior – organization (OCB-O) and organizational citizenship behavior – individual OCB-I (Halbesleben et al., 2013), and a compatible and significant relationship exists between engagement at work and organizational citizenship behavior (Halbesleben et al., 2009; Matta et al., 2015). Therefore, managers should intervene and encourage employees to engage since this will increase employee motivation, thereby increasing in-role performance and engagement in extra-role activities. With this in mind, and under theegis of the JD-R model, it has been proposed that work engagement mediates the influence between job resources (social support and job autonomy) and job performance (in-role performance and extra-role performance), thus:

H6a: *Work engagement mediates the influence of social support on in-role performance.*

H6b: *Work engagement mediates the influence of social support on extra-role performance.*

H6c: *Work engagement mediates the influence of social support on job performance.*

H6d: *Work engagement mediates the influence of job autonomy on in-role performance.*

H6e: *Work engagement mediates the influence of job autonomy on extra-role performance.*

H6f: *Work engagement mediates the influence of job autonomy on job performance.*

H6g: *Work engagement mediates the influence of job resources on in-role performance.*

***H6h:** Work engagement mediates the influence of job resources on extra-role performance.*

***H6i:** Work engagement mediates the influence of job resources on job performance.*

2.5.5 The Moderating Role of Perceived Overall Justice.

It is important to understand how people make judgments about fairness in their firms, as well as how they respond to such perceptions, as a way to understand organizational behavior (Colquitt & Greenberg, 2005; Ghosh et al., 2014), as these perceptions may impact their behaviors and attitudes in the workplace (Colquitt et al., 2001; Yang et al., 2014). There is a danger, however, that concentration on specific types of justice may not capture the depth and variety of experiences of justice among employees (Ambrose & Schminke, 2009). A move toward global justice may help organizations understand justice more comprehensively (Ambrose, Arnaud, Greenberg, & Colquitt, 2005; Ambrose & Arnaud, 2005; Lind & Van den Bos, 2002). Indeed, it has been demonstrated that when fairness and justice levels are low, this results in burnout. Likewise, when they are perceived to exist, work engagement is boosted (Maslach et al., 2001). Organizational aspects and external factors can influence employee engagement (Heyns & Rothmann, 2018), meaning that when employees feel that an organization is lacking in fairness, they may be less engaged, and other positive organizational outcomes may be reduced (Cenkci & Otken, 2019). As such, overall justice can be stimulated through employees' positive emotions and performance outcomes (Barclay & Kiefer, 2014). Justice comprehension affects organizational citizenship behavior and engagement at work (Farid, Iqbal, Jawahar, Ma, & Khan, 2019). Perceptions of interactional, distributive, and procedural justice are also associated with engagement (Agarwal, 2014; Ghosh et al., 2014; Gupta & Kumar, 2013).

The manner in which employees conduct themselves at work is also impacted by organizational justice (Colquitt, 2001). As a result, employees who feel that they are treated

fairly at work are more engaged than those who feel unfairly treated (Biswas et al., 2013). Further, employees who are more aware of justice are likelier to perceive that they should be fair when completing their own tasks, thus increasing their engagement (Cropanzano & Mitchell, 2005). On the other hand, employees who have a lower sense of justice may withdraw and become work-disengaged (Biswas et al., 2013). Also, justice is correlated positively with work engagement and employee satisfaction (Suliman & Al Kathairi, 2013), and is identified as a moderator of the impact of job insecurity on performance (Wang et al., 2015). As job insecurity is a job demand, it is probable that justice will similarly affect the relationship between workload and time pressure on the behavior of employees and will ultimately affect job performance. This insight may prove useful in helping managers recognize the prominence of justice in employee attitudes. Nonetheless, only a few studies have noted organizational justice as being among the antecedents of work engagement (Moliner, Martinez-Tur, Ramos, Peiro, & Cropanzano, 2008; Saks, 2006). Similarly, only a few studies have examined the association between justice and employee work engagement (Agarwal, 2014) or the link between justice and engagement (e.g., Saks, 2006), the latter of which found no connection between distributive and procedural justice and engagement at work. The current research evaluates justice, rather than individual aspects of it, from the point of view of overall justice. It looks at how overall justice impacts the relationship between job demands and resources, on the one hand, and work engagement, on the other, by using the JD-R model and drawing upon the existing literature. In this light, this research hypothesizes the following:

H4a: *Perceived overall justice moderates the causation of job demands on work engagement, such that the causation will be stronger for employees with higher perceived overall justice than those with lower perceived overall justice.*

H4b: *Perceived overall justice moderates the causation of social support on work engagement, such that the causation will be stronger for employees with higher perceived overall justice than those with lower perceived overall justice.*

H4c: *Perceived overall justice moderates the causation of job autonomy on work engagement, such that the causation will be stronger for employees with higher perceived overall justice than those with lower perceived overall justice.*

H4d: *Perceived overall justice moderates the causation of job resources on work engagement, such that the causation will be stronger for employees with higher perceived overall justice than those with lower perceived overall justice.*

2.6 Conceptual Research Model

This conceptual paper is based on the existing literature related to work engagement, its antecedents, and job performance. It addresses the following assumption: In order to be highly engaged in their work and participate positively in the performance of their health entities through enhanced job performance, it is desirable for employees to work in a positive business environment that is characterized by justice and that provides appropriate work attributes (i.e., job characteristics, including job demands and job resources); here, the significant role of managers and policymakers lies in ensuring the availability of these factors to provide a positive workplace that encourages employees to be more engaged and hence to perform better.

Based on a comprehensive review of the recent literature and the formulation of hypotheses based on the JD-R theory, this study proposes a framework (Figure 1) that illustrates how positive psychology (that is, work engagement) is applied within the UAE public healthcare sector. Positive psychology is characterized by work engagement, a construct that mediates the relationship between antecedents and work outcomes. The chosen antecedents in the present study were workload and time pressure, which indicate job demands,

as well as autonomy and social support, which reflect job resources. These constructs were chosen because they are extensively documented in the literature and have a valuable influence on employee attitudes. As a result of the correlation between the antecedents and work engagement, work performance was selected as an outcome, given its significance for organizations, including its contribution to competitive advantage. In this research, both in-role performance and extra-role performance will be examined holistically to illustrate the role work engagement (positive psychology) may play in enhancing a company's competitive advantage, which can be done by encouraging employees to perform extra roles beyond completing their main tasks and duties. Also, the organizational atmosphere or organizational culture might affect the attitudes and behaviors of employees, so the suggested theoretical framework aims to investigate the moderating role of organizational factors. In order to better understand nurses' work engagement and ultimately job performance, this research will also address their perceptions about overall justice in the healthcare entities they are working in.

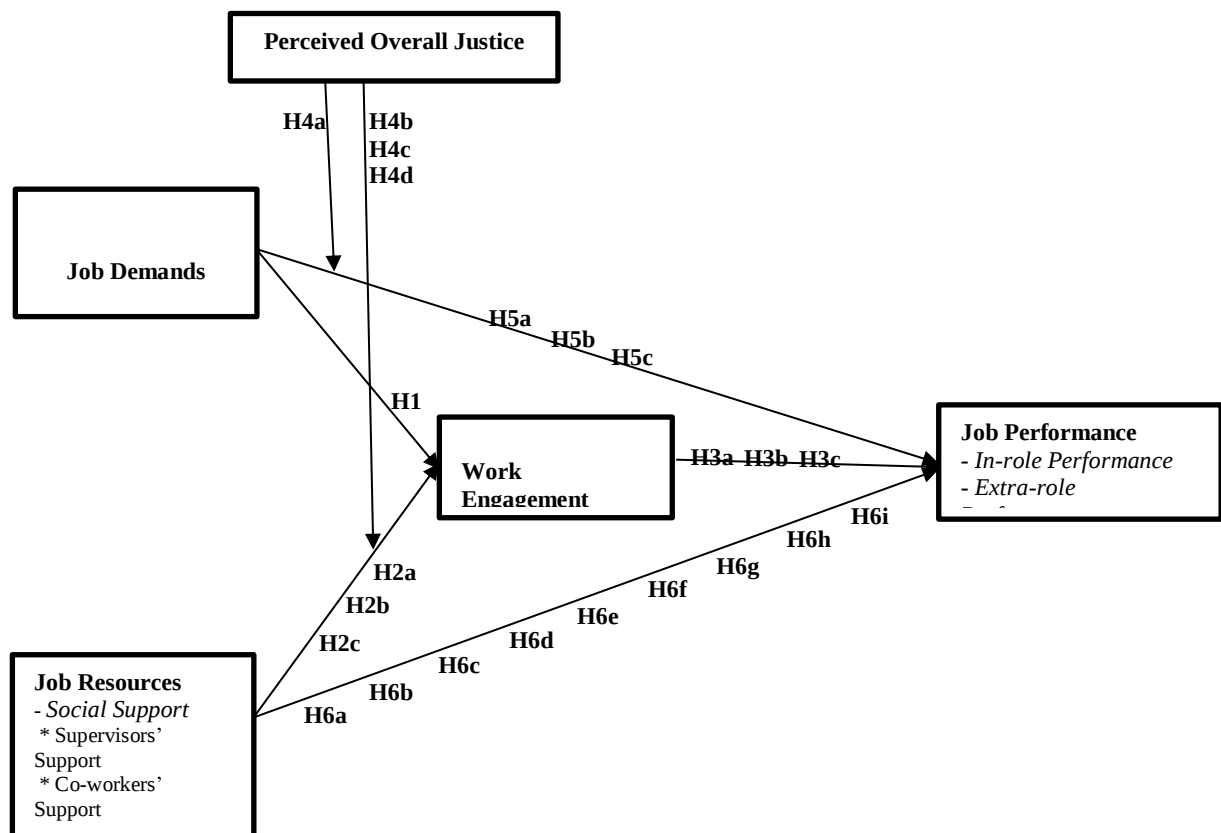


Figure 2. Theoretical research model.

2.7 Conclusion

The above review of the literature consolidated the role of the theoretical structure in framing the theoretical model and designing the present research. The JD-R model was utilized extensively in this study due to its comprehensive and holistic nature, which facilitates the examination of work engagement thoroughly through its antecedents and outcomes. This helped form the research hypotheses and was intended to assist in answering the research questions to achieve the research objectives by depending on the JD-R model as the main theoretical framework for this research.

CHAPTER 3: RESEARCH METHODOLOGY AND DATA COLLECTION

3.1 Introduction

The target of this quantitative research was to examine how to boost positive psychology in the workplace of public hospitals and clinics in the healthcare sector in the UAE through enhancing work engagement, with the aim of boosting job performance. This was accomplished by exploring the antecedents of work engagement exemplified by some job demands (i.e., workload & time pressure) and job resources (i.e., social support & job autonomy), and its subsequent work-related results, represented by job performance, in addition to investigating the role of overall justice as a moderator variable. The proposed hypotheses were tested by an online survey that was distributed among the nurses in the public healthcare sector of the UAE. The survey was meant to determine the most predictable constructs for work engagement and how to best describe it, with the goal of boosting engagement and, in turn, job performance.

This chapter explains the research methodology of this dissertation, which starts by presenting the rationale for the research. This is followed by information about the appropriateness of the

research design. Next, the steps in the research are discussed, followed by the research's problem formulation. Then, a brief review of the extant literature is provided, followed by the formulation of the study hypotheses. After that, a discussion about the research design explains the research population, the approach in determining the sample size, and sampling, which is then followed by the instrumentation section, which describes the instrumental items for each construct. The data collection section then details the discussions, the research variables, and the pilot study. Then, the descriptive and analytical data are described. This is followed by a discussion of the validation and testing of the hypotheses to ensure the effectiveness of the methodology. The procedures for the protection of participants' rights and anonymity are presented, followed by the chapter conclusion.

3.2 Rationale for the Research

The main rationale behind this research is to examine the existence and level of positive work-related results in the public healthcare sector of the UAE by examining the work engagement level of nurses and its impact on job performance. This will be studied by investigating the impact of some antecedents of work engagement (combined under job demands and job resources), including workload, time pressure, social support, and job autonomy. Then, these relationships are correlated with job performance (i.e., in-role performance and extra-role performance) to explore their anticipated influence on competitive advantage. Also, the role of overall justice will be studied to determine how nurses' perceptions of justice may impact their work engagement, which ultimately may boost positivity in the workplace. Workplace environments in different sectors have varying effects on employee behavior, so here we investigate how workload and time pressure, which exist throughout the healthcare sector, may influence the behaviors of nurses, which may ultimately impact their level of work engagement. In addition, available job resources, namely social support from supervisors and co-workers, along with the amount of job autonomy assigned to nurses,

influences their engagement with their work. Thus, without shedding light on these widespread job features as antecedents of work engagement, our understanding of the holistic connection between work engagement and job performance might be insufficient. In addition, despite the availability of job resources and the ability of employees to handle the challenges of job demands, the perceptions that employees hold about the culture and environment of their organization might influence them as well and eventually impact their work engagement. Because perceptions of fairness and justice are so significant, especially in demanding and high-pressure sectors like healthcare, exploring the influence of nurses' perceptions about justice is worth examining, as these might strengthen or weaken the relationship between the antecedents and work engagement.

3.3 Appropriateness of the Research Design

Rajasekar, Philominathan, and Chinnathambi (2013) proclaimed the importance of choosing appropriate methodology for scientific research, which requires an informed selection of procedures, materials, and scientific apparatus. They defined methodology as a system stimulated by a philosophy, such as positivist/objective or interpretive/subjective, and quantitative research is affiliated with a positivist perspective. Hence, the philosophy of this dissertation is positivism, which abides by the idea that solely verisimilar knowledge obtained via surveillance, which includes assessment, is reliable. Thus, the researcher is independent of the study, and the researcher's responsibility is restricted to gathering and analyzing data in a thematic method, which usually results in noticeable and measurable findings through statistical analyses (Dudovskiy, 2018). Moreover, a deductive path of reasoning is generally embraced in positivist studies (Crowther & Lancaster, 2008). Therefore, the research method for this dissertation is quantitative, as its objective approach best suits the goals of the dissertation. This approach has measurable data that are used to examine the suggested hypotheses to meet the objective of exploring cause-and-effect relationships between variables.

Also, this study aims to be generalized to the public healthcare sector in the UAE, which is most likely to be achieved through quantitative research due to its potential for generalizing. The research method used is a structured technique (i.e., surveys) that used well-known measurement scales for all the constructs based on the extant literature, in order to create a rational research design that is aligned with the research goal.

The design of the research relies on the research questions, and the methodological approach used influences the results of the research (Pena, 2014). Gravetter and Forzano (2010) listed the following as appropriate strategies of quantitative research: descriptive, correlational, experimental, quasi-experimental, and nonexperimental. All these arms the researcher with various options for the selection of the most suitable approach, depending on the study's nature and the ability of that strategy to respond to the research questions. Sampling is one important aspect of the methodology, as it is not practical to include the whole population (Pena, 2014). In this approach, the representativeness of the sample in quantitative research is the primary concern when generalizing the research findings to a wider population (McMillan, 2008). Therefore, it is important to decide upon a target population such that the results of the research can be generalized to them (McMillan, 2008). The principal target population in this research is nurses in the public healthcare sector of the UAE, and multistage stratified sampling was used to collect the data due to the nature of the research respondents.

3.4 Steps in Research

Research, without ornament, means looking for answers for particular inquiries that have not been replied to yet, and the answers are contingent on human potential and endeavor (Singh, 2006). It is any academic study that seeks actualities, realities, and/or inevitabilities (Kumar, 2002). Actually, social research is considered a hunt for knowledge. It is the intellectual instrument of social scientists that permits them to go into an uncharted field of individual and/or public interest on their path to search for answers (Sarantakos, 2012). One

facet of research is the study of the conduct of people as a segment of society (Kumar, 2002), and this is categorized under the comprehensive headline of “social science,” as science is believed to be a topic that has garnered vast agreement amid its experts as to its characteristics, reasons, and consequences (May, 2011). In addition, research involves scientific and methodical investigation of relevant information regarding a particular theme. Undeniably, research is a technique of knowledge-based study (Kothari, 2004). In a nutshell, social research is an advantageous and precise exploration that intends to produce novel knowledge; it is about revealing and broadening the horizon of the accepted and obvious through novel thoughts and recent outcomes concerning all manifestations of life (Sarantakos, 2012).

According to Kothari (2004), the leading objective of research is to reveal answers to unexposed questions by following the scientific method. Regardless of the uniqueness and the core objective of each research subject, the research objectives, in general, may be classified under the following comprehensive purposes:

- To become acquainted with an occurrence or to get novel visions about it (exploratory or formulative research studies);
- To precisely envision the distinct qualities of a specific individual, setting, or set (descriptive research studies);
- To define a recurrence in terms of the occurrence of something or its connection with something else (diagnostic research studies);
- To assess a postulation of causative associations amid variables (hypothesis-testing research studies).

Research establishes an approach for discovering the truth, and it is actually a way of critical thinking. Thus, research is composed of determining and restating problems; articulating hypotheses or proposed answers; gathering, arranging, and assessing data; forming inferences and coming up with conclusions; and, eventually, accurately examining the

conclusions to decide if they suit the composed hypotheses (Woody, 1927). According to Pamela Schindler, research is a systematic and organized process of obtaining and analyzing information to increase our understanding of a phenomenon (Schindler, 2015). Uma Sekaran, on the other hand, emphasized that research is a systematic process of inquiry that involves defining the research problem, formulating hypotheses, collecting data, analyzing the data, and drawing conclusions (Sekaran, 2016). While William Zikmund stated that research is a systematic and objective process of gathering, analyzing, and interpreting data to answer research questions or test hypotheses (Zikmund, Babin, Carr, & Griffin, 2013). Consequently, the research process involves a chain of steps that are fundamental to constructively implementing research beyond the ordering of these steps themselves (Kothari, 2004). The steps are outlined in Figure 3.

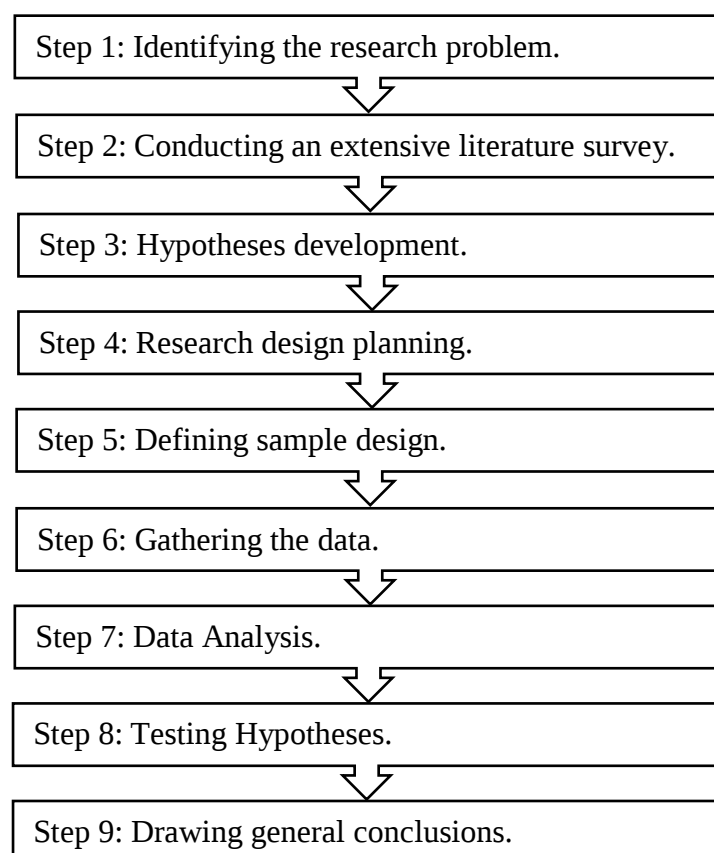


Figure 3. Research process.

Indeed, these processes are firmly interconnected, intersect constantly, and do not maintain a firmly given concatenation (Kothari, 2004). Moreover, the steps of the research process do not clash, nor are they disconnected and independent. They have no precise concatenation, and they require the researcher to predict the requisites of each succeeding stage (Kothari, 2004). Nevertheless, the following order in the research process, which identifies different stages, conveys a beneficial procedural direction: identifying the research problem, conducting an extensive literature survey, developing working hypotheses, planning the research design, defining sample design, gathering data, data analysis, testing hypotheses, and drawing general conclusion (Kothari, 2004).

The scientific approach relies on the following fundamental assumptions (Kothari, 2004):

- It depends on empirical proof.
- It makes use of pertinent connotations.
- It is constrained only by thematic regard.
- It presumes moral impartiality.
- It generates possibilistic prognostics.
- It aims to articulate the most comprehensive maxims, referred to as “scientific theories”.
- Its methodology is exposed to all interested, for critical investigation is used to examine inferences via replication.

3.5 Research Design

After expressing the research problem, surveying the extant literature, and articulating the research hypotheses clearly, the next essential step is drawing up a research design, which is a comprehensive blueprint that facilitates efficacy in harvesting the most possible information (Kothari, 2004). A research design is defined as a comprehensive sketch to lead

the research process by crafting the way the research will move from the research drive/research question to the research results to expand understanding of the theme under study (Abutabenjeh & Jaradat, 2018). A research design is a strategy that directs decisions regarding when and how the data is habitually gathered, the type of data to collect, the respondents, and the approach to data analysis (O'Sullivan, Russel, & Berner, 2007). This means that it is an outline a researcher needs to know what to examine and study, for what, and in what way (Babbie, 2004). As a matter of fact, the selection of the research design reflects a procedural choice made by the researcher prior to introducing the research for ethics evaluation and the initiation of the data-gathering stage (Majid, 2018). Also, it is linked to the philosophical direction of the research and the researcher since philosophical suppositions lead to procedural choices (Lopez & Willis, 2004). It is, as well, a result for the topic of interest, the research objectives, research questions, and population, going beyond the sampling approaches (Majid, 2017).

3.5.1 Research Population

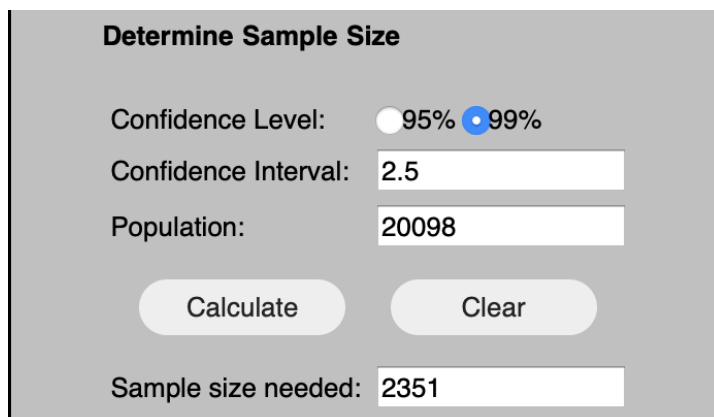
The target population is defined as the population of interest that a research study aims to examine and/or scrutinize. Because it is unsuitable and impracticable to incorporate the entire target population, a researcher employs a sample of the target population to participate in the research (Majid, 2018). Indeed, the goal of the research is to generalize the results of research from the sample to the target population (Van den Broeck, Sandøy, & Brestoff, 2013). For this research, the target population is nurses working in the public hospitals and clinics in the UAE healthcare sector. Given that the characteristics of the public sector are somewhat similar, this focus allowed the author to concentrate the research objectives with the aim of contributing to the sector's productivity by coming up with practical implications for the sector and its policymakers to enhance its competitiveness. According to MOHAP statistics from 2018, there are 20,098 nurses (both male and female) working in public hospitals and clinics

in the UAE. The research's target population is quite large, so studying and recruiting all nurses was unfeasible. Therefore, it is more rational to base the study on a sample to investigate the research hypotheses realistically and more precisely.

3.5.2 Determination of Sample Size

Deciding on a sample size involves selecting the number of individuals or repeats to comprise in a statistical specimen (Sarmah & Hazarika, 2012). Undeniably, the sample size is an important element for any research that aims to draw a conclusion about a population based on a sample (Taherdoost, 2017). To have a suitable sample size, the following standards that should be taken into consideration: the objective of the research, the size of the population, the level of precision or "sampling error," the confidence level or "risk degree," and the level of variability or "the spreading of the populations' characteristics" (Miaoulis & Michener, 1976).

The present research was carried out in the public healthcare sector of the UAE, wherein the principal participants were nurses who worked in public hospitals and clinics. An online sample size calculator (<https://surveysystem.com/sscalc.htm>) was used to decide on the sample size required for the survey for reaching outcomes that represented the target population as accurately as possible. With a confidence interval/margin of error of 2.5 and a confidence level of 99%, 2,351 was found to be the necessary sample size for the target population of this research, which is 20,098 (see Figure 4).



The image shows a web-based calculator titled "Determine Sample Size". It has four input fields: "Confidence Level" with radio buttons for 95% and 99% (99% is selected), "Confidence Interval" with a text box containing "2.5", "Population" with a text box containing "20098", and "Calculate" and "Clear" buttons. Below these is a "Sample size needed" field displaying "2351".

Determine Sample Size	
Confidence Level:	☐ 95% ☒ 99%
Confidence Interval:	2.5
Population:	20098
Calculate Clear	
Sample size needed:	2351

Figure 4. Sample size calculation.

$$ss = \frac{Z^2 * (p) * (1 - p)}{c^2}$$

where:

Z = Z value (e.g., 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as a decimal (0.5 used for sample size needed)

c = Confidence interval, expressed as a decimal (e.g., 0.05 = ±5)

3.5.3 Sampling

The research was conducted by relying on multistage stratified sampling to collect the data. Stratified sampling can be a rational and effective technique for sampling nurses in a research study. By dividing the population into strata and selecting a sample from each stratum, researchers can ensure that the sample is representative of the population, efficient, precise, and suitable for comparison between different subgroups. So, because the respondents of this research are scattered around the country in various public healthcare entities, the Stratified sampling is used as it is generally utilized when there is considerable divergence among the population, and it is defined as dividing the population into categories or strata, and then taking random samples from each divided stratum/category, wherein the stratum/subgroup relied on particular characteristics (Taherdoost, 2016). Also, stratified sampling is a useful method in research studies where the population is heterogeneous, and the researchers want to ensure that the sample is representative and accurate. It can improve the precision and efficiency of data collection and help to ensure that the results are generalizable to the population of interest. Multistage sampling is widely utilized for both household and health research in which there is no sampling frame, as well as when the population is sparse in a broad domain, wherein three or more stages are generally used (Chauvet, 2015). The main goal of this type of probability sampling is to ensure that every subgroup is appropriately exemplified (Ackoff, 1953). In

plenty of research that contains large-scale samples, it is common to utilize highly stratified multistage designs in which the subgroups/strata are chosen by simple random sampling, without replacement at every phase (Preston, 2009). Thus, for the purpose of having a representative sample from the target population, this research utilizes multistage stratified sampling because the population is sparse on a broad domain with various characteristics. The details and steps of calculating the sample size of this research will be described in the fourth chapter.

3.6 Instrumentation

To pave the way for valuable research, the intrinsic attributes of validity and reliability are considered the chief noteworthy elements for appraising every measurement tool or apparatus. Validity has to do with what a tool is assessing and how it succeeds in doing so, while the reliability deals with the beliefs that one may impose upon the acquired data by utilizing the measurement tool and how well the tool governs for random error (Mohajan, 2017). In other words, validity is associated with the credibility of the results, whereas reliability is concerned with the constancy of the results (Altheide & Johnson, 1994). Likewise, reliability alludes to a measurement that offers constant outcomes with equivalent standards (Blumberg, Cooper, & Schindler, 2005), while reliability gages steadiness, accuracy, recurrence, and credulity of a study (Chakrabartty, 2013). Validity specifies the degree to which a measurement tool gauges what it declares or is intended to measure (Blumberg et al., 2005; Robson, 2011). Consequently, validity and reliability are imperative in research as an approach for reinforcing the correctness of the valuation and appraisal of research (Tavakol & Dennick, 2011). Indeed, the indication of validity and reliability are necessary conditions to guarantee the truthfulness and goodness of a measurement tool (Kimberlin & Winterstein, 2008). On the other hand, in the absence of an evaluation of the reliability and validity of a study, it will be problematic to explain the impacts of gauge errors on the theoretical

associations that are being gauged (Forza, 2002). In this research, various tests of validity and reliability will be carried out using SPSS.

The survey used in this research included three main parts. The first part contains the objective of the study and the consent to participate in the research. The second section is concerned with the demographic information of the participants. The final section includes all the scales used to examine the constructs of the research, i.e., workload, time pressure, job autonomy, social support, work engagement, perceived overall justice, in-role performance, and extra-role performance. Based on the literature review, the researcher selected the instrumentation for the above-mentioned constructs based on their strong psychometric properties and their widespread use in the literature. SurveyMonkey, an online survey software, was used to develop the survey, which was distributed among the nurses who were working in the public healthcare sector of the UAE through SEHA, which covers the Emirate of Abu Dhabi-based healthcare institutions, and MOHAP, which covers the Emirate of Dubai and Northern Emirates-based healthcare institutions.

3.6.1 Workload

For assessing workload, the scale developed by Janssen (2001), which consisted of six items, was utilized after it was adapted through the removal the two following items, which were more oriented toward time pressure than the workload: “I have too much work to do” and “I have to work extra hard to finish a task.” The participants responded using a 5-point Likert scale, ranging from 1 (Never) to 5 (Always). The items on the workload scale were used to measure the nurses’ perceptions regarding the work that transcended their capacities. The same scale has been used by many authors (e.g., Goh, Ilies, & Wilson, 2015; Ilies, Schwind, Wagner, Johnson, DeRue, & Ilgen, 2007; Sherf, Venkataramani, & Gajendran, 2019; Smit & Barber, 2016). In this research, Cronbach’s α for the scale items is 0.866, and McDonald’s ω is 0.869.

3.6.2 Time Pressure

Time pressure was captured and assessed with the three items adapted from the instrument for the stress-oriented job analysis developed by (Semmer, Zapf, & Dunckel, 1999), wherein the participants specified the extent to which they experienced time pressure in their work. An example of the items is, “I had to work faster than usual to get my work done.” The items were answered on a 5-point Likert scale with response categories ranging from 1 (Never) to 5 (Always). The same scale has been used by many authors in (e.g., Baethge, Deci, Dettmers, & Rigotti, 2019; Kühnel, Zacher, de Bloom, & Bledow, 2017; Prem, Ohly, Kubicek, & Korunka, 2017; Urbach & Weigelt, 2019). In this research, Cronbach’s α for the scales’ items was 0.847 and McDonald’s ω was 0.848.

3.6.3 Social Support

Nurses’ general perceptions of the workplace social support they received from their supervisors and co-workers were measured by an eight-item scale adapted from the Multi-dimensional Scale of Perceived Social Support developed by Zimet, Dahlem, Zimet, and Farley (1988), which consists of 12 items and concentrates on friends, family, and special persons as sources of social support. Some examples of the items include: “My supervisor is available when I am in need” and “I have co-workers with whom I can share my joys and sorrows.” The eight items selected were rephrased to directly measure supervisor support and co-worker support instead of a special person and friends, respectively. The participants were instructed to identify their agreement or disagreement level regarding each statement on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Items measuring social support from family were not included, as the study is concerned with workplace social support. The same scale has been used by many authors (e.g., Chawla, MacGowan, Gabriel, & Podsakoff, 2020; Cheng, King, & Oswald, 2020; Gallagher & Vella-Brodrick, 2008; Pluut, Ilies, Curşeu,

& Liu, 2018). In this research, Cronbach's α for the scales' items is 0.873, and McDonald's ω is 0.875.

3.6.4 Job Autonomy

Job autonomy was assessed by adapting the three-item autonomy subscale of the Job Diagnostic Survey (Hackman & Oldham, 1980), with slight rephrasing of the statements. For each item, participants declared their agreement on a 5-point Likert scale of 1 (Never) to 5 (Always) for each statement, indicating their perceived autonomy level in performing their job. The following are a couple of the items: "My job gives me the chance to use my personal initiative and judgment in carrying out my work" and "My job permits me to decide on my own how to go about doing my work." The same scale has been used by many authors (e.g., Gardner, 2020; Jiang, Di Milia, Jiang, & Jiang, 2020; Li, Han, Qi, & He, 2020; Lu, Brockner, Vardi, & Weitz, 2017). In this research, Cronbach's α for the scales' items is 0.849 and McDonald's ω is 0.851.

3.6.5 Work Engagement

A shortened version of the Utrecht Work Engagement Scale (UWES), developed by (Schaufeli, Bakker, & Salanova, 2006a), was employed to gauge the level of work engagement. UWES is a tool for measuring an employee's vigor, dedication, and absorption, all of which contribute to their overall work engagement. UWES is one of the most used measures of work engagement (e.g., Brady, Truxillo, Cadiz, Rineer, Caughlin, & Bodner, 2019; Breevaart & Bakker, 2018; Chawla et al., 2020; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009a). The original scale is comprised of 17 items; however, the shortened UWES that consisted of 9 items (Schaufeli et al., 2006a) was used for this research. Some examples of the items of the scale include: "At my work, I feel that I am bursting with energy," "I am enthusiastic about my job," and "I feel happy when I am working intensely." Participants rated their agreement with

each statement using a 5-point Likert-type scale, where 1 is Never and 5 is Always. In this research, Cronbach's α for the scales' items is 0.862, and McDonald's ω is 0.877.

3.6.6 Perceived Overall Justice

The perceived overall justice was gauged by adapting a six-item scale created and validated by Ambrose and Schminke (2009), wherein two negative items reversed to positive statements to reflect the positive perception of the participants about overall justice. Examples of items on the scale include: "For the most part, this organization treats its employees fairly" and "Overall, I'm treated fairly by my organization." The participants assessed their experiences of workplace justice by disclosing their agreement with the statements by rating them on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The same scale has been used by many authors (e.g., El Akremi, Gond, Swaen, De Roeck, & Igalens, 2018; Farooq, Rupp, & Farooq, 2017; Holtz & Harold, 2009; Wang et al., 2015). In this research, Cronbach's α for the scales' items is 0.965, and McDonald's ω is 0.965.

3.6.7 In-role Performance

For measuring in-role performance, a seven-item job performance scale created by Williams and Anderson (1991) was adapted to measure the nurses' perceptions, instead of considering the supervisors' perceptions, as the original scale suggested, by deleting the two negative items on the scale. Some examples of the scale's items include: "I adequately complete the duties assigned to me" and "I fulfill the responsibilities specified in my job descriptions." The participants indicated the extent to which they had fulfilled the required tasks on a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The same scale has been used by many authors in ABS journals (e.g., Amarnani, Lajom, Restubog, & Capezio, 2020; Liao, Lee, Johnson, Song, & Liu, 2020; Sosnowska, Hofmans, & de Fruyt, 2020; Zhang, Van Iddekinge, Arnold, Roth, Lievens, Lanivich, & Jordan, 2020). In this research, Cronbach's α for the scales' items is 0.857 and McDonald's ω is 0.885.

3.6.8 Extra-role Performance

Extra-role performance was gauged with a 14-item scale from (Williams & Anderson, 1991). Seven items addressed individuals (OCB-I) and seven addressed organizations (OCB-O). In this research, only the seven items that were addressed to individuals (OCB-I) were considered; the seven directed at organizations (OCB-O) were excluded. In response to the survey questions, participants rated their likelihood of engaging in particular activities on a 5-point scale Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Some examples of the scale's items include: "I help others who have been absent" and "I help others who have heavy workloads." The same scale has been used by many authors in ABS journals (e.g., Brady et al., 2019; Halbesleben et al., 2009; Tang, Yam, & Koopman, 2020; Zhang et al., 2020). In this research, Cronbach's α for the scales' items is 0.779, and McDonald's ω is 0.791.

3.6.9 Control Variables

The measurement items for work engagement typically assess an individual's level of involvement, enthusiasm, and dedication towards their work. Here are some examples of measurement items for the mediating variable (work engagement):

- At my work, I feel that I am bursting with energy.
- At my job, I feel strong and vigorous.
- When I get up in the morning, I feel like going to work.
- I am enthusiastic about my job.
- My job inspires me.
- I am proud of the work that I do.
- I feel happy when I am working intensely.
- I am immersed in my work.
- I get carried away when I am working.

These items can be used in a survey or questionnaire to assess an individual's level of work engagement. They are designed to measure the psychological state of an individual in relation to their work and can be used to assess the effectiveness of interventions aimed at improving work engagement.

The measurement items for overall justice are:

- Overall, I'm treated fairly by my organization.
- In general, I can count on this organization to be fair.
- In general, the treatment I receive around here is fair.
- Usually, the way things work in this organization is fair.
- For the most part, this organization treats its employees fairly.
- Most of the people who work here would say they are often treated fairly.

These items can be measured using a Likert scale where respondents rate their agreement or disagreement with the statements on a scale ranging from strongly agree to strongly disagree. It is important to pilot test and validate the measurement items to ensure their reliability and validity.

The following demographic and occupational variables were used in the present research as control variables, given their extensive use in the previous literature: gender, age, educational level, years of experience, number of years in the current position, and nationality. The latter was included because it has been presumed to impact the perceptions of nurses, and this influenced the suggested hypotheses in the research. Of 2,369 participants, 1,178 (217 male and 961 female) were from SEHA and 1,191 (123 male and 1,068 female) were from MOHAP.

Table 2: *Items and sources of the research constructs*

Constructs	Source	Instrument Items
Workload	(Janssen, 2001)	- I have a heavy workload. - I have to work extra hard to finish a task. - I have to deal with a backlog at work.

		- I have problems with my workload.
Time Pressure	(Semmer et al., 1999)	- I had to work faster than usual to get my work done. - I was pressed for time. - I had to keep up with a high working pace.
Social Support	(Zimet et al., 1988)	- My supervisor is around when I am in need. - I can share my joys and sorrows with my supervisor. - My supervisor is a real source of comfort for me. - My supervisor cares about my feelings. - My co-workers really try to help me. - I can count on my co-workers when things go wrong. - I have co-workers with whom I can share my joys and sorrows. - I can talk about my problems with my co-workers.
Job Autonomy	(Hackman & Oldham, 1980)	- I have significant autonomy in determining how I do my job. - I can decide on my own how to go about doing my work. - I have considerable opportunities for independence and freedom in how I do my job.
Work Engagement	(Schaufeli et al., 2006a)	- At my work, I feel that I am bursting with energy. - At my job, I feel strong and vigorous. - When I get up in the morning, I feel like going to work. - I am enthusiastic about my job. - My job inspires me. - I am proud of the work that I do. - I feel happy when I am working intensely. - I am immersed in my work. - I get carried away when I am working.
In-role Performance	(Williams & Anderson, 1991)	- I adequately complete the duties assigned to me. - I fulfill the responsibilities specified in my job descriptions. - I perform tasks that are expected of me.

		- I meet the formal performance requirements of the job. - I engage in activities that will directly affect my performance evaluation.
Extra-role Performance	(Williams & Anderson, 1991)	- I help others who have been absent. - I help others who have heavy workloads. - I assist the supervisor with his/her work (when not asked of me). - I take time to listen to co-workers' problems and worries. - I go out of the way to help new employees. - I take a personal interest in other employees. - I pass along information to co-workers.
Perceived Overall Justice	(Ambrose & Schminke, 2009)	- Overall, I'm treated fairly by my organization. - In general, I can count on this organization to be fair. - In general, the treatment I receive around here is fair. - Usually, the way things work in this organization is fair. - For the most part, this organization treats its employees fairly. - Most of the people who work here would say they are often treated fairly.

3.7 Data Collection

The data collection phase of research is considered one of the most time-consuming phases. It involves collecting and gauging information related to the constructs of the research through an recognized methodical approach that permits the researchers to find answers to the research's proposed questions by examining the suggested hypotheses and assessing the findings (Kabir, 2016). Thus, the objective of data collection is to obtain valuable evidence that is subsequently interpreted into an abundant data analysis, which permits the construction of persuasive and reliable answers to the research questions (Kabir, 2016). Hence, rigorous data

collection is fundamental for preserving research trustworthiness, irrespective of the research field or data type (i.e., quantitative or qualitative) (Kabir, 2016). This stage is preceded by defining the desired data type, followed by choosing a sample from the study population, and then deciding on the appropriate research tool for gathering the data (Kabir, 2016).

Two main sources of data were used in the current research to collect the required information: primary data and secondary data. The primary data were gathered via surveys through two main central agencies, MOHAP and SEHA, to cover the seven emirates. The secondary data were gathered from previous literature, which included journals, books, reports, theses, websites, and government-issued documents.

3.7.1 Survey

Surveys are a very conventional approach to carrying out research, and they are undoubtedly the most often utilized research design in health services studies, as well as in social sciences research. They are habitually used to assemble data regarding attitudes and conduct (Mathers, Fox, & Hunn, 1998), which is in line with the situation of this research. Indeed, this study is a societal scientific investigation that focuses on individuals and their spirited actualities, their faith, thoughts, attitudes, stimuli, and conduct (Kerlinger, 1973). Essentially, survey research is a descriptive study approach used for gathering primary data by depending on oral or written interaction with an illustrative sample of persons from the intended population (Mathiyazhagan & Nandan, 2010). It includes any process that involves methodical data collection from a population or a sample through a particular form or straight prompting, including mail questionnaires, in-person interviews, or phone interviews (McClosky, 1969). Indeed, there are numerous forms of surveys, such as cross-sectional surveys, longitudinal surveys, and explanatory or correlational surveys. In this research, cross-sectional surveys were used because they are carried out at just one point in time to deliver a snapshot of what is occurring

in a particular group at a specific time. This commonly takes a descriptive or exploratory shape that is displayed simply to explain behavior or attitudes (Mathers et al., 1998).

The survey utilized in this research to collect the data from the respondents contains three main sections: the research aims and consent form, the demographic information, and the items that measure the research constructs on a 5-point Likert scale, which are workload, time pressure, job autonomy, social support, work engagement, perceived overall justice, and in-role and extra-role performance. The survey was created by the online survey software SurveyMonkey, which was answered by the nurses in the UAE public healthcare sector via the central entities SEHA and MOHAP, as shown in Appendix 3.

3.7.2 Pilot Study

In order to identify any problems with the measurement items, such as poor clarity, confusing wording, or lack of relevance to the construct being measured, also to help in identifying the potential response biases or issues with the response scale, a pre-testing of the measurement items have been conducted. Thus, sample of the respondents have presented opinions and comments about research instrumentation after filling out the pilot study survey, wherein the majority of comments were fundamentally focused on the benefit of adding Arabic subtitles for the survey items, which might aid in reducing ambiguity. In addition, others have asked to replace some vocabulary with more common synonyms. The researcher has incorporated these comments in the final version of the survey.

In scientific research, it is essential to carry out a pilot study prior to the main examination for the purpose of rectifying the issues related to the selected measurement scales of the constructs, as well as to avoid and/or reduce the issues that might occur in the data collection mechanism. For confirmation, a pilot study is one of the significant phases of research, and it is carried out to determine the prospective issues and deficits in the research tools and procedures before execution of the complete research design (Kraemer, Mintz, Noda,

Tinklenberg, & Yesavage, 2006; Lancaster, Dodd, & Williamson, 2004). Consequently, a pilot study is considered the primary stage of any all-inclusive research procedure and is frequently a smaller-sized study that aids in planning and amending the central study (Arnold, Burns, Adhikari, Kho, Meade, & Cook, 2009; Thabane, Ma, Chu, Cheng, Ismaila, Rios, Robson, Thabane, Giangregorio, & Goldsmith, 2010). A pilot study is a small study to examine research procedures, data collection tools, tactics of sample selection, and other research practices in planning for bigger research (Stewart, 2016). Therefore, it is closely related to the feasibility study, which aims to instruct the planning of an all-encompassing study (Thabane et al., 2010).

Thus, the pilot study (Appendix 1) has been created and performed in this research for ensuring the validation and efficacy of the research instrument, figuring out the significance of the instrument items to obtain the proper data to answer the research questions, and assuring the understandability of the survey's statements, as well as their clarity, wording, and feasibility. In fact, the measurement scales for the constructs of this research were selected based on their prevalence in the extant literature, and those published in high-ranking journals were specifically chosen to assure their quality and practicality. To prepare the survey for the context of the UAE, some of the items for each construct were adopted as is from the original sources, others were deleted because they were repeated in other scales or reversed because they were negative, while others were adapted via rephrasing some of the wording as an approach to appropriately measure the nurses' perceptions in the UAE's public healthcare sector.

Then, a SurveyMonkey survey was developed regarding the clarity of the survey that asked participants to rate the level of clarity from 1 to 10 for each item regarding the research's constructs. On July 16, 2020, the link to the pilot study was shared with nurses who were known to the researcher, who, in turn, shared it with their colleagues who were working in some of the UAE's public hospitals and clinics. After one week, reminders were sent for the participants

to share the pilot study link again with their colleagues because some of the respondents had not completed the survey, which needed further responses. Then, on July 28, 2020, the researcher pulled in the data from the SurveyMonkey engine, which included 63 surveys. After analyzing the data and excluding the incomplete surveys, only 20 completed surveys were considered for construing. The analysis of the responses showed that the clarity of the items ranged between 61.0% and 89.7%; four of 45 items received clarity percentages ranging between 61.0% and 69.1%, whereas the rest of the items received clarity rates of 70% and 89.7%.

3.8 Data Analysis

After the data collection stage comes the analysis and examination of the data to uncover the outcomes that may deliver answers to the research questions. Thus, data analysis, a crucial phase in constructing scientific knowledge, is defined as scrutinizing or examining phenomena or events thoroughly for better comprehension or to discover a new aspect of it (Akinyoade, 2013).

In the present quantitative research, the data processing and analysis involved the choosing of the statistical tools that were most appropriate for answering the research problems. Data analysis was accomplished by transferring the data from SurveyMonkey into an Excel file, wherein incomplete surveys were excluded (i.e., the data were cleaned). Then, the valid completed surveys were analyzed by SPSS version 28.0 and *Jamovi* version 2.0.

3.8.1 Descriptive Section

The demographic data included in the sample were analyzed using descriptive methods. Correlation analyses were conducted on the following variables in order to analyze their relationships: (a) time pressure, (b) workload, (c) job autonomy, (d) social support, (e) in-role performance, (f) extra-role performance, (g) perceived overall justice, and (h) work

engagement. To determine which of the above variables were the most predictive of nurses' engagement at work, multiple regression analysis was performed simultaneously.

3.8.2 Analytical Section

This section began by examining the reliability and validity of the research's scales. Then, the models of bivariate analysis and multivariate analysis, canonical correlation, and cluster analysis were utilized to examine the existence of significant relationships between the independent variables and the dependent variable. In addition, moderation analysis and mediation analysis were carried out to test the existence of the relationships and to examine the suggested hypotheses.

3.9 Validation and Testing of Hypotheses

To ensure the effectiveness of the research design in addressing the research questions, ensuring internal and external validity is essential. Internal validity was ensured through the pilot study of the research instrumentation to guarantee that the instrument was comprehensible and not vague. Then, slight modifications were made for some of the instruments and Arabic subtitles added based on the recommendation of the participants and the results of the pilot study. Moreover, Cronbach's α and McDonald's ω were used to calculate the internal consistency for each measure, which were found reliable for all the research constructs (see Table 11). Based on the results, the items were internally consistent for each measure. In contrast, external validity is the degree to which the study results can reflect similar outcomes elsewhere and can be generalized to other populations or situations.

3.10 Ethical Considerations

In keeping with the nature of the study and the fact that participation was voluntary, every effort was taken to ensure the participants understood it completely. Hence, there was no major risk related to participating in the research. The survey contained the objective of the research in the first section of the survey, followed by the consent form, wherein, in return for

their voluntary participation, it was confirmed that all data would remain confidential. After reading the study purpose section, the informed consent letter (Appendix 3) was followed by the online survey. When the nurses clicked on the survey link, they agreed to participate in the study after reading the consent form. The consent form contained statements that protected and ensured the confidentiality of the collected data, which was maintained at all times. Also, the nurses were assured that neither their personal identities nor the specific identities of their institutions would be stated in the research.

It is worth mentioning that ahead of the data collection, the researcher obtained approval from the Institutional Review Board (IRB) from the university committee. Only after getting IRB approval from the board, which is attached in Appendix 2, did the actual data collection stage begin.

3.11 Limitations

The limitations of the existing research are stated concisely below:

- The formalities and requirements from the entities (SEHA and MOHAP) for accepting the request to distribute the surveys took more time and effort than expected; however, it was a necessary step to ensure sincere and genuine data.
- The time needed to get the data collected, especially through MOHAP entities, was extended due to fears about confidentiality issues. However, this was resolved with the cooperation of the MOHAP research team.
- Due to the voluntary nature of the survey, the respondents could pull out at any time.
- The large number of constructs in the present research meant a lengthy survey, as perceived by respondents.

3.12 Conclusion

To sum up, this chapter provided a detailed explanation of the research methodology and data collection by presenting the design of the research, data collection and procedures, sampling,

and instrumentations for the constructs of the research, in addition to a briefing on how the data were analyzed. At the end of the chapter, the researcher explained the ethical considerations as well as the limitations encountered during this stage. As noted, the research design was a quantitative approach, and the data collection tool was a survey. The respondents for the research were nurses working in the public healthcare sector of the UAE. The data were collected through surveys through central entities (SEHA and MOHAP) to achieve a high response rate, as well as to get authentic and accurate responses to boost the chance of generalizability. Multistage stratified sampling was used to choose a sample of the population. The scales for the constructs were selected based on their pervasion in the literature and their validity. The data were analyzed using SPSS version 28.0 and *Jamovi* version 2.0. The respondents received consent forms to preserve their rights and confidentiality at the beginning of the survey. The lengthy procedures in getting the data collection done and incomplete surveys are the main limitations of this research.

CHAPTER 4: RESEARCH DATA ANALYSIS AND RESULTS

4.1 Sample Design

This section discusses the research population, the period of the research, and the sample size.

4.1.1 Research Population

The local and expatriate nursing workforce in the public health care sector of the UAE constitutes the population for the present research. It consists of nursing staff from two organizations: the Ministry of Health and Prevention (MOHAP) and the Abu Dhabi Healthcare Company (SEHA).

MOHAP is the federal health authority of the UAE. Through its preventive and curative healthcare services, UAE Healthcare provides comprehensive healthcare to all citizens and

residents (U.AE, 2020a). Subsequent to the establishment of the health care authority by the Emirate of Abu Dhabi, the focus of the MOHAP has shifted to the other Emirates (Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah, and Fujairah) (U.AE, 2020a).

SEHA is the organization of the Emirate of Abu Dhabi, which provides medical services to both nationals and foreign nationals in the facilities regulated by the Department of Health (U.AE, 2020a). Presently, the public sector includes 46 primary healthcare facilities, 12 hospitals, four specialized facilities, and three dental centers (U.AE, 2020a).

The study population is all the nurses under the public domain in both organizations was 20,098. The summary statistics of the study population (Bayanat.ae, 2018; FCSC, 2018; UAESTat, 2018) are presented in Table 3.

4.1.2 The Study Period

The present research was carried out between August 2020 and March 2021.

4.1.3 Determination of Sample Size

The task of sample design is to draw a representative sample of nursing staff in the emirate of Abu Dhabi working under SEHA and nursing staff working under MOHAP in the other six emirates in the UAE.

The sample had to ensure adequate representation of the agency and gender of the research population. Thus, an adequate and appropriate sample size had to consider the confidence level and confidence interval along with the population.

This study planned to identify the sample size at the 95% confidence level and 2.5 being the confidence interval. The population size was 20,098. The sample size was determined by solving the following formula (Smith, 2013):

$$SS = \frac{Z^2 * (p) * (1-p)}{c^2}$$

where SS = Sample Size, Z = Z value (e.g., 1.96 for 95% confidence level, 2.576 for 99% confidence level), p = percentage picking a choice, expressed as decimal (0.5 used for sample size needed); and c = confidence interval, expressed as decimal (e.g., $\pm 2.5 = .025$).

Using the formula, the required sample size was found to be 1,428. However, in anticipation of a low response rate, it was decided that the survey would be administered to 2,856 samples (double the necessary sample size). Surprisingly, the survey received a very encouraging response from the respondents, with 2,397 responses. Thus, the response rate was 83.92%. Of all the responses, only 28 cases were excluded due to anomalies and incomplete responses. We were left with 2,369 appropriate cases (1,178 from SEHA and 1,191 from MOHAP). It was decided to keep all 2,369 responses as our sample size, as it would enhance the degrees of freedom available for statistical analyses. It raised the confidence level to 99% and kept the confidence interval at 2.5. The enhanced confidence level and the confidence interval for the study population of 20,098 required a sample size of only 2,351, so the present study has 18 more cases than required (i.e., 2,369 cases). The sample size constituted around 11.79% of the total study population.

The sample size from each organization with due respect to gender composition was drawn proportionally to the corresponding population figures. The details of sample size, along with the population figures, are presented in Table 3. The percentages of samples according to the study population in terms of agency and gender are given in Table 4.

Table 3: *Population and sample*

Organization	Emirates	Population			Sample		
		Male	Female	Total	Male	Female	Total
SEHA	Abu Dhabi	2,134 (21.25%)	7,910 (78.75%)	10,044 (100%)	217 (18.4%)	961 (81.6%)	1,178 (100%)
MOHAP	All Others	1,563 (15.55%)	8,491 (84.45%)	10,054 (100%)	123 (10.3%)	1,068 (89.7%)	1,191 (100%)
Total		3,697 (18.39%)	16,401 (81.61%)	20,098 (100%)	340 (14.4%)	2,029 (85.6%)	2,369 (100%)

Source: Population figures were drawn from (Bayanat.ae, 2018; FCSC, 2018; UAESat, 2018). Sample figures were calculated by the author.

Table 4: *Sample as percentage of the population*

Organization	Emirates	Percentage of Population		
		Male	Female	Total
SEHA	Abu Dhabi	10.17%	12.15%	11.73%
MOHAP	All Others	7.87%	12.58%	11.85%
Total		9.20%	12.37%	11.79%

Source: Calculated by the Author.

4.1.4 Sampling

The sampling procedure for the research followed a multistage stratified sampling procedure, which can be summarized as in the following stages:

Stage 1: Since both the agencies, SEHA and MOHAP, have almost equal numbers of population (49.97% and 50.03%, respectively), the sample was also drawn proportional to their population. The sample size was 1,178 (49.73%) from SEHA and 1,191 (50.27%) from MOHAP. Agencies formed the first level of strata.

Stage 2: From each organization, it was decided to draw a sample gender-wise, again proportional to general population figures. The details are given in Table 3. Gender was the second level of strata.

Stage 3: From the list of nursing staff from each agency, organized according to Emirate and gender, the required number of samples (as given in Table 3) was selected by random sampling. Random numbers were generated using SPSS version 28.0.

The sample design can be summarized as shown in Figure 4.

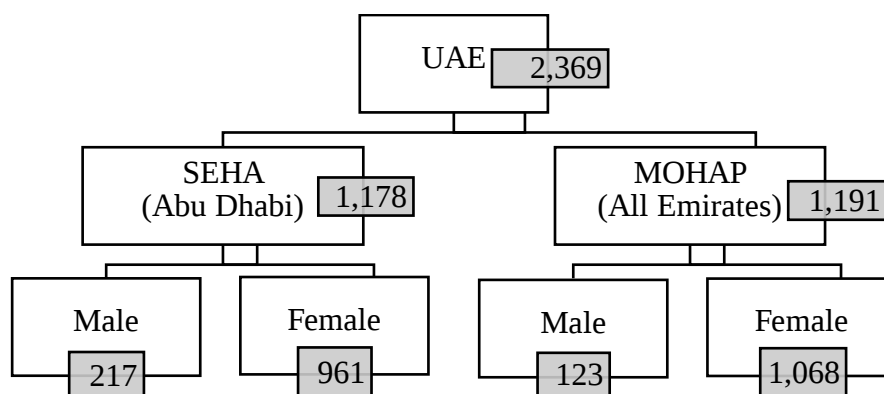


Figure 4. Sample design.

4.2 Demographic Profile of the Sample

4.2.1 The Demographic Profile

The demographic profile of the sample in the present research includes the examination of key social and personal variables on nationality, gender, age, education, experience, and tenure of employment with the current employer. Analysis of demographic variables helps research achieve better insights by delving into the attributes of the respondents, which influence their responses in a big way. The more accurate and detailed the profile, the better we understand the reasons and rationales behind the responses.

The following sections discuss the profile of respondents by the variables mentioned above in the context of their organizations (i.e., SEHA and MOHAP).

4.2.1.1 Nationality.

The sample of respondents was identified using a key social variable: nationality. Figure 5 shows the distribution of respondents by nationality, and Table 5 shows the same across the two agencies.

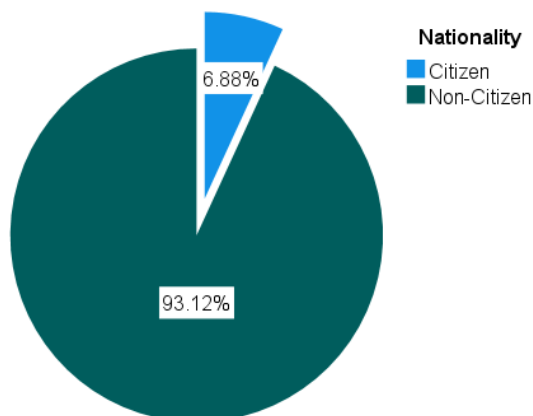


Figure 5. Distribution of respondents by nationality.

As expected, the majority of the respondents were noncitizens (93.12%). The agency-wise distribution shows that the pattern is the same across the agencies. The association between the agencies and nationality was examined with a chi-square test. By comparing row and column variables, chi-square tests test whether the two variables are independent, without indicating the relative strength or direction of the relationship. It can be concluded that the chi-

square test indicates a significant association between two variables if its significance value is either equal to or less than 0.05. A likelihood ratio chi-square test is needed if over 20% of cells have a frequency count under five. If a variable has two categories only, as is the case with the 2×2 table, a Fisher's exact test may be used to determine if the association is significant.

Here, the Fisher's exact test was used, and it was found that there was no statistically significant association between agencies and nationality ($p > .05$). This means that the presence of noncitizens as the majority was the same in both agencies.

Table 5: *Agency-wise distribution of respondents by nationality*

		Nationality		Total
		Citizen	Non-Citizen	
Agency	SEHA	Count	76	1,102
		% within Agency	6.5%	93.5%
	MOHAP	Count	87	1,104
		% within Agency	7.3%	92.7%
Total	Count	163	2,206	2,369
	% within Agency	6.9%	93.1%	100.0%

Fisher's Exact Test: (Exact Sig. (2 Sided) = .418).

Source: Computed from the Primary Survey.

4.2.1.2 Gender

As can be seen in Figure 6, most of the respondents were female, at 85.65%, while only 14.35% were male.

The agency-wise distribution of respondents, given in Table 6, shows the same pattern found in both agencies. In both agencies, females constituted the large majority. However, there is a noticeable difference in the presence of male respondents across the agencies. In SEHA, males are 18.4%, while in MOHAP, it is only 10.3%. This difference is statistically significant, as shown by the Fisher's Exact test.

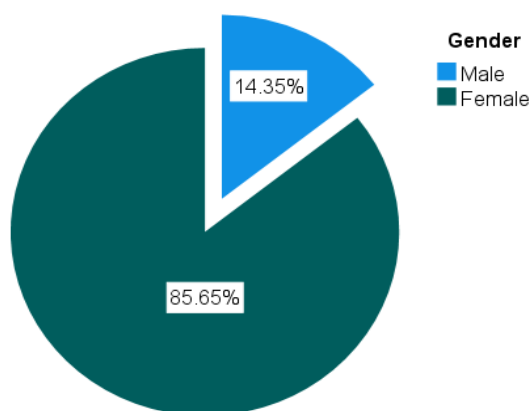


Figure 6. Distribution of respondents by gender.

Table 6: Agency-wise distribution of respondents by gender

		Gender		Total
		Male	Female	
Agency	SEHA	Count	217	961
		% within Agency	18.4%	81.6%
	MOHAP	Count	123	1,068
		% within Agency	10.3%	89.7%
Total	Count	340	2,029	2,369
	% within Agency	14.4%	85.6%	100.0%

Fisher's Exact Test: Exact Sig. (2 Sided) <.01.

Source: Computed from Primary Survey.

4.2.1.3 Age

Age category-wise analysis shows that the majority of the respondents were in the age category of 25–35 years (38.7%), closely followed by the category of 35–45 years (37.9%). The younger participants, in the 18–25 years category, constituted only 1.2%, and the senior-most category, 55–65 years category, constituted only 2.5%. Figure 7 shows the category-wise distribution of the age of the respondents.

Table 7 shows the agency-wise distribution of the respondents based on age categories. SEHA had the majority of the younger and older categories of respondents. MOHAP has a relatively higher percentage of the respondents who belonged to the middle age category of 35–45 years. The chi-square test showed a statistically significant association between agency and age category ($p < .037$).

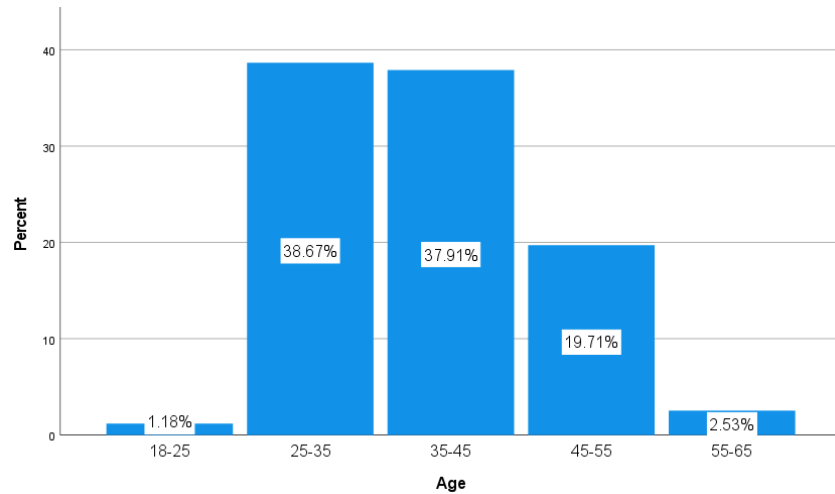


Figure 7. Distribution of respondents by age.

Table 7: Agency-wise distribution of respondents by age

			Age					Total
			18-25	25-35	35-45	45-55	55-65	
Agency	SEHA	Count	13	469	419	238	39	1,178
		% within Agency	1.1%	39.8%	35.6%	20.2%	3.3%	100.0%
	MOHAP	Count	15	447	479	229	21	1,191
		% within Agency	1.3%	37.5%	40.2%	19.2%	1.8%	100.0%
Total		Count	28	916	898	467	60	2,369
		% within Agency	1.2%	38.7%	37.9%	19.7%	2.5%	100.0%

Pearson chi-square test: (agency: chi-square=10.183, df=4, Sig.=.037).

Source: Computed from Primary Survey.

The relationships between agency and the nationality of the respondents, as well as their gender and age categories, can be easily understood by looking at the relationship map (Figure 8). Relationship maps (which can be created in SPSS) are useful for determining how variables relate to each other by providing a visual representation of the connections and influences that each node and link has over each other. Relationship maps visually represent connections and influences through nodes and links. Nodes represent variables and variable categories; links represent the strength of influence between nodes. Larger nodes and thicker link lines represent stronger connections and influence. Smaller nodes and thinner link lines represent weaker connections and influence.

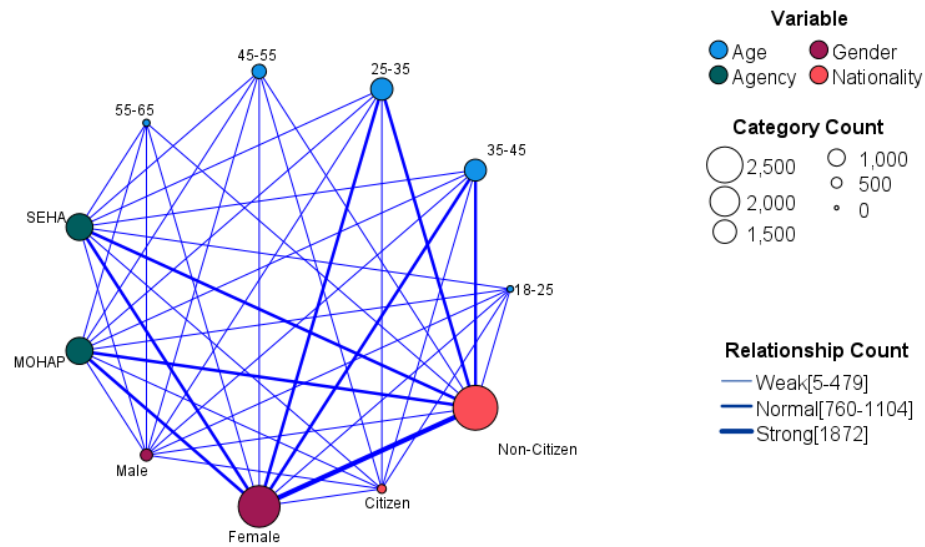


Figure 8. Relationship map of agency, nationality, gender, and age.

The relationship map shows that the nodes of both agencies have equal size, denoting equal importance. Among the gender categories, females had a much bigger node size. The noncitizen node is bigger than that of citizens, while age category nodes display almost equal size for the age categories of 25–35 years and 35–45 years. The thickness of the lines shows which categories are more related to each category of variables. The self-explanatory relationship map helps us see that most of respondents were noncitizen females between 25 and 45 years of age.

4.2.1.4 Education

One of the most important aspects of the respondents' profiles is their educational qualifications. Education is expected to have a profound influence on awareness, attitude, and participation levels in multi-faceted aspects of job demands, resources, work engagement, and job performance.

Importantly, as seen in Figure 9, the majority of the respondents had an education level equal to a bachelor's (69.2%). Of the rest, 21.4% of respondents' highest education level was a high school diploma, and 9.2% had a master's degree. Only three (0.13%) respondents possessed doctorate-level educational qualifications.

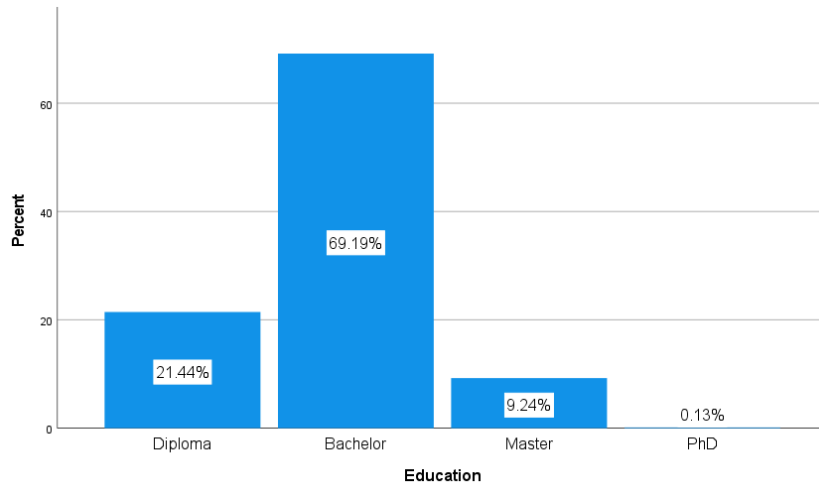


Figure 9. Distribution of respondents by education.

Table 8 shows the agency-wise distribution of the respondents according to their educational qualifications. It can be noted that SEHA had better-qualified respondents than MOHAP. Relatively speaking, SEHA had more respondents who had a bachelor's or master's degree, while MOHAP had relatively more high school diploma holders. The association between education level and agency was found to be statistically significant by the Likelihood ratio chi-square test. To determine the statistical significance of the association, we chose the Likelihood ratio chi-square test rather than the Pearson chi-square test because more than 20% of cells had an expected count of less than five.

Table 8: Agency-wise distribution of respondents by education

			Education				Total
			Diploma	Bachelor	Master	PhD	
Agency	SEHA	Count	195	868	114	1	1,178
		% within Agency	16.6%	73.7%	9.7%	0.1%	100.0%
	MOHAP	Count	313	771	105	2	1,191
		% within Agency	26.3%	64.7%	8.8%	0.2%	100.0%
Total		Count	508	1,639	219	3	2,369
		% within Agency	21.4%	69.2%	9.2%	0.1%	100.0%

Likelihood ratio chi-square tests: (Agency: chi-square=34.044, df=3, Sig.<.01).

Source: Computed from the Primary Survey.

4.2.1.5 Experience

The respondents had varying levels of work experience. The majority (65.5%) had over ten years of work experience, while 23.9% had five to ten years of work experience, and 10.6% had under five years of experience. Figure 10 gives a visual presentation of the distribution.

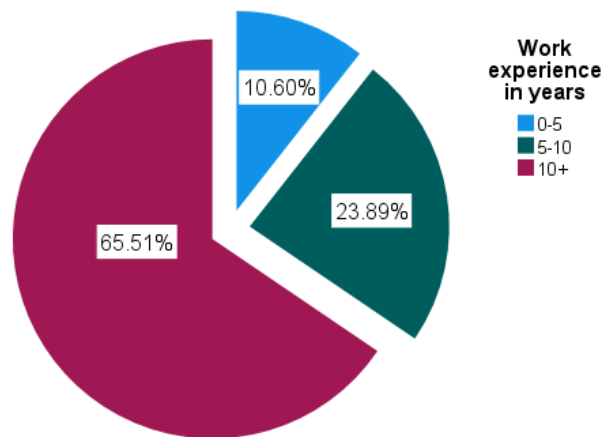


Figure 10. Distribution of respondents by work experience.

The agency-wise distribution given in Table 9 shows that SEHA had relatively more experienced respondents. The association between the agencies and the work experience of respondents was found to be statistically significant at $p < 0.001$ by the Pearson chi-square test.

Table 9: Agency-wise distribution of respondents by work experience

			Work experience in years			Total
			0-5	5-10	10+	
Agency	SEHA	Count	99	266	813	1,178
		% within Agency	8.4%	22.6%	69.0%	100.0%
	MOHAP	Count	152	300	739	1,191
		% within Agency	12.8%	25.2%	62.0%	100.0%
Total		Count	251	566	1,552	2,369
		% within Agency	10.6%	23.9%	65.5%	100.0%

Pearson chi-square Tests: (Agency: chi-square=16.691, df=2, Sig. <.001).

Source: Computed from the Primary Survey.

4.2.1.6 Tenure

The tenure of working with an employer can be a good indicator of many aspects related to the present research. The distribution of the respondents according to the categories of tenure in working with their current employer is given in Figure 11. It shows that the majority (45.6%)

belonged to the shortest tenure category, that is, under five years. This trend could have several possible explanations in the context of the healthcare sector. For example, nurses may be leaving their jobs for better opportunities, such as higher salaries, better work conditions, or more opportunities for career growth. Nurses may also be leaving due to burnout or dissatisfaction with their current roles or work environment, or any other changes in the labor market.

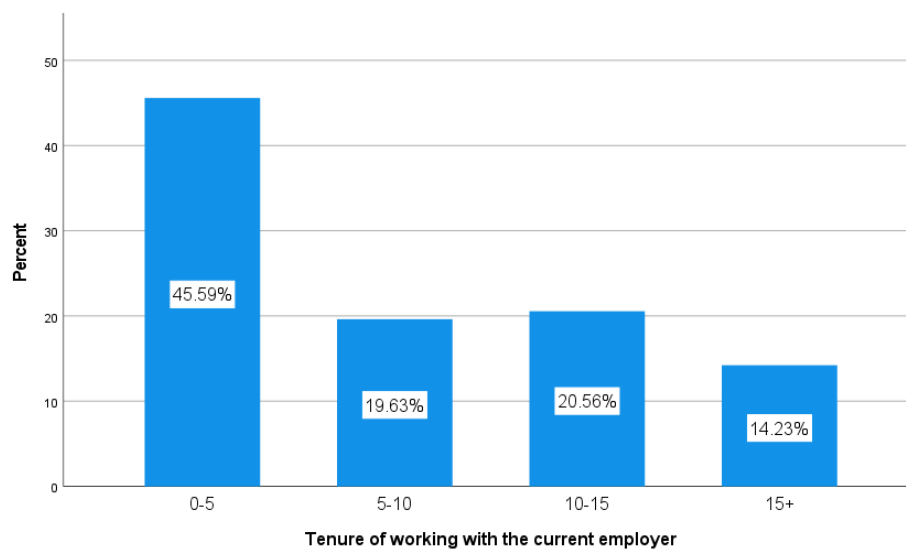


Figure 11. Distribution of respondents by tenure of work.

Agency-wise distribution of tenure, as given in Table 10, shows that the pattern found at the overall level remains the same among the agencies as well. No difference was found among the agencies in this aspect of work, and the association between the agencies and the tenure of work with the current employer was not found to be significant.

Table 10: Agency-wise distribution of respondents by tenure of work

			Tenure of working with the current employer				Total
			0-5	5-10	10-15	15+	
Agency	SEHA	Count	514	241	264	159	1,178
		% within Agency	43.6%	20.5%	22.4%	13.5%	100.0%
	MOHAP	Count	566	224	223	178	1,191
		% within Agency	47.5%	18.8%	18.7%	14.9%	100.0%
Total		Count	1,080	465	487	337	2,369
		% within Agency	45.6%	19.6%	20.6%	14.2%	100.0%

Pearson chi-square Tests: (Agency: chi-square=7.577, df=3, Sig. = .056).

Source: Computed from the Primary Survey.

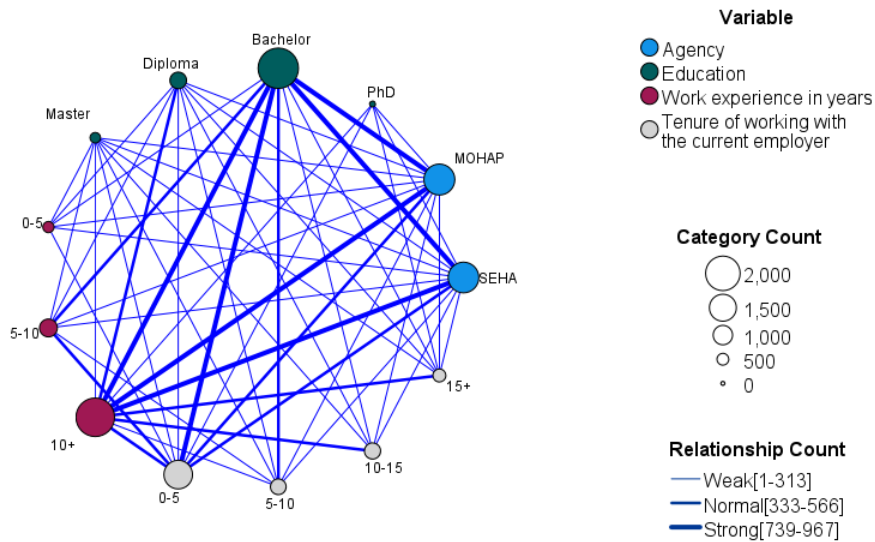


Figure 12. Relationship map of agency, education, work experience, and tenure.

The relationship map of agency, education, work experience, and tenure of work with the current employer gives insights into their relations. The nodes of bachelor's in education, over ten years in work experience, and zero to five years in tenure have notable sizes, demonstrating their importance. Strong relations are found among them from both agencies. All other relations are either normal or weak, given the thickness of the lines between them. The relationship map reveals that most of the respondents were educated at the graduate level, had over ten years of work experience, and under five years of tenure with their current employer.

In short, the analysis of the demographic profile of the sample reveals that there is an almost equal number of respondents from the two agencies included in the study. Most of the respondents were noncitizen females between 25 and 45 years old. The majority of the respondents were also graduates with over ten years of experience but with less than five years of tenure with their current employer. Among the agencies, SEHA had relatively better-educated and more experienced respondents.

4.3 Reliability and Validity Analyses

4.3.1 Scales, Constructs, and Items

Constructs are intangible and intricate measures of human opinions and reflections. They cannot be accurately assessed by a single question. Instead, they can be better assessed by asking a sequence of interconnected questions about various features of the construct of interest. The answers to these separate but related questions can then be combined to create a score or scale.

The scales for the measurement of different constructs using various items in the present study were discussed in detail in Chapter 3, Section 3.8. It was explained that different scales were used for measuring job demands, job resources, work engagement, job performance, and perceived overall justice. There are two different subscales of variables under job demands (workload and time pressure), job resources (social support and job autonomy), and job performance (in-role performance and extra-role performance). In short, the present research attempted to measure eight constructs using different scales, wherein the total number of items under these different scales reached 45.

It is essential to discuss the dimensionality, reliability, and validity of these scales to have a solid understanding of their appropriateness and adequacy to conduct a meaningful analysis of the data generated by using them. The JD-R model will be effective in allowing other researchers to conduct research, especially among health professionals, based on this instrument.

4.3.2 Dimensionality of Scales

A scale's dimensionality, or factor structure, describes the extent to which it reflects the variables represented in its items. It might be noted that a scale might have items that are unidimensional, meaning they all reflect the same variable or construct, or it might have items that are multidimensional and represent more than one variable/construct. The unidimensional scale measures constructs based on a single dimension. Multiple items may be included in the scale, but they measure the same underlying factor. Multidimensional scales, on the other hand,

employ different items or tests to measure each dimension of the construct separately and then combine the scores on each dimension to create an overall measure of the multidimensional construct. The measurement of each underlying dimension must be done separately. Since the items in the scale must reflect a common construct, a total score that reflects its value can be derived from the item scores. In the absence of this condition, scoring results in largely meaningless, uninterpretable data (Bhattacharjee, 2012; Gardner, 1996).

The present research uses three multidimensional scales consisting of two subscales each and two unidimensional scales. Since we need to consider the subscales separately, we end up with a total of eight scales: six separate scales for the three multidimensional scales, and two unidimensional scales. We must then examine the reliability and construct validity of all eight scales.

Efforts are also made to (1) look for the presence of more than one dimension in the two unidimensional scales, which is attempted through Exploratory Factor Analysis, and (2) examine the specified dimensions in the three multidimensional scales that are appropriate and valid, which is accomplished along with the examination of the first-order, second-order, and third-order validity examinations.

4.3.3 Reverse Coding

Before proceeding to the reliability analysis, it is necessary to ensure that all the items in the scale are coded the same way. Negatively worded items should be reverse coded in such a way that all high values indicate the same direction of response. The reverse coding of items is important for reducing response bias (Field, 2005). As an example, in the survey prepared for the present research, the following items under the subscales: workload and time pressure were phrased the opposite way from the other items in the scales:

- Workload:

I have a heavy workload.

I need to spend extra time to finish a task.

I have to manage the backlog at work.

I have issues with the workload.

- Time pressure:

I had to work faster than usual to get my work done.

I was pressed for time.

I had to keep up with a high working pace.

These items were coded from 1 (Never) to 5 (Always) on a five-point Likert scale, with the highest value indicating the least healthy situation. The responses were then recoded so that 1=Always and 5=Never, such that, the higher the value, the better the situation. This recoding ensured consistent meaning for the coding, not only for a specific subscale, but for all the items in all the scales used in the research.

4.3.4 Reliability of Scales

Reliability, one of the essential attributes of a scale, refers to the repeatability or consistency of the measurement using a scale. It is necessary to ensure the reliability of each scale used in the research. If there are multiple factors, Cronbach (1951) suggested that the reliability should be evaluated separately for items pertaining to each factor. To put it another way, if the survey has subscales, reliability should be calculated separately for these subscales.

Cronbach's alpha (Cronbach, 1951) is a common statistic for assessing the internal consistency of a scale. Cronbach's alpha is a way of comparing the equivalence of the scale items that give the same measurement outcomes. Analyzing the two parts of the scale gives comparable results when the scale items are divided into two groups. A set of items could be split in a variety of ways, but if all splits can be made, then a statistic that reflects the whole pattern of split-half coefficients can be produced. The Cronbach's alpha statistic gives the total of all the split-half coefficients for a scale.

The alpha statistic makes the following assumptions: (a) no residual correlations, (b) identical loadings, and (c) a unidimensional scale. An alternative is McDonald's omega statistic. Omega does not make this assumption, which makes it a more robust statistical measure. It relaxes the assumptions made for applying alpha. Alpha and omega, however, will be similar if these assumptions are not violated. In such situations, it is recommended that omega be preferred. As a rule of thumb, alpha and omega values representing "good enough" reliability should be 0.70 or 0.80, which are "acceptable" and "good," respectively (Navarro & Foxcroft, 2019).

In the present study, we estimated both alpha and omega for all eight scales. The results are given in Table 11.

Table 11: *Results of reliability analysis of scales*

No.	Scale	Items	Mean	SD	Cronbach's α	McDonald's ω
1	Job Demands					
1.1	Workload	4	3.17	0.858	0.866	0.869
1.2	Time Pressure	3	2.93	0.937	0.847	0.848
2	Job Resources					
2.1	Social Support	8	3.77	0.606	0.873	0.875
2.2	Job Autonomy	3	3.56	0.908	0.849	0.851
3	Work Engagement	9	3.99	0.674	0.862	0.877
4	Job Performance					
4.1	In-role Performance	5	4.43	0.522	0.857	0.885
4.2	Extra-role Performance	7	4.02	0.538	0.779	0.791
5	Perceived Overall Justice	6	3.68	0.886	0.965	0.965

Source: Computed from the Primary Survey Data.

The results show that both measures of reliability, Cronbach's α , and McDonald's ω have attained values greater than 0.8 for all eight scales except for that of extra-role performance. For that scale, α is 0.779 and ω is 0.791, values near 0.8. This means that all the scales can be treated as reliable measures of the intended constructs.

The detailed results of the reliability analysis are given in Appendix 4. They include mean and standard deviation (SD) of each item, item-rest correlations, and values of Cronbach's α and McDonald's ω if each item was dropped from the scale. Along with this information, heat maps of each scale, showing inter-item correlations, are also produced. "A

heatmap is a graphical representation of data in two dimensions, using colors to demonstrate different factors” (Kenton, 2021). Here, heatmaps are a helpful visual aid, enabling a quick understanding of the inter-item correlations of a scale.

The examination of the detailed reliability analysis results reveals that the scales are well explained by the items and the best Cronbach’s α and McDonald’s ω can be achieved by dropping none of the items, except in the case of the work engagement scale. Only two items were identified as increasing the value of alpha and omega if they were dropped from the scale. and the difference they would make was found to be negligible. These two items are as follows:

- *WE1: At my work, I feel that I am bursting with energy.*
- *WE9: I get carried away when I am working.*

The heat maps show that the inter-item correlations are reasonable and as expected, except for the mentioned items in the work engagement scale and one item in the extra-role performance scale, as follows:

- *ERP6: I take a personal interest in other employees.*

These items were found to have very low correlations with other items in the scale. No action was taken on those items at this point of analysis, but further action was possible after examining the validity aspect of the corresponding scales.

In short, the reliability analysis confirmed the consistency of the scales, such that further analysis could build upon them with confidence. None of the items in any of the scales were removed or modified after reliability analysis alone.

4.3.5 Validity of Scales

Now, after finding the reliability of the scales in the present research as “very good,” we needed to ensure their validity as well.

4.3.5.1 The Concept of Validity and Types

The validity of a scale refers to how well it measures what it claims to measure. In other words, validity is the assessment of a scale's accuracy (Boateng, Neilands, Frongillo, Melgar-Quinonez, & Young, 2018). Validity and reliability are separate qualities, yet they are closely related and interconnected. It is possible for a scale to be highly reliable but to have poor validity. Validity and reliability are both required for a scale to be useful. An unreliable scale may not accurately measure what it is intended to measure; it may be measuring something else, like another construct or error. Having reliability is a necessary condition for validity; however, it is not sufficient. Generally, validity is evaluated in three ways: (i) criterion validity, (ii) face and content validity, and (iii) construct validity.

By investigating *face and content validity*, the researcher determines whether the scale currently used covers all of the items needed to answer the research question. A *criterion's validity* can be determined by the correlation between the current scale and the pre-decided standard. A pre-decided standard score is one that has been tested in prior studies and has been determined to be valid. Generally speaking, *construct validity* refers to how well the scale is able to measure what the theory claims. Construct validity can be classified as either convergent validity or discriminant validity. When something expected to be correlated turns out to be correlated, it is said to have convergent construct validity. Whenever constructs that are not intended to be related are unrelated, discriminant validity is present.

The present research examined face and content validity by seeking the opinions of a small group of nonexperts and experts on the items included in the questionnaire. The group could give a qualitative assessment of the scales, which was found satisfactory to ensure their face and content validity. Criterion validity was not pursued since not many previous studies within similar contexts and subjects were found. Thus, the validity examination of the scales in the present study boils down to the assessment of construct validity, which included both convergent validity and discriminant validity.

4.3.5.2 Tool to Test Construct Validity: Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is the most often exercised technique to assess construct validity, despite the fact that there are also other techniques for this purpose (Kline, 2010). CFA is a distinctive structure of factor analysis in which the factors (latent constructs) are confirmed to be related to the set of items hypothesized in a model. It is a test of whether researchers' hypotheses about the nature of a construct (or factor) are valid.

More simply, confirmatory factor analysis seeks to determine whether the data match a proposed measurement model. This hypothesized model can be based on a priori theory or previous research, or it can be based on exploratory data analysis (EFA) done earlier on a similar data set. The statistical probability that the data from the survey items suit this model is calculated, validating the hypothesized theory by confirming the relationships between the items and the constructs. In short, confirmatory factor analysis determines whether the survey data is a good representation of our theoretical understanding of the construct; it determines if the scale in the survey measures the construct in the way that it is intended.

Through fitting the model, CFA can assess the factor loadings between the items and the constructs. It then compares the estimates of the factor loadings with their standard errors and compute the probability that these vary from zero. Using statistical analysis, we evaluate the evidence that supports our hypothesis that the theoretical factor analysis model fits the data. Several measures of goodness-of-fit statistics can be used to determine the overall fit of the model. It is recommended that a combination of measures be considered rather than depending on any single measure of model fit. The recommended measures of fit when conducting CFA are shown in Table 12, along with their acceptable thresholds.

Table 12: *Measures of model fit and acceptable threshold values*

Measure	Terrible	Acceptable	Excellent
Minimum Discrepancy / Degrees of Freedom (CMIN/DF)	> 5	> 3	> 1
Comparative Fit Index (CFI)	<0.90	<0.95	>0.95

Tucker-Lewis coefficient (TLI)	<0.90	<0.95	>0.95
Normed Fit Index (NFI)	<0.90	<0.95	>0.95
Standardized Root Mean Square Residual (SRMR)	>0.10	>0.08	<0.08
Root Mean Square Error of Approximation (RMSEA)	>0.08	>0.06	<0.06

Source: Compiled from Gaskin and Lim (2016).

CFA produces modification indices (MIs), which suggest fixes when discrepancies between the proposed model and its estimated model are discovered due to low or unacceptable levels of model fit. Actions like removal of items and modifications in the item structure, allowing for co-variances between error terms, can then be undertaken based on the suggestions made by the MIs. These changes can respecify the model such that the model fit increases to an acceptable or to a more preferable level.

Now, the composite reliability, convergent validity, and discriminant validity can be identified by different concepts that can be measured from the results of CFA. These include:

- Composite reliability (CR)
- Maximal reliability (MaxR[H])
- Average variance extracted (AVE)
- Maximum shared variance (MSV)
- Average shared variance (ASV)
- Interconstruct correlations

The threshold values for these concepts are as follows:

- *Composite Reliability*: CR > 0.7
- *Convergent Validity*: AVE > 0.5
- *Discriminant Validity*: MSV < AVE, square root of AVE greater than inter-construct correlations

CFA was conducted on the data collected, and its results are presented in section 4.3.5.3.

4.3.5.3 Results of CFA

The purpose of this section is to check the validity of the scales used for collecting data for the present research. The scales, subscales, and items in the data gathering instrument that were used for data collection are reproduced in Table 13.

Table 13: *Scales in the data-gathering instrument*

Scale	Subscale	Item Code	Items
Job Demands (JD)	Workload (WL)	W1R	I have a heavy workload
		W2R	I need to spend extra time to finish a task
		W3R	I have to manage the backlog at work
		W4R	I have issues with the workload
	Time Pressure (TP)	TP1R	I had to work faster than usual to get my work done
		TP2R	I was pressed for time
TP3R		I had to keep up with a high working pace	
Job Resources (JR)	Social Support (SS)	SS1	My supervisor is available when I am in need.
		SS2	I can share my joys and sorrows with my supervisor
		SS3	My supervisor is a real source of comfort to me
		SS4	My supervisor cares about my feelings
		SS5	My co-workers really try to help me
		SS6	I can count on my co-workers when things go wrong
		SS7	I have co-workers with whom I can share my joys and sorrows
		SS8	I can talk about my problems with my co-workers
	Job Autonomy (JA)	JA1	I have significant autonomy in determining how I do my job
		JA2	My job permits me to decide on my own how to go about doing my work
JA3		My job gives me a considerable opportunity for independence and freedom in how I do the job	
Work Engagement (WE)	Work Engagement (WE)	WE1	At my work, I feel that I am bursting with energy
		WE2	At my job, I feel strong and vigorous
		WE3	When I get up in the morning, I feel like going to work
		WE4	I am enthusiastic about my job
		WE5	My job inspires me
		WE6	I am proud of the work that I do
		WE7	I feel happy when I am working intensely
		WE8	I am immersed in my work
		WE9	I get carried away when I am working
Job Performance (JR)	In-role Performance (IR)	IRP1	I adequately complete the duties assigned to me
		IRP2	I fulfill the responsibilities specified in my job descriptions
		IRP3	I perform tasks that are expected of me
		IRP4	I meet the formal performance requirements of the job
		IRP5	I engage in activities that will directly affect my performance evaluation
	Extra-role Performance (ER)	ERP1	I help others who have been absent
		ERP2	I help others who have heavy workloads
		ERP3	I assist the supervisor with his/her work (when not asked from me)
		ERP4	I take time to listen to co-workers' problems and worries
		ERP5	I go out of the way to help new employees
Perceived Overall Justice (POJ)	Perceived Overall Justice (POJ)	ERP6	I take a personal interest in other employees
		ERP7	I pass along information to co-workers
		POJ1	Overall, I'm treated fairly by my organization
		POJ2	In general, I can count on this organization to be fair
		POJ3	In general, the treatment I receive around here is fair
		POJ4	Usually, the way things work in this organization are fair
		POJ5	For the most part, this organization treats its employees fairly
		POJ6	Most of the people who work here would say they are often treated fairly

As mentioned in section 4.3.3., the items corresponding to the scale job demands were reverse-coded. These were kept reverse-coded in the validity examination, too. As stated, the

endeavor was to investigate the construct validity of the scales, with specific attention paid to convergence validity and discriminant validity. The tool used was confirmatory factor analysis. The analysis was performed in SPSS (Amos Version 28.0), and the plugins developed by James Gaskin (Gaskin & Lim, 2016).

There are two important and noteworthy aspects of validity examination by CFA, which are as follows:

1. Many studies perform exploratory factor analysis (EFA) before conducting confirmatory factor analysis (CFA). Though it might be justified in cases in which factors were not identified beforehand, or there was no theoretical model already existing before the researcher, this cannot be justified as standard practice to do EFA before every CFA. The present research, by relying on a well-specified theoretical framework enriched by similar studies, opted to abstain from the practice of doing EFA before every CFA. However, whenever the hypothesized factors or dimensions were in doubt or needed to be explored, EFA was used as a guiding tool.
2. Validity remains an essential quality of a scale of measurement; it has to be examined specifically for the scales. Once the validity at the scale level is confirmed, we may attempt to ensure the validity, particularly discriminant validity, of different constructs in the multiple scales used in the questionnaire. Keeping that in mind, the present research proceeded accordingly. It has been demonstrated that a holistic examination of validity, including all the constructs in the study, could not give a reasonable conclusion. Therefore, a validity examination was attempted for each scale. In the end, all constructs were put together to prove the twin aspects of validity.

As the initial step, all the constructs in the hypothesized model were taken together to test their validity. Figure 13 shows the path diagram of the model, as given in Amos.

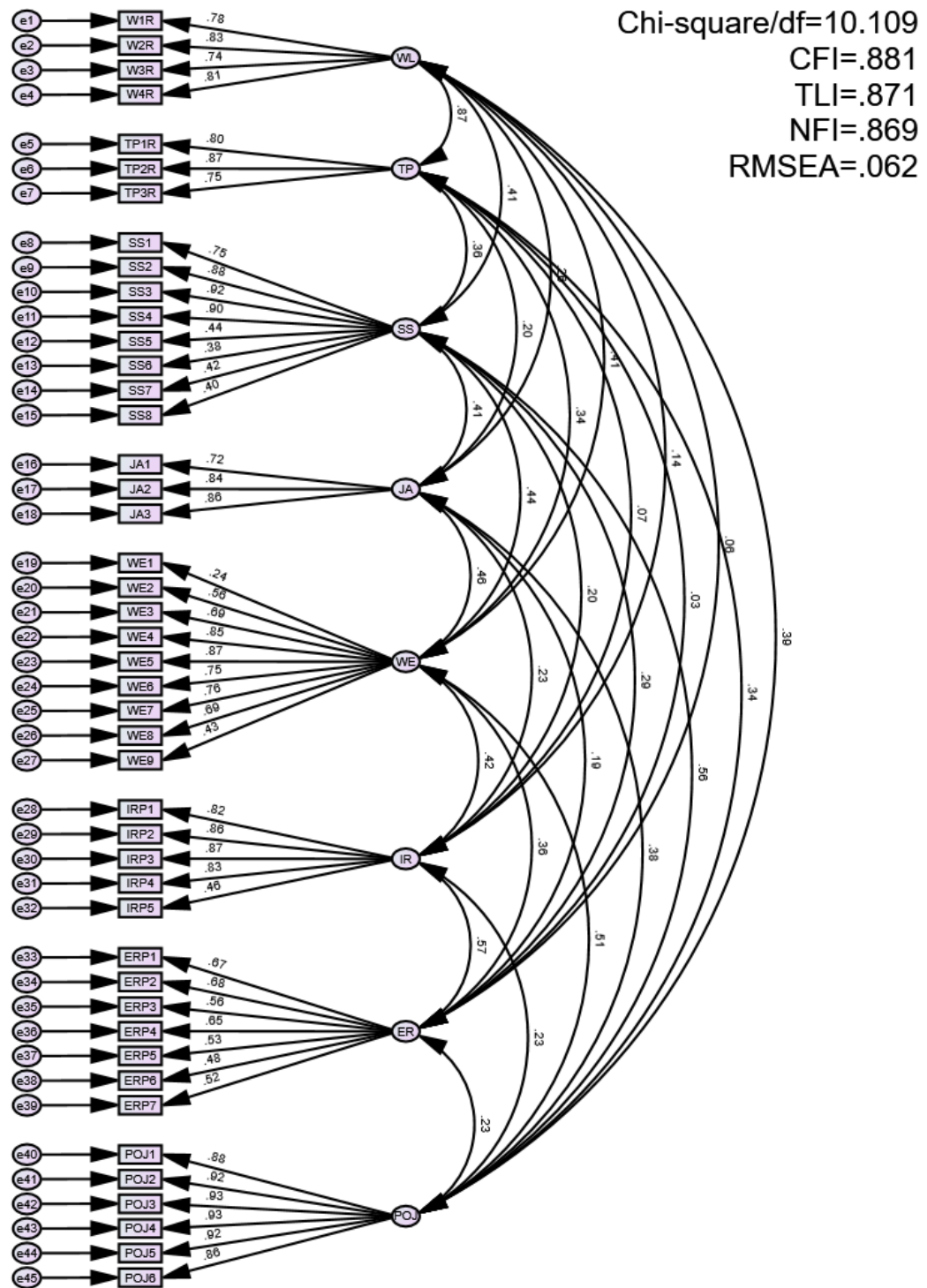


Figure 13. Confirmatory factor analysis model diagram for all constructs in the study.

Using the Amos Plugin developed by (Gaskin & Lim, 2016), the model could not find a good fit. As expected, the chi-square test showed significance, which meant that the model

was not a good fit. However, this might be ignored, as the sample size was large. As the sample size increases, the chi-square value tends to increase, and this can lead us to conclude that the model is not a good fit and to depend on other measures of model fit. However, a combination of three other fit measures (i.e., CFI, TLI, and NFI) did not show the cut-off marks for model fitness; only RMSEA and SRMR showed acceptable fit. Although different modifications were attempted with the model, fitness did not rise to a satisfactory level, though some improvements could be made. Moreover, the examination of validity showed that no discriminant validity was found for five of the total eight constructs. These results are given in Table 14.

Table 14: *Model validity measures for the CFA model of all constructs in the study*

	CR	AVE	MSV	MaxR (H)	WL	TP	SS	JA	WE	IR	ER	POJ
WL	0.869	0.624	0.761	0.873	0.790							
TP	0.847	0.650	0.761	0.858	0.873***	0.806						
SS	0.857	0.458	0.308	0.939	0.408***	0.365* **	0.677					
JA	0.850	0.655	0.215	0.864	0.261***	0.203* **	0.408* **	0.809				
WE	0.874	0.457	0.260	0.916	0.414***	0.341* **	0.442* **	0.464* **	0.676			
IR	0.886	0.618	0.329	0.915	0.142***	0.074* *	0.197* **	0.225* **	0.421***	0.786		
ER	0.785	0.347	0.329	0.797	0.063*	0.030	0.286* **	0.190* **	0.358***	0.573* **	0.589	
POJ	0.965	0.823	0.308	0.968	0.392***	0.337* **	0.555* **	0.379* **	0.510***	0.231* **	0.230 ***	0.907

CR=composite reliability, AVE=average variance extracted, MSV=maximum shared variance,

MaxR(H)=maximal reliability

Validity Concerns:

Discriminant Validity: The square root of the AVE for WL is less than its correlation with TP.

Discriminant Validity: The square root of the AVE for TP is less than its correlation with WL.

¹ *Convergent Validity:* The AVE for SS is less than 0.50.

¹ *Convergent Validity:* The AVE for WE is less than 0.50.

¹ *Convergent Validity:* The AVE for ER is less than 0.50.

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the CFA results.

As can be seen in Table 14, AVE for social support (SS), work engagement (WE), and extra-role performance (ER) were found under 0.5. For workload (WL) and time pressure (TP), MSV was found to be greater than AVE. In short, CFA could not confirm discriminant validity

or convergence validity for these constructs. The plugin Amos suggested a few modifications, but it could not bring the results up to a satisfactory fit for all constructs. Thus, it was found to be more rational to take up each scale separately, to examine their validity in detail. This was expected to give more insight into the factor structure within each construct and to identify the dimensions. Therefore, each construct in the research is examined for its validity one by one, using CFA.

4.3.5.3.1 Job Demands

The present research hypothesized the theoretical construct of job demands as having two dimensions: workload (WL) and time pressure (TP). Workload had four items, whereas time pressure had three. The CFA was carried out on the collected data, and the resulting diagram is given in Figure 14.

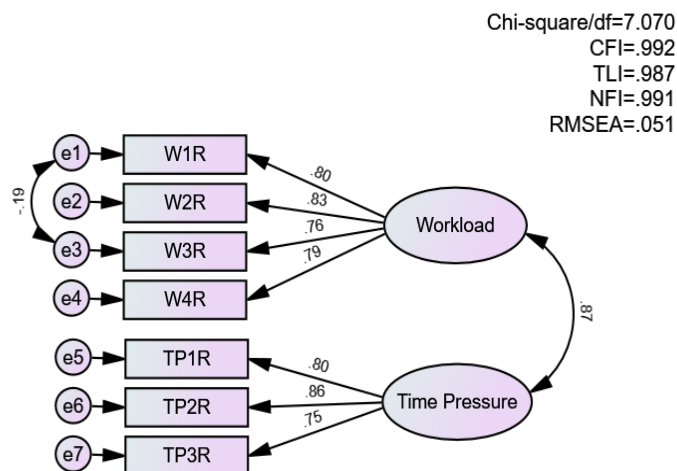


Figure 14. CFA model diagram for the construct of job demands.

The model turned out to be an excellent fit by all fit measures, excluding the chi-square test, but it failed to achieve discriminant validity by a large margin. Both workload and time pressure qualified for convergence validity, at .64 and .65, respectively, but the MSV remained higher, at .75. Table 15 gives the details.

Table 15: *Validity measures for the CFA model for the construct of job demands*

	CR	AVE	MSV	MaxR(H)	WL	TP
WL	0.874	0.635	0.749	0.877	0.797	

TP	0.848	0.650	0.749	0.858	0.865***	0.806
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Validity Concerns:

Discriminant Validity: the square root of the AVE for WL is less than its correlation with TP.

Discriminant Validity: the square root of the AVE for TP is less than its correlation with WL.

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the CFA results.

Now, the lack of discriminant validity raises the question of the very existence of two dimensions to frame the construct—workload and time pressure—below the construct of job demands. This may be because of the very specific nature of nurses' work and the duties attached to it, as their workload and time pressure are closely linked, and they cannot be detached as separate constructs. This understanding led the present research to inquire into the factor structure behind job demands using exploratory factor analysis (EFA). The results of the EFA are given in Table 16.

Table 16: *Results of the EFA on job demands*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.913
Bartlett's Test of Sphericity	Approx. chi-square	9629.573
	Df	21
	Sig.	.000

Communalities		
	Initial	Extraction
I have a heavy workload	1.000	.645
I need to spend extra time to finish a task	1.000	.698
I have to manage the backlog at work	1.000	.591
I have issues with the workload	1.000	.658
I had to work faster than usual to get my work done	1.000	.641
I was pressed for time	1.000	.716
I had to keep up with a high working pace	1.000	.575
Extraction Method: Principal Component Analysis.		

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.524	64.631	64.631	4.524	64.631	64.631
2	.662	9.455	74.086			
3	.488	6.968	81.055			
4	.383	5.477	86.532			
5	.366	5.231	91.763			
6	.289	4.130	95.893			
7	.288	4.107	100.000			
Extraction Method: Principal Component Analysis.						

Component Matrix^a	
	Component
	1
I have a heavy workload	.803

I need to spend extra time to finish a task	.836
I have to manage the backlog at work	.769
I have issues with the workload	.811
I had to work faster than usual to get my work done	.800
I was pressed for time	.846
I had to keep up with a high working pace	.758
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Kaiser-Meyer-Olkin's test of sampling adequacy and Bartlett's Test of Sphericity ensured that the data were qualified for EFA. Factor extraction was attempted with principal component analysis (PCA) with Varimax rotation, constraining for noncorrelation between the components. Communalities showed that all items contributed toward common variance, and none was found to have a value less than 0.5. EFA in total could extract the total variance up to a certain level, which is revealed by the cumulative percentage as 64.63%. Thus, the component matrix showed that only one factor existed among the items of the construct "job demands." This supports the result we obtained in CFA, showing no discriminant validity in the subscale constructs of job demands. The solution could not be rotated to hone the results, since only one component was extracted. Therefore, with the result of EFA, we respecified the CFA model of job demands, as given in Figure 15.

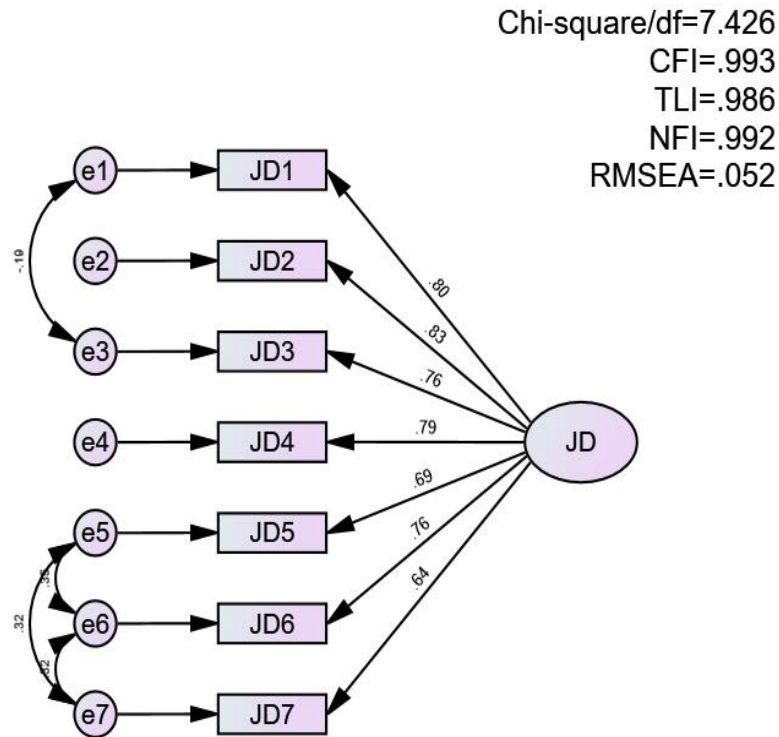


Figure 15. Re-specified CFA model diagram for the construct of job demands.

The respecified model turned out to be an excellent fit by all fit measures except the chi-square test. It may be noted that a few error terms were allowed to covary in the respecified model. It is worth noting that all items of the “time pressure” construct are covarying in the model. Now the construct job demands has convergent validity, as shown by the value of AVE (.570), and it is expected to have discriminant validity with other constructs in the model, which can be examined when the overall discriminant validity of all the constructs is examined at a later phase. The results are given in Table 17.

Table 17: *Validity measures for the re-specified CFA model for the construct of job demands*

	CR	AVE	MSV	MaxR(H)	JD
JD	0.902	0.570	0.000	0.909	0.755

Source: Compiled and calculated from the CFA results.

4.3.5.3.2 Job Resources

The next construct in the hypothesized model is job resources, which had two dimensions as subscales: social support (SS) and job autonomy (JA). These subscales had eight

and three items, respectively. The initial CFA model of the constructs and their items is shown in Figure 16.

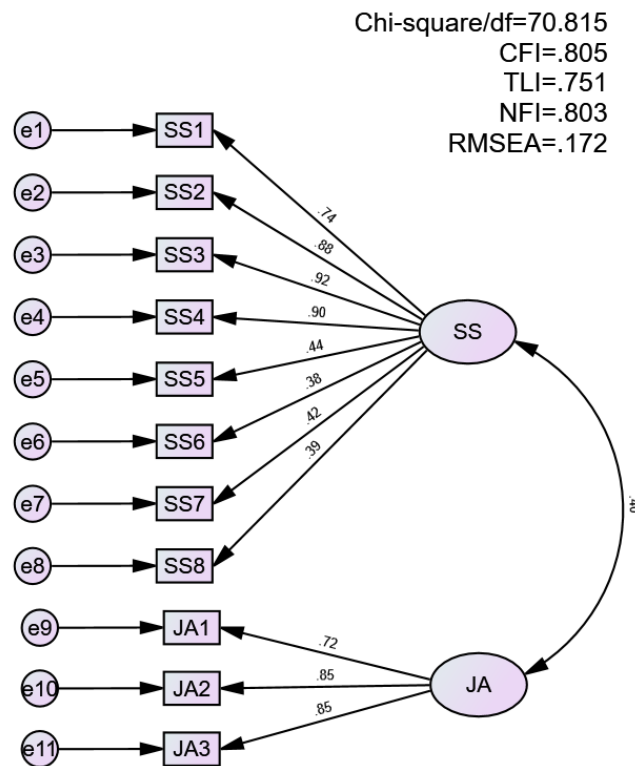


Figure 16. CFA model diagram for the construct of job resources.

The model was found not fit, as revealed by the fit indices. In addition, the construct SS was found no have no convergent validity. The details are given in Table 18.

Table 18: *Validity measures for the CFA model for the construct of job resources*

	CR	AVE	MSV	MaxR(H)	SS	JA
SS	0.856	0.457	0.162	0.939	0.676	
JA	0.851	0.656	0.162	0.863	0.403***	0.810

Validity Concerns: *Convergent Validity:* the AVE for SS is less than 0.50.

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the CFA results.

Modification attempts revealed that the error terms of the subscale social support (SS) covaried systematically. It was observed that all the items corresponding to matters related to superiors' support were correlated, whereas the items related to co-workers correlated on another set. This raised apprehension about the existence of more than one dimension in the

subscale social support, which was then examined with EFA. The results of the EFA are given in Table 19.

Table 19: *Results of EFA on job resources*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.849
Bartlett's Test of Sphericity	Approx. chi-square	15453.233
	Df	55
	Sig.	.000

Communalities		
	Initial	Extraction
My supervisor is available when I am in need.	1.000	.686
I can share my joys and sorrows with my supervisor	1.000	.828
My supervisor is a real source of comfort to me	1.000	.870
My supervisor cares about my feelings	1.000	.857
My co-workers really try to help me	1.000	.572
I can count on my co-workers when things go wrong	1.000	.525
I have co-workers with whom I can share my joys and sorrows	1.000	.783
I can talk about my problems with my co-workers	1.000	.713
I have significant autonomy in determining how I do my job	1.000	.716
My job permits me to decide on my own how to go about doing my work	1.000	.816
My job gives me a considerable opportunity for independence and freedom in how I do the job	1.000	.780
Extraction method: principal component analysis.		

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.813	43.751	43.751	4.813	43.751	43.751	3.203	29.120	29.120
2	1.776	16.149	59.900	1.776	16.149	59.900	2.623	23.844	52.963
3	1.558	14.165	74.065	1.558	14.165	74.065	2.321	21.102	74.065
4	.672	6.107	80.172						
5	.512	4.657	84.829						
6	.433	3.940	88.769						
7	.371	3.372	92.141						
8	.269	2.445	94.586						
9	.244	2.219	96.804						
10	.207	1.882	98.686						
11	.145	1.314	100.000						
Extraction method: principal component analysis.									

Component Matrix ^a			
	Component		
	1	2	3
My supervisor is available when I am in need.	.736	-.086	-.372
I can share my joys and sorrows with my supervisor	.805	-.147	-.399
My supervisor is a real source of comfort to me	.813	-.098	-.446
My supervisor cares about my feelings	.800	-.102	-.454

My co-workers really try to help me	.619	-.271	.340
I can count on my co-workers when things go wrong	.567	-.222	.393
I have co-workers with whom I can share my joys and sorrows	.630	-.368	.501
I can talk about my problems with my co-workers	.593	-.345	.492
I have significant autonomy in determining how I do my job	.495	.664	.172
My job permits me to decide on my own how to go about doing my work	.507	.721	.197
My job gives me a considerable opportunity for independence and freedom in how I do the job	.606	.624	.155
Extraction method: principal component analysis.			
a. 3 components extracted.			

Rotated Component Matrix ^a			
	Component		
	1	2	3
My supervisor is available when I am in need.	.791	.195	.153
I can share my joys and sorrows with my supervisor	.868	.243	.123
My supervisor is a real source of comfort to me	.899	.193	.158
My supervisor cares about my feelings	.896	.181	.147
My co-workers really try to help me	.251	.706	.108
I can count on my co-workers when things go wrong	.169	.690	.142
I have co-workers with whom I can share my joys and sorrows	.164	.867	.067
I can talk about my problems with my co-workers	.140	.830	.068
I have significant autonomy in determining how I do my job	.124	.090	.832
My job permits me to decide on my own how to go about doing my work	.107	.088	.893
My job gives me a considerable opportunity for independence and freedom in how I do the job	.222	.159	.840
Extraction method: principal component analysis.			
Rotation method: varimax with Kaiser normalization.			
a. Rotation converged in five iterations.			

Kaiser-Meyer-Olkin's test of sampling adequacy and Bartlett's Test of Sphericity ensured that the data were qualified for EFA. Factor extraction was attempted with principal component analysis with varimax rotation, constraining for noncorrelation between the components. Communalities showed that all items contributed toward common variance, and none was found to have a value less than 0.5. In total, the EFA could extract three distinct components having a total variance up to the level, revealed by the cumulative percentage, of 74.06%. The component matrix showed three factors among the items of the construct job resources. The rotated component matrix made the results sharper, and the three factors were

easily identified as superior support, co-worker support, and job autonomy. This supported the results we obtained in the CFA, which showed no discriminant validity in the subscale constructs of job resources. Now, the model was respecified, such that the social support construct was identified with two dimensions to be captured with subscales of superior support (S) and co-worker support (C). The respecified model is given in Figure 17.

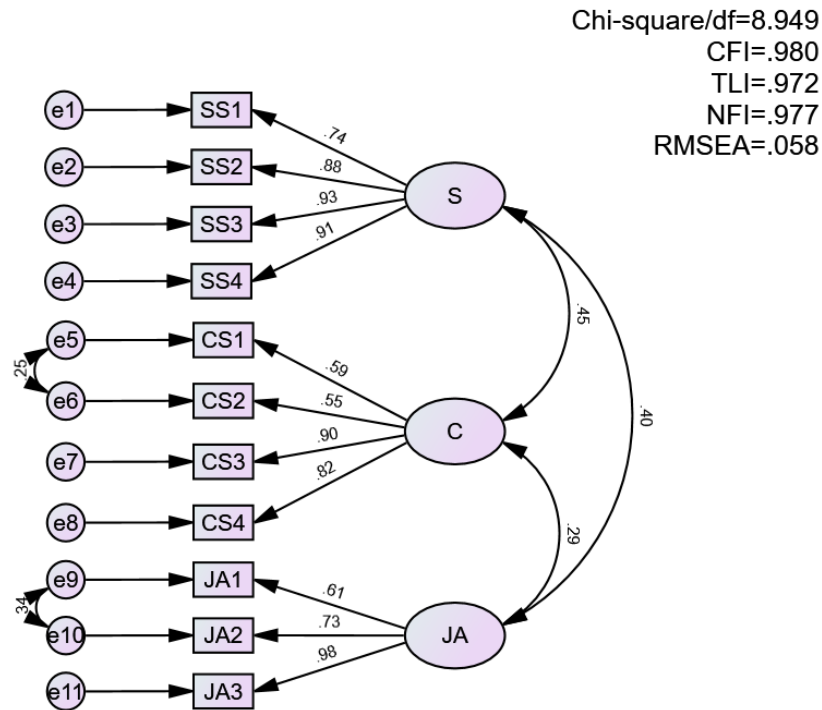


Figure 17. Re-specified CFA model diagram for the construct of job resources.

Now, we can see that the model fit has become excellent, and the validity measures have the properties of convergence and discriminant validity. The validity measures are given in Table 20.

Table 20: *Validity measures for the respecified CFA model for the construct of job resources*

	CR	AVE	MSV	MaxR(H)	S	C	JA
S	0.923	0.752	0.198	0.940	0.867		
C	0.813	0.532	0.198	0.878	0.445***	0.729	
JA	0.828	0.626	0.157	0.972	0.396***	0.289***	0.791

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the CFA results.

Now, the social support construct becomes a second-order construct in the CFA model of job resources. The model can be specified as shown in Figure 18.

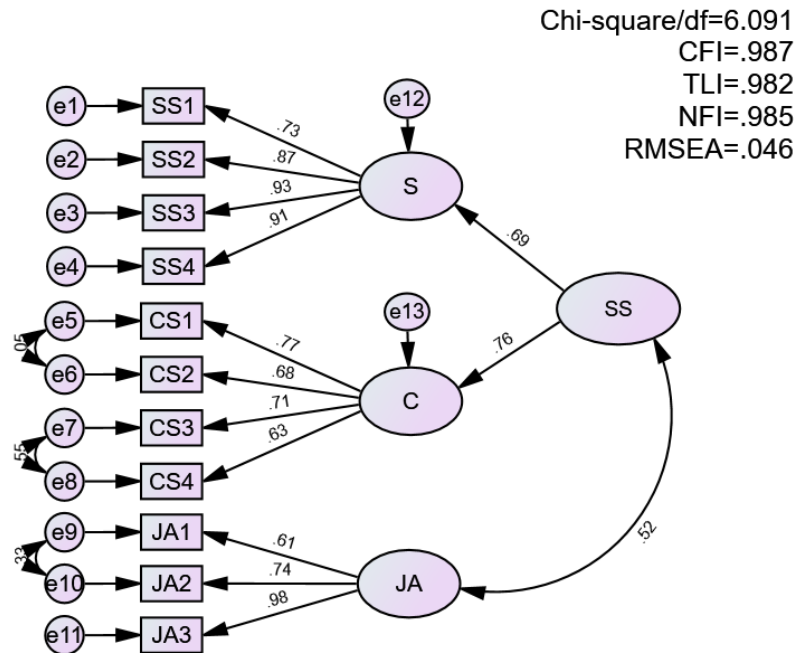


Figure 18. Second-order CFA model diagram for the construct of job resources.

As expected, the model fit measures are in excellent range, and there are no validity concerns. The validity measures are given in Table 21.

Table 21: Validity measures for the second-order CFA model for the construct of job resources

	CR	AVE	MSV	MaxR(H)	JA	SS
JA	0.829	0.626	0.269	0.956	0.791	
SS	0.701	0.525	0.269	0.692	0.519***	0.724

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the CFA results.

Along with the second-order constructs, social support (SS) and job autonomy (JA), the construct job resources (JR) now becomes a third-order construct. The third order CFA model of job resources can be given as in Figure 19.

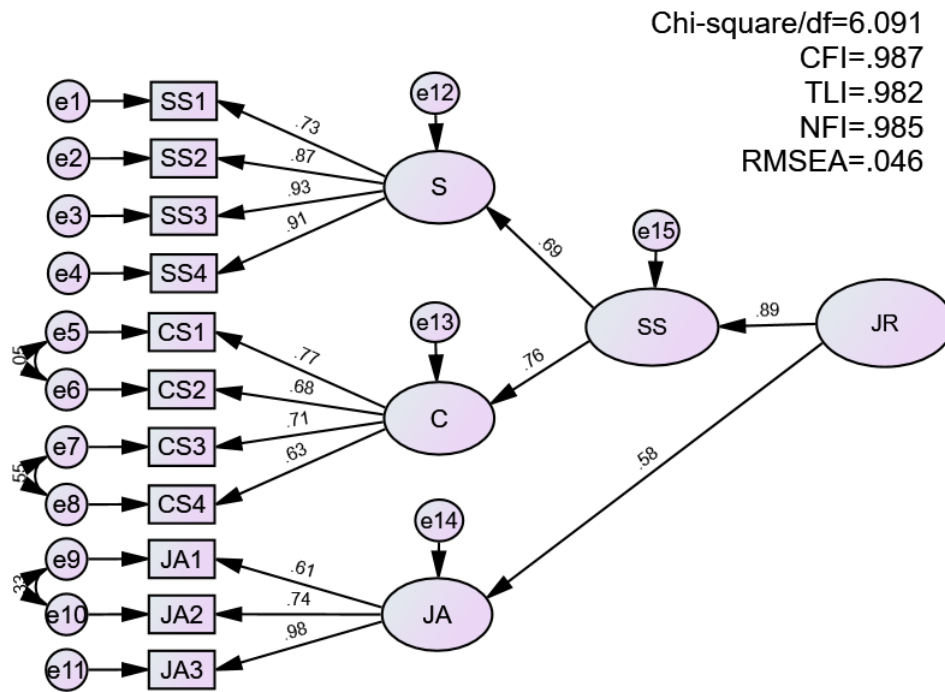


Figure 19. Third-order CFA model diagram for the construct of job resources.

The third-order CFA model is found to have excellent fit by all fit measures except for chi-square, and the convergent validity of the construct was ensured by AVE. The validity measures are given in Table 22. It is expected that the construct will have discriminant validity with other constructs in the present research, which will be examined later.

Table 22: *Validity measures for the third-order CFA model for the construct of job resources*

	CR	AVE	MSV	MaxR(H)	JR
JR	0.713	0.565	0.000	0.809	0.751

Source: Compiled and calculated from the CFA results.

4.3.5.3.3 Work Engagement

The construct of work engagement, which is observed through nine items, was examined for validity in the next analysis. The initial model of CFA is given in Figure 8, which failed to achieve a reasonable fit and did not meet either of the validity criteria. The validity measures are given in Table 23.

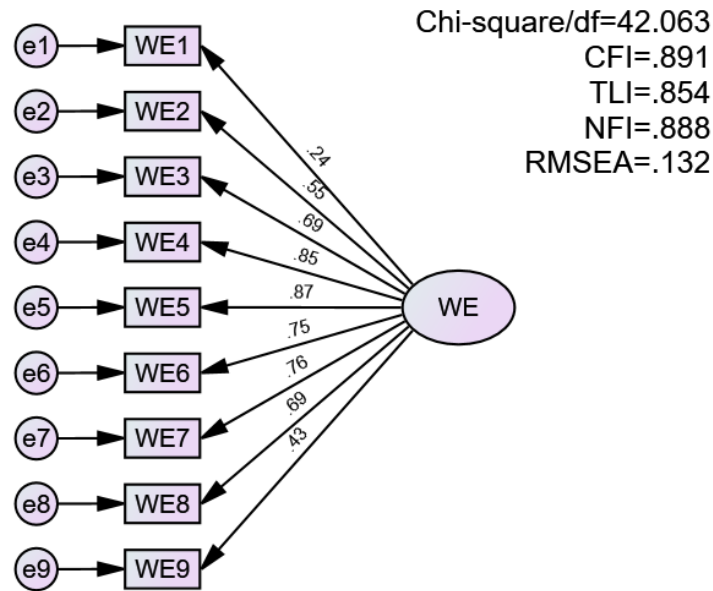


Figure 20. CFA model diagram for the construct of work engagement.

Table 23: *Validity measures for the CFA model for the construct of work engagement*

	CR	AVE	MSV	MaxR(H)	WE
WE	0.874	0.457	0.000	0.916	.676

Source: Compiled and calculated from the results of CFA

Attempts to modify the model included examination for any further dimensions or factors using EFA, but EFA could not identify any other dimension for the construct; thus, it was reasonable to conclude that the construct is unidimensional. To improve model fit, per the suggestions based on its MIs, two items were dropped from the construct. These were:

- WE1: *At my work, I feel that I am bursting with energy*
- WE9: *I get carried away when I am working*

Along with dropping the items, a few error terms were allowed to covary in the model. These modifications could yield reasonable fit measures and validity measures. The respecified model is given in Figure 21, and the validity measures are given in Table 24. Now, the construct possessed convergent validity and was expected to have discriminant validity when considered with other constructs in the model.

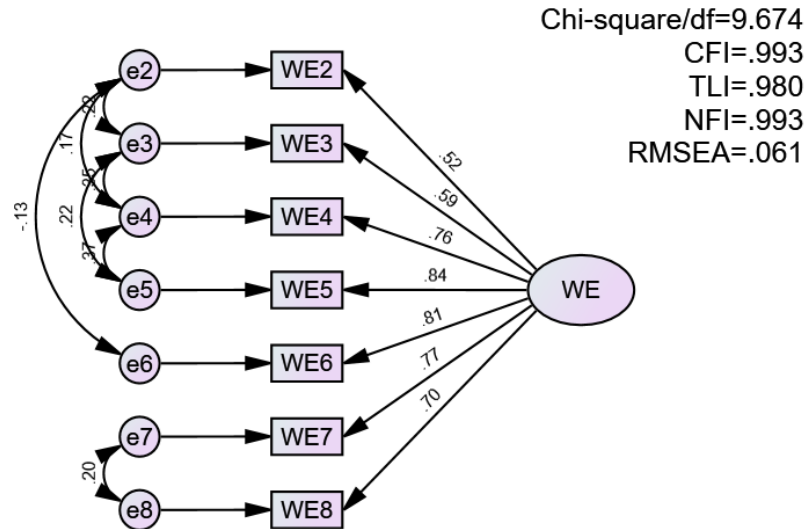


Figure 21. Respecified CFA model diagram for the construct of work engagement.

Table 24: *Validity measures for the respecified CFA model for the construct of work engagement*

	CR	AVE	MSV	MaxR(H)	WE
WE	0.881	0.521	0.000	0.900	0.722

Source: Compiled and calculated from the CFA results.

4.3.5.3.4 Job Performance

The construct of job performance is made with two subscales, in-role performance and extra-role performance, having five and seven items below each, respectively. The two subscales were supposed to measure the “job performance” construct clearly. The initial CFA model is shown in Figure 22.

As can be seen, the model was found to be a good fit by a combination of more than one measure. The fit was attained after allowing for the covariance of a few error terms, particularly in the items of the subscale extra-role performance, but the model failed to achieve convergent as well as discriminant validity for the construct. The validity measures are given in Table 25.

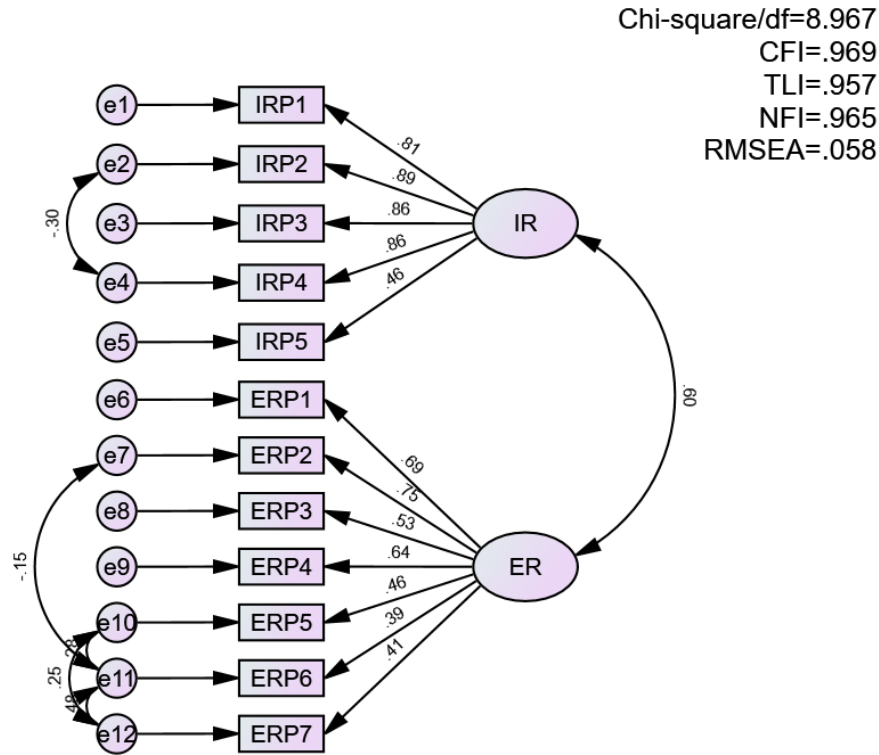


Figure 22. CFA model diagram for the construct of job performance.

Table 25: *Validity measures for the CFA model for the construct of job performance*

	CR	AVE	MSV	MaxR(H)	IR	ER
IR	0.890	0.628	0.362	0.920	0.792	
ER	0.760	0.324	0.362	0.799	0.602***	0.569

Validity Concerns

¹ *Convergent Validity*: the AVE for ER is less than 0.50.

Discriminant Validity: the AVE for ER is less than the MSV.

Discriminant Validity: the square root of the AVE for ER is less than its correlation with IR.

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the results of CFA.

As the next step, the model was respecified after dropping the following three items from the subscale of extra-role performance:

- *ERP5: I go out of the way to help new employees.*
- *ERP6: I take a personal interest in other employees.*
- *ERP7: I pass along information to co-workers.*

The modification and the steps to allow a few error terms from both of the subscales returned a good fit to the model, as revealed by the combination of measures of model fit. The

validity concerns went away, giving the construct both types of validity. The respecified model is given in Figure 23, and the validity measures are produced in Table 26.

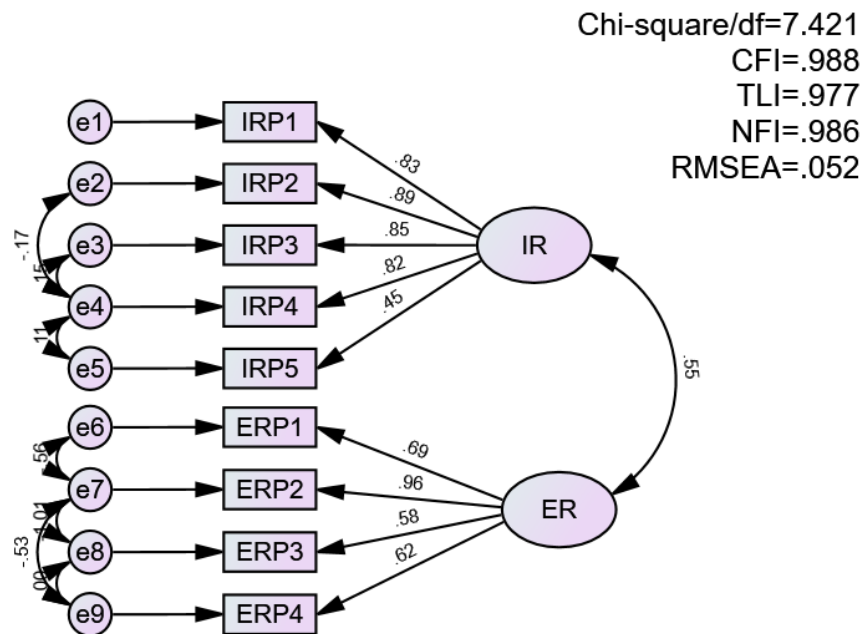


Figure 23. Respecified CFA model diagram for the construct of job performance.

Table 26: Validity measures for the respecified CFA model for the construct of job performance

	CR	AVE	MSV	MaxR(H)	IR	ER
IR	0.884	0.615	0.304	0.916	0.784	
ER	0.811	0.528	0.304	0.933	0.551***	0.727

Significance of Correlations: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$
Source: Compiled and calculated from the CFA results.

Now, the model of the second-order CFA of the construct can be measured as per the diagram given in Figure 24. The model was found to have an excellent fit, and the convergent validity of the “job performance” construct was ensured by the value of AVE. Table 27 displays the construct’s validity measures.

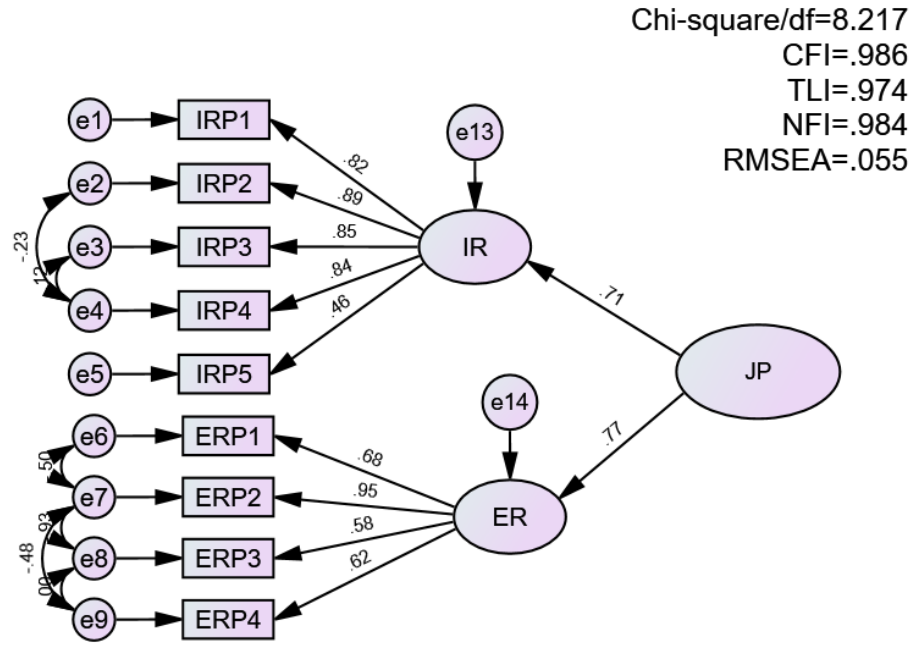


Figure 24. Second-order CFA model diagram for the construct of job performance.

Table 27: *Validity measures for the second-order CFA model for the construct of job performance*

	CR	AVE	MSV	MaxR(H)	JP
JP	0.713	0.555	0.000	0.717	0.745

Source: Compiled and calculated from the results of CFA.

4.3.5.3.5 Perceived Overall Justice

The construct of perceived overall justice was based on six items. The model was found to have an excellent fit after a few modifications in the model by allowing for the covariance of a few error terms. The scale remained unidimensional. The validity of the scale was found to be good by the measures. The diagram of the model and the measures of validity are given in Figure 25 and Table 28, respectively.

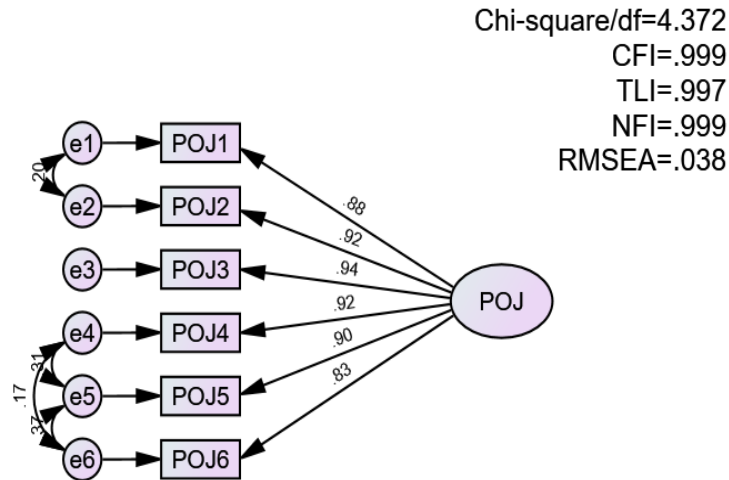


Figure 25. CFA model diagram for the construct of perceived overall justice.

Table 28: *Validity measures for the CFA model for the construct of perceived overall justice*

	CR	AVE	MSV	MaxR(H)	POJ
POJ	0.962	0.809	0.000	0.966	0.899

Source: Compiled and calculated from the CFA results.

4.3.5.4 Validity of all constructs in the study

In the preceding analyses, we ensured that all the scales possessed convergent validity. The second- and third-order CFA analyses on multi-dimensional scales could also ensure discriminant validity for constructs in their subscales. However, the unidimensional scales could not test for their discriminant validity. This would be possible only if we considered all constructs together, without second-and third-order constructs, in a CFA model. This model is diagrammatically given in Figure 26, with estimates.

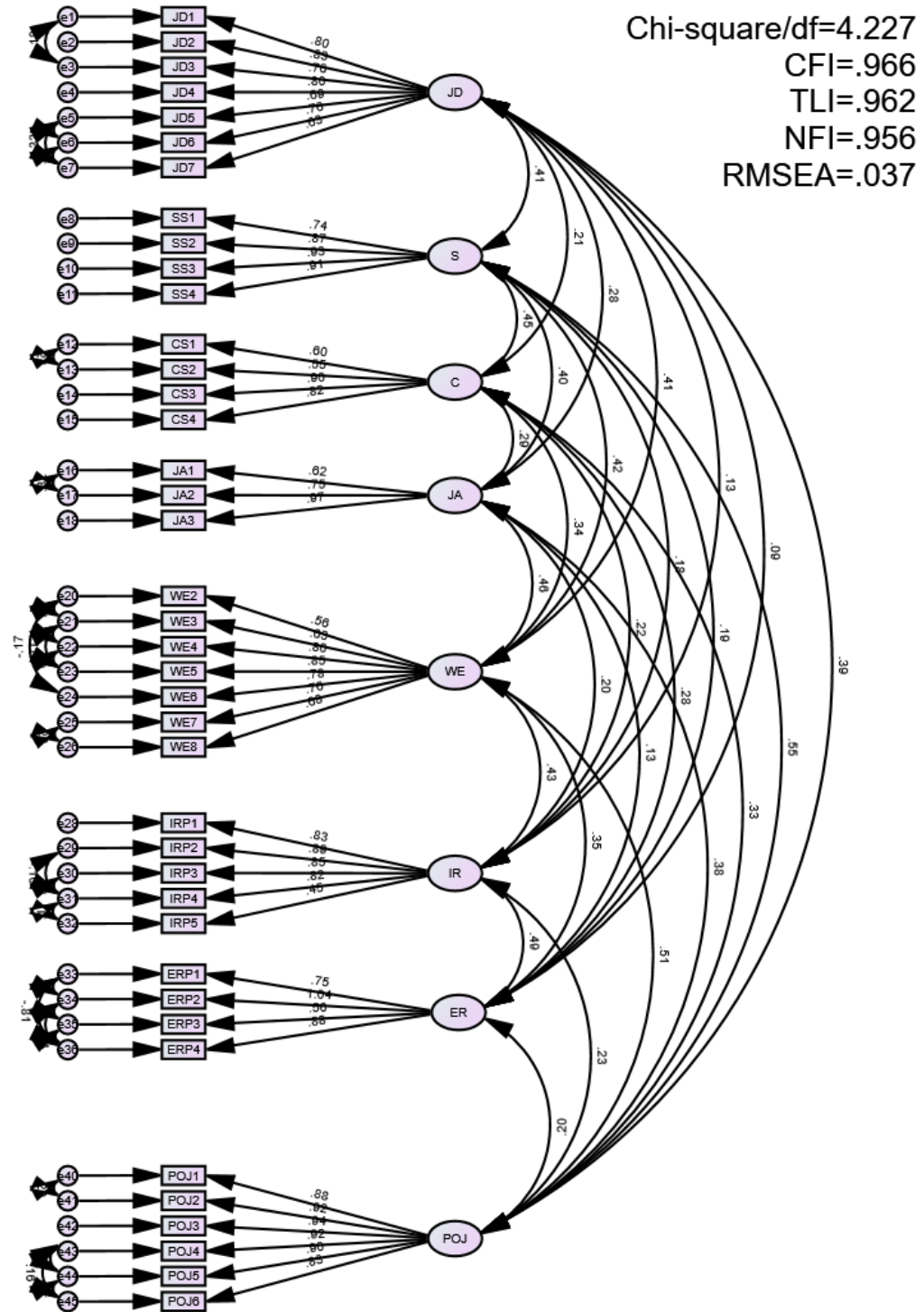


Figure 26. Respecified CFA model diagram for all constructs in the study.

The model fit measures are reported in Table 29, which shows excellent fit for all the listed fit measures except for CMIN/df, which is at the level of “acceptable” only. As noted

earlier, chi-square-based measures tend to show lesser model fit as the sample size gets larger. Altogether, it can be concluded that the model is a success by way of its fitness.

The unstandardized regression weights, standardized regression weights, correlation values, and the validity measures for all the constructs are given in Tables 30 to 33. The unstandardized regression weights and their significance level (p) in Table 30 show that all weights are statistically significant at the .001 level. The standardized weights given in Table 31 help to determine the comparative significance of each item to their constructs. The correlations between the constructs and the items are given in Table 32. The convergent validity and discriminant validity of all the constructs in the present research can be read from the various measures given in Table 33.

Table 29: *Fit measures for the re-specified CFA model for all constructs in the study*

Measure	Estimate	Threshold	Interpretation
CMIN	2907.904	--	--
DF	688.000	--	--
CMIN/DF	4.227	Between 1 and 3	Acceptable
CFI	0.966	>0.95	Excellent
TLI	0.962	>0.95	Excellent
NFI	0.956	>0.95	Excellent
SRMR	0.045	<0.08	Excellent
RMSEA	0.037	<0.06	Excellent

Source: Compiled and calculated from the results of CFA.

Table 30: *Unstandardized regression weights in the respecified CFA model for all constructs in the study*

			Estimate	S.E.	C.R.	P	Label
JD1	<---	JD	1				
JD2	<---	JD	1.106	0.025	43.488	***	par_1
JD3	<---	JD	1.114	0.031	36.233	***	par_2
JD4	<---	JD	1.15	0.028	41.815	***	par_3
JD5	<---	JD	0.954	0.028	34.642	***	par_4
JD6	<---	JD	1.12	0.029	39.192	***	par_5
JD7	<---	JD	0.949	0.030	31.416	***	par_6
SS1	<---	S	1				
SS2	<---	S	1.356	0.031	43.970	***	par_7
SS3	<---	S	1.448	0.031	47.048	***	par_8
SS4	<---	S	1.407	0.031	46.073	***	par_9
CS1	<---	C	1				
CS2	<---	C	1.015	0.040	25.572	***	par_10

CS3	<---	C	1.581	0.053	29.825	***	par_11
CS4	<---	C	1.631	0.055	29.435	***	par_12
JA1	<---	JA	1				
JA2	<---	JA	1.302	0.036	36.508	***	par_13
JA3	<---	JA	1.61	0.065	24.933	***	par_14
WE2	<---	WE	1				
WE3	<---	WE	1.234	0.050	24.786	***	par_15
WE4	<---	WE	1.392	0.052	26.801	***	par_16
WE5	<---	WE	1.45	0.052	27.638	***	par_17
WE6	<---	WE	1.066	0.042	25.291	***	par_18
WE7	<---	WE	1.324	0.050	26.368	***	par_19
WE8	<---	WE	1.046	0.042	24.696	***	par_20
IRP1	<---	IR	1				
IRP2	<---	IR	1.109	0.022	50.755	***	par_21
IRP3	<---	IR	0.984	0.020	48.431	***	par_22
IRP4	<---	IR	0.992	0.024	41.659	***	par_23
IRP5	<---	IR	0.744	0.034	21.717	***	par_24
ERP1	<---	ER	1				
ERP2	<---	ER	1.201	0.055	21.864	***	par_25
ERP3	<---	ER	0.959	0.066	14.595	***	par_62
ERP4	<---	ER	1.232	0.066	18.545	***	par_26
POJ1	<---	POJ	1				
POJ2	<---	POJ	1.011	0.013	77.085	***	par_27
POJ3	<---	POJ	1.023	0.014	72.245	***	par_28
POJ4	<---	POJ	0.996	0.014	68.917	***	par_29
POJ5	<---	POJ	0.985	0.015	64.960	***	par_30
POJ6	<---	POJ	0.913	0.017	54.966	***	par_31

Significance: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled from the results of CFA.

Table 31: Standardized regression weights in the respecified CFA model for all constructs in the study

			Estimate
JD1	<---	JD	0.8
JD2	<---	JD	0.827
JD3	<---	JD	0.755
JD4	<---	JD	0.801
JD5	<---	JD	0.688
JD6	<---	JD	0.761
JD7	<---	JD	0.634
SS1	<---	S	0.741
SS2	<---	S	0.873
SS3	<---	S	0.930
SS4	<---	S	0.911
CS1	<---	C	0.600
CS2	<---	C	0.546
CS3	<---	C	0.897
CS4	<---	C	0.817
JA1	<---	JA	0.622
JA2	<---	JA	0.748
JA3	<---	JA	0.965
WE2	<---	WE	0.563
WE3	<---	WE	0.626

WE4	<---	WE	0.802
WE5	<---	WE	0.848
WE6	<---	WE	0.785
WE7	<---	WE	0.762
WE8	<---	WE	0.684
IRP1	<---	IR	0.829
IRP2	<---	IR	0.889
IRP3	<---	IR	0.852
IRP4	<---	IR	0.820
IRP5	<---	IR	0.446
ERP1	<---	ER	0.749
ERP2	<---	ER	1.044
ERP3	<---	ER	0.560
ERP4	<---	ER	0.881
POJ1	<---	POJ	0.885
POJ2	<---	POJ	0.918
POJ3	<---	POJ	0.938
POJ4	<---	POJ	0.922
POJ5	<---	POJ	0.900
POJ6	<---	POJ	0.832

Significance: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled from the results of CFA.

Table 32: *Correlations in the re-specified CFA model for all constructs in the study*

			Estimate
JD	<-->	S	0.406
JD	<-->	C	0.211
JD	<-->	JA	0.285
JD	<-->	WE	0.411
JD	<-->	IR	0.133
JD	<-->	ER	0.086
POJ	<-->	JD	0.386
S	<-->	C	0.446
S	<-->	JA	0.402
S	<-->	WE	0.422
S	<-->	IR	0.182
S	<-->	ER	0.190
POJ	<-->	S	0.549
C	<-->	JA	0.294
C	<-->	WE	0.344
C	<-->	IR	0.224
C	<-->	ER	0.284
POJ	<-->	C	0.328
JA	<-->	WE	0.459
JA	<-->	IR	0.204
JA	<-->	ER	0.134

POJ	<-->	JA	0.377
WE	<-->	IR	0.433
WE	<-->	ER	0.346
POJ	<-->	WE	0.510
IR	<-->	ER	0.488
POJ	<-->	IR	0.235
POJ	<-->	ER	0.199

Significance: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Source: Compiled from the results of CFA.

Table 33: *Validity measures for the CFA model for all constructs in the study*

	CR	AVE	MSV	Max R(H)	JD	S	C	JA	WE	IR	ER	POJ
JD	0.902	0.570	0.169	0.909	0.755							
S	0.923	0.752	0.301	0.940	0.406* **	0.867						
C	0.814	0.533	0.199	0.877	0.211* **	0.446* **	0.730					
JA	0.829	0.626	0.211	0.939	0.285* **	0.402* **	0.294* **	0.791				
WE	0.887	0.534	0.260	0.903	0.411* **	0.422* **	0.344* **	0.459***	0.731			
IR	0.884	0.615	0.238	0.916	0.133* **	0.182* **	0.224* **	0.204***	0.433* **	0.784		
ER	0.893	0.686	0.238	1.171	0.086* **	0.190* **	0.284* **	0.134***	0.346* **	0.488***	0.828	
POJ	0.962	0.810	0.301	0.966	0.386* **	0.549* **	0.328* **	0.377***	0.510* **	0.235***	0.199* **	0.900

Significance: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Source: Compiled and calculated from the results of CFA.

It can now be observed that all the constructs in the modified scales have validity as per both the convergence validity and discriminant validity criteria. The CFA model, in which all the scales of the present study are put together, is presented in Figure 27. It includes the second-order and third-order constructs of multidimensional scales and all single constructs of unidimensional scales.

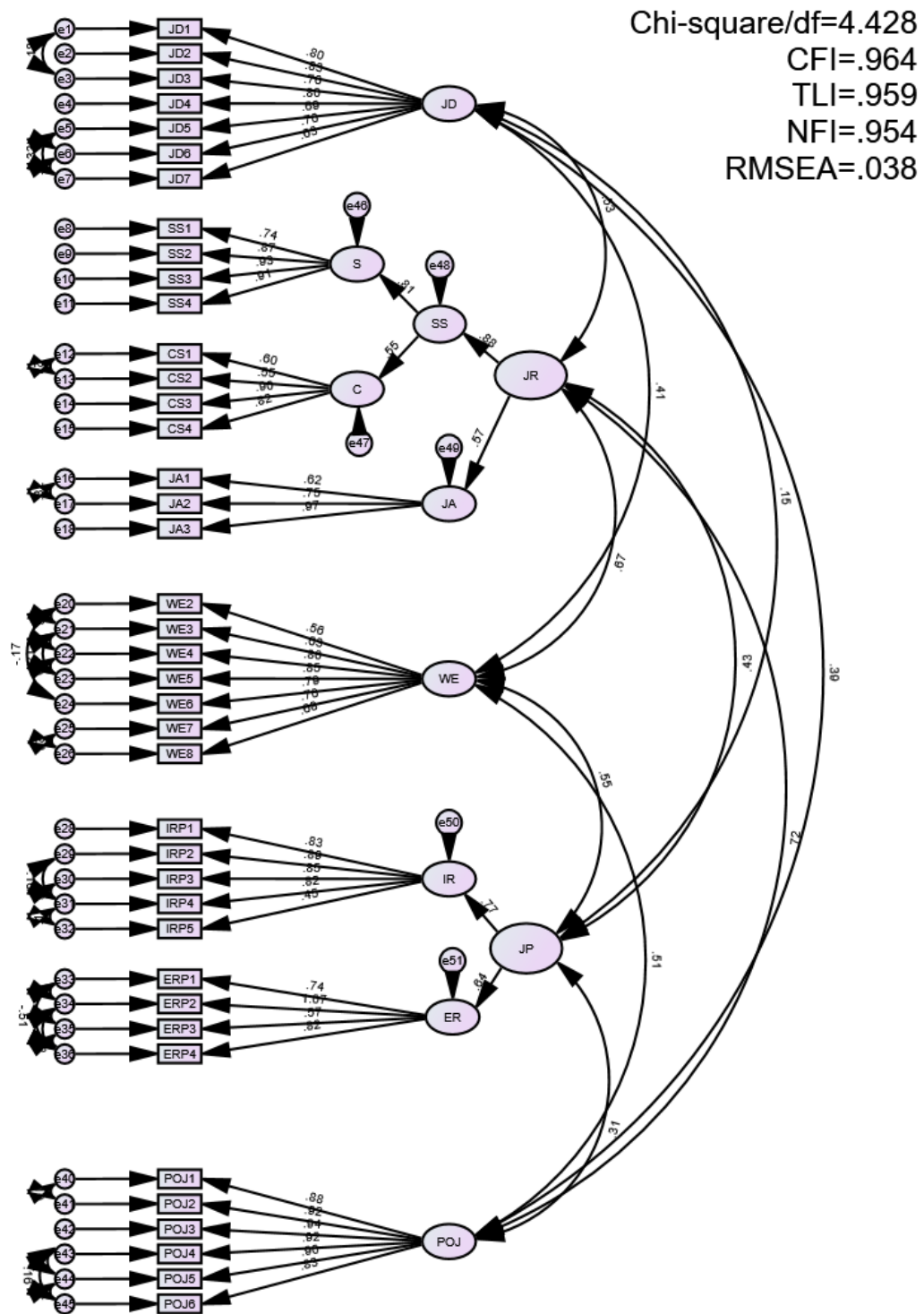


Figure 27. Respecified CFA model diagram for all scales in the study.

4.3.5.5 Reliability Revisited

The modifications in the scales caused by dropping variables, splitting the scales into subscales through the regrouping of items, and merging items from different subscales to form

a single scale all required a reconsideration and remeasurement of the reliability of the scales using alpha and omega. The results are given in Table 34. All scales remained qualified with good reliability.

Table 34: *Results of the reassessment of reliability of scales*

No.	Scale	Items	Mean	SD	Cronbach's α	McDonald's ω
1	Job Demands	7	3.07	.83	.91	.91
2	Job Resource	11				
2.1	Social Support	8				
2.1.1	Supervisors' Support	4	3.62	.82	.92	.92
2.1.2	Co-workers' Support	4	3.91	.60	.81	.82
2.2	Job Autonomy	3	3.56	.91	.85	.85
3	Work Engagement	7	4.14	.73	.89	.89
4	Job Performance	9				
4.1	In-role Performance	5	4.43	.52	.86	.89
4.2	Extra-role Performance	4	4.17	.52	.73	.75
5	Perceived Overall Justice	6	3.58	.89	.96	.97

Source: Computed from the Primary Survey Data.

4.3.6 Conclusion

After conducting the reliability and validity examinations, the scales, subscales, and the items to be used for further analyses in the present research can be listed as shown in Table 35.

Table 35: *Scales, subscales, and items in the present research*

Scale	Sub Scale	Sub Scale	Item Code	Items
Job Demands (JD)	Job Demands (JD)		JD1	I have a heavy workload
			JD2	I need to spend extra time to finish a task
			JD3	I have to manage the backlog at work
			JD4	I have issues with the workload
			JD5	I had to work faster than usual to get my work done
			JD6	I was pressed for time
			JD7	I had to keep up with a high working pace
Job Resources (JR)	Social Support (SS)	Supervisors' Support (S)	SS1	My supervisor is available when I am in need.
			SS2	I can share my joys and sorrows with my supervisor
			SS3	My supervisor is a real source of comfort to me
			SS4	My supervisor cares about my feelings
		Co-workers' Support (C)	CS1	My co-workers really try to help me
			CS2	I can count on my co-workers when things go wrong
			CS3	I have co-workers with whom I can share my joys and sorrows
			CS4	I can talk about my problems with my co-workers
	Job Autonomy (JA)		JA1	I have significant autonomy in determining how I do my job

			JA2	My job permits me to decide on my own how to go about doing my work
			JA3	My job gives me a considerable opportunity for independence and freedom in how I do the job
Work Engagement (WE)	Work Engagement (WE)		WE2	At my job, I feel strong and vigorous
			WE3	When I get up in the morning, I feel like going to work
			WE4	I am enthusiastic about my job
			WE5	My job inspires me
			WE6	I am proud of the work that I do
			WE7	I feel happy when I am working intensely
			WE8	I am immersed in my work
Job Performance (JR)	In-role Performance (IRP)		IRP1	I adequately complete the duties assigned to me
			IRP2	I fulfill the responsibilities specified in my job descriptions
			IRP3	I perform tasks that are expected of me
			IRP4	I meet the formal performance requirements of the job
			IRP5	I engage in activities that will directly affect my performance evaluation
	Extra-role Performance (ERP)		ERP1	I help others who have been absent
			ERP2	I help others who have heavy workloads
			ERP3	I assist the supervisor with his/her work (when not asked from me)
Perceived Overall Justice (POJ)	Perceived Overall Justice (POJ)		ERP4	I take time to listen to co-workers' problems and worries
			POJ1	Overall, I'm treated fairly by my organization
			POJ2	In general, I can count on this organization to be fair
			POJ3	In general, the treatment I receive around here is fair
			POJ4	Usually, the way things work in this organization are fair
			POJ5	For the most part, this organization treats its employees fairly
			POJ6	Most of the people who work here would say they are often treated fairly

4.4 Exploratory and Comparative Analysis of Scales

4.4.1 Introduction

As explained in section 4.3, the present research examined the reliability and validity of the scales using the appropriate statistical tools, including confirmatory factor analysis (CFA). With adequate changes, the items and the corresponding scales were finalized for analysis. Now, we need to calculate the values of each scale and conduct a comparative study of their values across demographic variables. This task is presented in the following sections.

4.4.2 Calculation of Scale Values

The details of scales and their constituent items are summarized in Table 36.

Table 36: *Scales and the number of items below them*

Scale	Sub Scale	Sub Scale	No. of Items
Job Demands (JD)	-	-	7
Job Resources (JR)	Social Support (SS)	Supervisors' Support (S)	4
		Co-workers' Support (C)	4
	Job Autonomy (JA)	-	3
Work Engagement (WE)	-	-	7
Job Performance (JR)	In-role Performance (IRP)	-	5
	Extra-role Performance (ERP)	-	4
Perceived Overall Justice (POJ)	-	-	6

The value of each subscale/scale was calculated from the items below them. Each scale, if it had subscales below it, was calculated from those subscales. The mean values of the scales and subscales were calculated as the *arithmetic mean* of the items or subscales below them. Equal weight was given to all items in all calculations.

4.4.3 Descriptive Statistics of the Scales

The descriptive statistics of the scales and items are presented in this section. This gives us a clear picture of the magnitude and nature of each. It also helps us to have a basic univariate understanding of the measure of each scale, enabling us to advance further into multivariate analyses. Initially, the major scales were examined, five in number, to generate a broad picture of the study. After that, each scale and subscale were summarized with descriptive statistics measures, along with its items. As mentioned earlier, the picture emerging from this analysis gives valuable insight into the constructs we intend to analyze in detail.

Table 37 gives the essential descriptive statistics of each major scale, which include the mean, standard deviation (SD), skewness, and kurtosis. *Mean* gives the central tendency of the values in the scale, *SD* measures the spread of the values from their mean, *skewness* measures the distraction from symmetry, and *kurtosis* gives a measure of the peakedness of the distribution (Field, 2005).

It was ensured that the data set remained free from missing values. The distributions of all the scales had minimum and maximum values of 1 and 5, respectively. The highest average value (4.30) was scored by the “job performance” scale and the lowest score (2.93) by the “job demands” scale. The standard deviation of all the major scales was reported as less than 1, meaning low variation from the central value, the mean. Only one scale, “work engagement,” had skewness greater than 1. However, with regard to kurtosis, two scales, work engagement and job performance, had values greater than 1.

According to Duncan (1997), skewness is commonly measured by saying that if the *value is greater than +1 or lower than -1*, this is a sign that the distribution is substantially skewed. Positive skewness or skewed right means that the right tail of the distribution is longer than the left tail. The left tail of the data is longer when skewness is negative, and in general, negative skewness means that the data are negatively skewed. Skewed data are completely symmetrical when skewness = 0 (Duncan, 1997).

According to general guidelines, for kurtosis, a number greater than +1 indicates excessive peakedness [Leptokurtic], and a number lower than -1 indicates excessive flatness [Platykurtic]. Leptokurtic distributions have a higher peak and longer tails than normal distributions. When the kurtosis value is close to zero, the shape is considered near normal. The distribution has a negative value if it is less peaky than usual (Duncan, 1997). The measures of skewness and kurtosis show that the distribution of the scales cannot be expected to strictly follow a normal distribution. Among all the scales, the work engagement and job performance scales exhibited the most non-normal features. It should be noted that tests of normality—Kolmogorov-Smirnov and Shapiro-Wilk—indicated that no scales in the present study followed a normal distribution. All tests for all scales showed Sig. <.001. However, the values of skewness and kurtosis measures showed less than +1 and greater than -1, meaning that the departure from normality was not very wide. In this context, it can be expected that as

the sample size increases, the chances of the scale variables following a normal distribution increase. The scale variables could be treated as variables that follow a normal distribution, as the Central Limit Theorem propounds (Fischer, 2010; Glen, 2022; Mishra, 2019):

Increasing sample size causes the sampling distribution to converge to a normal distribution where the mean equals the population means and the standard deviation equals $\sigma/\sqrt{n}$, where σ = Population standard deviation, and n = sample size. Since the square root of the sample size is in the denominator of the sampling distribution, the standard deviation of the distribution becomes smaller as the sample size (n) increases (Frost, 2018). In other words, as the sample size increased, the sampling distribution became more concentrated around the mean (Frost, 2018).

Table 37: *Descriptive statistics of the major scales*

Scales	Mean	Std. Deviation	Skewness	Kurtosis
Job Demands	2.93	.834	.026	-.039
Job Resources	3.67	.633	-.403	.452
Work Engagement	4.14	.734	-1.112	1.488
Job Performance	4.30	.453	-.591	2.081
Perceived Overall Justice	3.68	.886	-.911	.944

Boxplots summarize the descriptive statistics of a variable in an easy and intuitive manner. The boxplots of the major scales are shown in Figure 28. Field (2005) mentioned that a boxplot is an effective way to visualize data distribution. Several statistical measures are presented in a boxplot. The different parts of the boxplot are as follows:

- In each box, the median is indicated by a dark line in the middle. A value greater than the median was found in half of the cases, and a value lower in the other half. The median is a measure of the central tendency, just like the mean. In contrast to the mean, it is less affected by extreme cases.
- The 25th percentile is shown at the bottom of the box. A quarter of the cases have values below the 25th percentile. The 75th percentile is shown at the top of the box. The value

of 25% of cases is above the 75th percentile. In other words, 50% of the cases are contained within the box. Hinges are used to indicate the top and bottom of the box.

- Inside fences or whiskers are the T-bars that extend from the boxes. These extend to 1.5 times the height of the box or to the minimum or maximum values if no case falls within that range. It is expected that approximately 95% of the data will fall between the inner fences if the data are distributed normally.
- The points are outliers that do not fall within the inner fence, and they are extreme values. An asterisk or star indicates an extreme outlier, a value more than three times the height of the box.

The box plots show that all of the research scales were affected by outliers, except for job demands. Perceived overall justice was affected in such a way that its median was pushed to the edge of the box (near to the Q3 – the third Quartile) value. However, it may be noted that all other constructs had a similar magnitude of variation, as given by the length of the box, measured by the interquartile range (IQR).

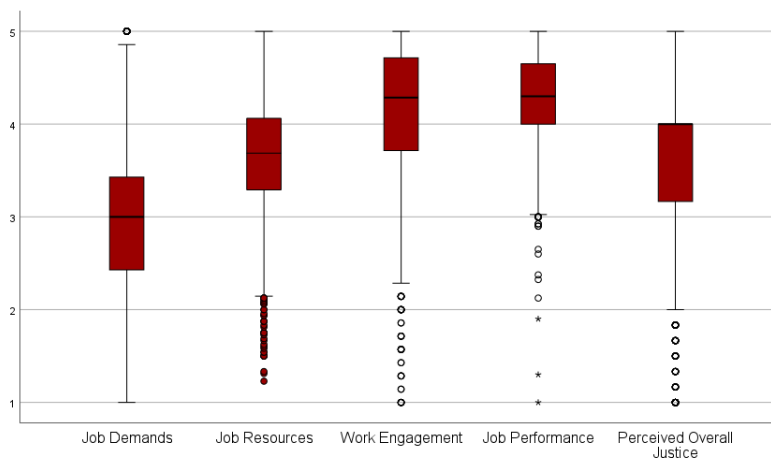


Figure 28. Box plots of scales.

Figure 29 presents the scatter plot matrix (SPLOM) of the major scales. The diagonal boxes exhibit the histogram of the corresponding scale values. This helps us to understand the distributions of the scale variables with a bird's-eye view. Hamilton (1990) stated that a histogram displays the frequency distribution of a variable, which may provide information

about the distribution type, and checks to see if it is skewed. The scatterplot matrix illustrates the values of a number of variables in comparison with one another. The graph shows how the variables are related.



Figure 29. Scatter plot matrix of the major scales.

Each of the scales is taken up for detailed examination and understanding in the following sections.

4.4.3.1 Job Demands

Based on what was done in this research, the scale of job demands consists of seven items. Table 38 gives descriptive statistics for each item, as well as for the scale. The mean

value of the scale is 2.93, ranging from 2.46 to 3.28 for the items. The SD is found to have minimum values near 1, indicating low levels of variation from the means for the scale and for the items. As mentioned earlier, skewness and kurtosis indicate the shape of the distribution. Here, both have values close to zero, indicating that the scales might tend to follow normal distribution. However, at the same time, it should be noted that the scale and all the items except for one (JD1) have negative values for kurtosis, showing the platykurtic shape of their distribution.

Table 38: *Descriptive statistics of the job demands items and scale*

	Items and Scale	Mean	Std. Deviation	Skewness	Kurtosis
JD1	I have a heavy workload	3.28	.922	-.313	.346
JD2	I need to spend extra time to finish a task	2.90	.986	.028	-.120
JD3	I have to manage the backlog at work	2.67	1.087	.205	-.443
JD4	I have issues with the workload	2.46	1.060	.311	-.453
JD5	I had to work faster than usual to get my work done	3.24	1.022	-.099	-.343
JD6	I was pressed for time	2.82	1.086	.042	-.491
JD7	I had to keep up with a high working pace	3.14	1.104	-.095	-.555
JD	Job Demands	2.93	.834	.026	-.039

The summary statistics of all the items and the scale is exhibited in the boxplots given in Figure 30. The boxplot of the scale, job demands, exhibits a near-normal shape, with only a few outlier values. Boxplots of the items show that all except one (JD 7) are affected by outliers either at higher or lower levels of their values. Their median values seem to merge with the borders of the boxes, which indicates skewness within the distribution. Given the boxplots, it may be concluded that although a nonnormal shape is visible, the scale and the items do not diverge wildly from normality, at least visually.

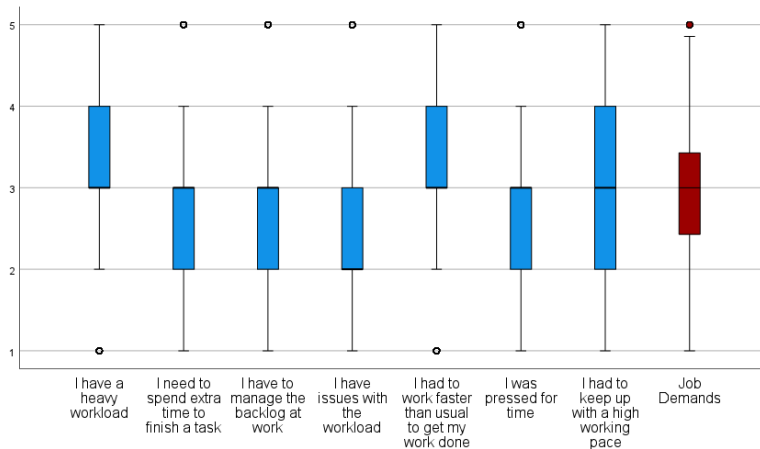


Figure 30. Boxplots of the job demands items and scale.

Figure 31 shows the histogram of the scale for the “job demands” construct. The superimposed normal curve helps to identify the visual resemblance of the distribution of the construct to the normal distribution.

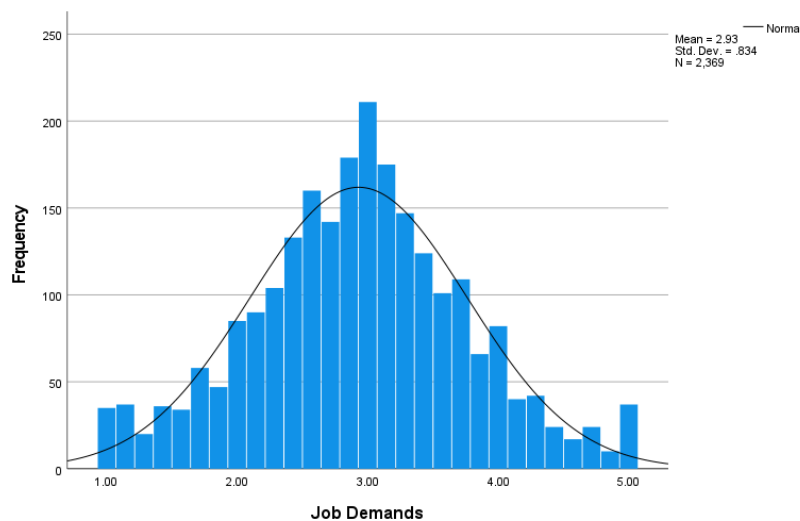


Figure 31. Histogram of the job demands scale.

After understanding the distribution and the descriptive statistics of the items and the scale, it is worth enquiring into their mean differences across different categories of the respondents, that is, by the demographic variables. This is shown in Table 39. The mean values of the scale “job demands” construct is calculated for each demographic variable, along with their standard errors.

Table 39: Mean differences of the job demands scale across demographic variables.

Scale	Category	N	Mean	Std. Error	Test for Equality of Means
-------	----------	---	------	------------	----------------------------

					Statistic	Df	2-Sided p
Agency	SEHA	1178	2.97	.024	2.30	2366.79	0.022
	MOHAP	1191	2.89	.024			
Nationality	Citizen	163	3.09	.064	2.63	187.76	0.009
	Non-Citizen	2206	2.92	.018			
Gender	Female	340	3.12	.043	4.59	470.88	< .001
	Male	2029	2.90	.019			
Age	18-25	28	2.98	.139	2.54	4, 148.06	0.042
	25-35	916	2.90	.029			
	35-45	898	2.95	.028			
	45-55	467	2.98	.036			
	55-65	60	2.68	.097			
Education	Diploma	508	2.64	.036	24.39	39.92	< .001
	Bachelor's	1639	2.99	.020			
	Master's	219	3.11	.059			
	PhD	3	3.57	.515			
Experience	0-5	251	3.05	.055	8.03	2, 595.01	< .001
	5-10	566	2.81	.038			
	10+	1552	2.95	.020			
Tenure	0-5	1080	2.86	.026	6.35	3, 995.19	< .001
	5-10	465	2.99	.042			
	10-15	487	3.04	.034			
	15+	337	2.91	.040			
	Total	2369	2.93	.017	-	-	-

The differences in the mean values were tested with parametric tools. The independent-sample *t*-test was used to test the mean difference in the case of *agency*, *nationality*, and *gender*, since they have only two categories under them. An independent sample *t*-test was used when we needed to compare only two mean values. For all other demographic variables, we needed to test for more than two mean values. For these, we used a one-way ANOVA test.

Both tests assumed equal variances within each category. However, Levene's test for all the variables found $p < .05$, suggesting a violation of the assumption of equal variances. In that context, Welch's test of independent sample *t*-test and one-way ANOVA were used. Winer (1971) demonstrated that Welch's *t*-test and Welch's ANOVA are parametric methods for comparing mean values among independent groups in which the variance among groups is not assumed to be equal. This statistic is robust when homogeneity is not taken into account when testing for mean equality.

The test results show that the scale variable job demands has statistically significant differences in its mean values across the different categories for all the demographic variables. The last column in Table 39 shows the p -value (i.e., the exact probability level). Since all of these have values less than .05, we can conclude that the differences are statistically significant at the 5% level. Thus, the difference in job demands across demographic variables give a lot of insight into job pressure among the respondents. Among the agencies, the respondents from SEHA were found to be burdened with greater job demands than those from the other agency, MOHAP. When looking at nationality, the citizens had more burden, and among the genders, females faced greater job demands. Respondents in the highest age group felt relaxed compared to other groups. It is surprising to see that better-educated respondents faced more burdens. At the same time, as one may expect, less experienced respondents had to meet more job demands. With regard to tenure, the respondents with 10–15 years faced more job demands than others.

4.4.3.2 Job Resources

The job resources scale consists of two subscales: social support and job autonomy. As confirmed, the “social support” subscale is the average of its two subscales: supervisors’ support and co-workers’ support. The descriptive statistics of the scale and all its subscales are given in Table 40. The mean value of the scale variable job resources is 3.67, and the values of all the subscales are above 3.5. The “co-workers’ support” subscale had the highest mean score, at 3.91. The “job autonomy” subscale had the lowest score, at 3.56, which means that the limiting component of the scale value of job resources is job autonomy. Also, the measure of variation, SD, is below 1 for all the items and scale values except for two items on the “job autonomy” subscale. All items and the scales were negatively skewed, meaning the bulk of the observations were cumulated toward the higher values. The kurtosis values, except for the items and the scale of “job autonomy,” were found to be positive, meaning more peaked

distribution compared to the shape of normal distribution. All items and the scale of “job autonomy” were found to have a flatter-than-normal shape.

Table 40: *Descriptive statistics of the job resources items and scale*

	Items and Scales	Mean	Std. Deviation	Skewness	Kurtosis
SS1	My supervisor is available when I am in need.	3.89	.818	-1.045	1.904
SS2	I can share my joys and sorrows with my supervisor	3.51	.940	-.679	.335
SS3	My supervisor is a real source of comfort to me	3.54	.943	-.681	.402
SS4	My supervisor cares about my feelings	3.54	.935	-.723	.447
S	Supervisors' Support	3.62	.819	-.710	.759
CS1	My co-workers really try to help me	4.07	.680	-1.049	3.425
CS2	I can count on my co-workers when things go wrong	3.83	.759	-.948	1.838
CS3	I have co-workers with whom I can share my joys and sorrows	3.97	.720	-1.054	2.748
CS4	I can talk about my problems with my co-workers	3.79	.815	-.938	1.443
C	Co-workers' Support	3.91	.596	-.690	2.146
SS	Social Support (Supervisors' Support & Co-workers' Support)	3.77	.606	-.567	1.459
JA1	I have significant autonomy in determining how I do my job	3.62	.996	-.443	-.098
JA2	My job permits me to decide on my own how to go about doing my work	3.53	1.078	-.484	-.256
JA3	My job gives me a considerable opportunity for independence and freedom in how I do the job	3.54	1.033	-.442	-.226
JA	Job Autonomy	3.56	.908	-.422	-.060
JR	JOB RESOURCES	3.67	.633	-.403	.452

The boxplots of the items and scales have a lot of features. It can easily be observed that the distribution of each subscale differs substantially from that of others, and the items and the scales are affected by outliers. To clarify, the first item in the “supervisors’ support” subscale and all items in the “co-workers’ support” subscale have “boxes” invisible in their boxplots. This is because their variation from the median is close to zero, as revealed by the IQR, but at the same time, they all are affected by outliers. All other items have their median merging with the top border (i.e., the Q3 values of their distribution). However, all the subscales and the scale variables have their average (median) value clearly defined differently from their Q3 values. The “social support” subscale is the most affected by outliers. This subscale became the more prominent reason that the scale did not to follow the normal distribution. Among the scales, “job autonomy” has the lowest number of outliers.

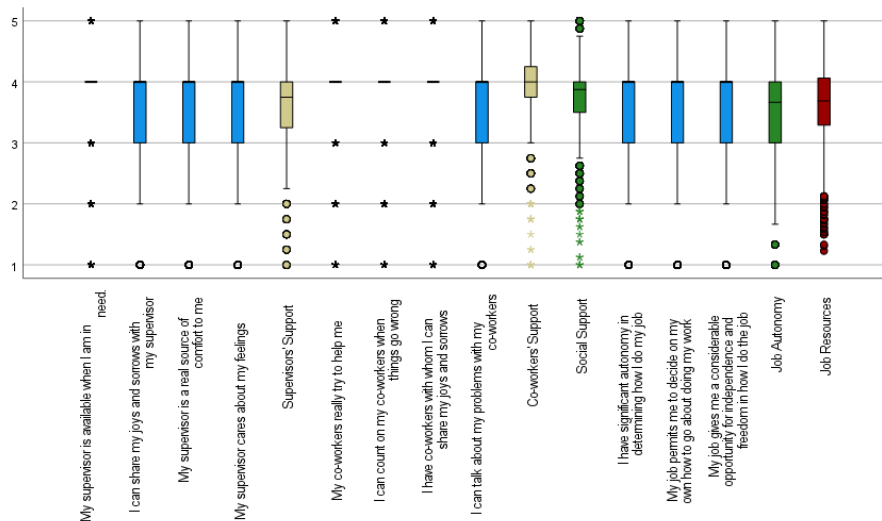


Figure 32. Boxplots of the job resources items and scale.
4.4.3.2.1 Supervisors' Support

The self-explanatory histogram of the “supervisors’ support” subscale in Figure 33 shows that most respondents have a value equal to 4. This gives the distribution a negative value for skewness and a positive value for kurtosis. With a long tail extending to the left side of the distribution, and with leptokutics peakedness, it exhibits departure from the normal distribution.

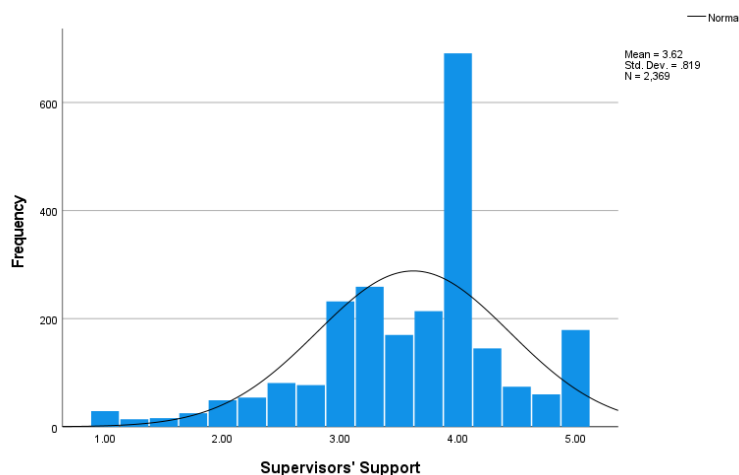


Figure 33. Histogram of the supervisors’ support scale.

The examination of the mean differences in “supervisors’ support” across the demographic variables is presented in Table 41, which shows that there is a statistically significant difference across agency, gender, education, and tenure. Respondents felt that

supervisors' support was better in MOHAP than in SEHA; it was also better for male nurses, the better-educated, and those with longer tenure.

Table 41: *Mean differences of the scale of supervisors' support across demographic variables*

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.56	.024	-3.62	2,364.15	< .001
	MOHAP	1,191	3.68	.023			
Nationality	Citizen	163	3.53	.075	-1.27	179.48	0.205
	Non-Citizen	2,206	3.63	.017			
Gender	Female	340	3.43	.051	-4.07	424.08	< .001
	Male	2,029	3.65	.018			
Age	18-25	28	3.64	.166	0.79	4,146.63	0.531
	25-35	916	3.62	.027			
	35-45	898	3.62	.028			
	45-55	467	3.61	.036			
	55-65	60	3.80	.105			
Education	Diploma	508	3.75	.035	5.89	39.92	0.014
	Bachelor	1,639	3.57	.020			
	Master	219	3.67	.063			
	PhD	3	4.08	.507			
Experience	0-5	251	3.60	.054	0.23	2,612.87	0.798
	5-10	566	3.64	.034			
	10+	1,552	3.62	.021			
Tenure	0-5	1,080	3.65	.024	2.79	3,963.78	0.04
	5-10	465	3.52	.041			
	10-15	487	3.62	.036			
	15+	337	3.67	.044			
	Total	2,369	3.62	.017	-	-	-

4.4.3.2.2 Co-workers' Support

There is no need to elaborate on the importance of the co-workers' support in measuring job resources in any workplace. It is even more important in the healthcare sector, particularly in the nursing profession. The histogram of the "co-workers' support" construct among the respondents showed an overall rosy picture. The distribution is skewed to higher values, indicating that most of the respondents received better support from their co-workers. The peak at value 4 showed that most of them felt strongly positive about the support they received.

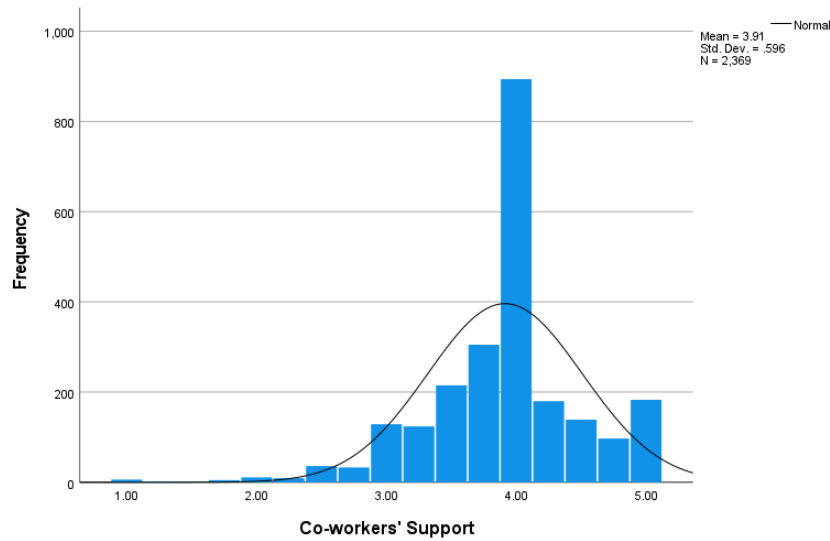


Figure 34. Histogram of the co-workers' support scale.

The mean differences were found to be significant only among the categories of age and experience with respect to the co-workers' support. The juniors, those in the lowest age group, received the highest support. Also, those with five to ten years of experience reported receiving the highest level of co-worker support.

Table 42: Mean differences of the scale of co-workers' support across demographic variables

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.93	.017	1.14	2,354.05	0.254
	MOHAP	1,191	3.90	.018			
Nationality	Citizen	163	3.82	.059	-1.69	176.35	0.093
	Non-Citizen	2,206	3.92	.012			
Gender	Female	340	3.88	.034	-0.98	442.86	0.329
	Male	2,029	3.92	.013			
Age	18-25	28	4.05	.142	3.77	4,145.88	0.006
	25-35	916	3.97	.020			
	35-45	898	3.89	.020			
	45-55	467	3.85	.026			
	55-65	60	3.90	.080			
Education	Diploma	508	3.94	.027	1.28	39.91	0.333
	Bachelor	1,639	3.91	.014			
	Master	219	3.84	.044			
	PhD	3	4.17	.441			
Experience	0-5	251	3.88	.045	7.16	2,590.62	< .001
	5-10	566	3.99	.025			
	10+	1,552	3.89	.015			
Tenure	0-5	1,080	3.95	.019	2.56	3,989.2	0.054
	5-10	465	3.91	.026			

	10-15	487	3.87	.024			
	15+	337	3.87	.033			
	Total	2,369	3.91	.012	-	-	-

4.4.3.2.3 Social Support

The scale of social support is the average of the subscales of supervisors' support and co-workers' support. Its distribution is revealed by the histogram in Figure 35. It is not surprising to see that the value of 4 is the highest frequency, as the same was read in the subscales. The majority of the respondents enjoyed social support on the positive side, but it is worth noting that the tail of the distribution extended to the lowest level, meaning that there were respondents who received low levels of social support in their workplaces.

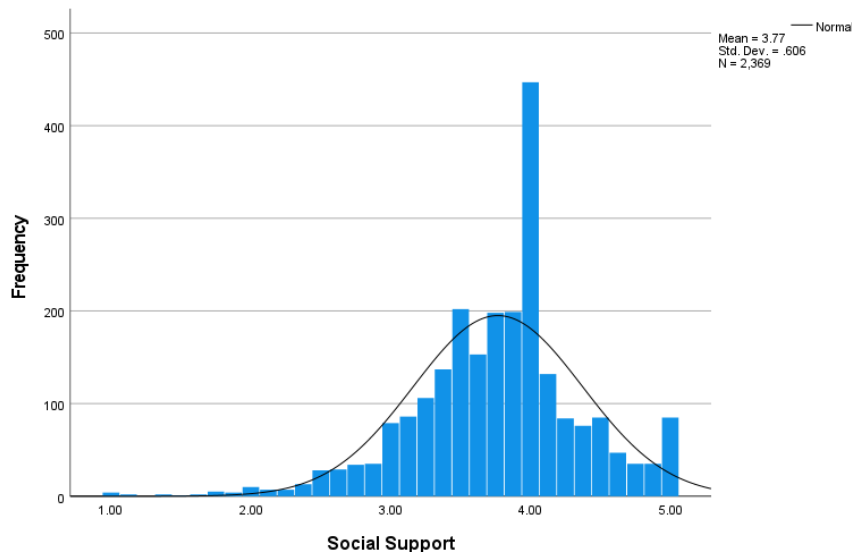


Figure 35. Histogram of the social support scale.

The differences in social support were examined, and the results are in Table 43, which differs significantly only in the gender category, as the males declared that they received better social support than did their female counterparts.

Table 43: Mean differences of the scale of social support across demographic variables

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.74	.017	-1.88	2,361.8	0.06
	MOHAP	1,191	3.79	.018			
Nationality	Citizen	163	3.67	.058	-1.7	177.89	0.092
	Non-Citizen	2,206	3.77	.013			
Gender	Female	340	3.66	.036	-3.32	433.74	< .001

	Male	2,029	3.79	.013			
Age	18-25	28	3.85	.141	1.41	4,146.39	0.234
	25-35	916	3.79	.020			
	35-45	898	3.75	.021			
	45-55	467	3.73	.026			
	55-65	60	3.85	.074			
Education	Diploma	508	3.84	.026	3.48	39.91	0.059
	Bachelor	1,639	3.74	.015			
	Master	219	3.75	.046			
	PhD	3	4.13	.473			
Experience	0-5	251	3.74	.043	2.56	2,597.22	0.078
	5-10	566	3.82	.025			
	10+	1,552	3.75	.015			
Tenure	0-5	1,080	3.80	.019	2.33	3,980.13	0.073
	5-10	465	3.71	.028			
	10-15	487	3.75	.025			
	15+	337	3.77	.033			
Total		2,369	3.77	.012	-	-	-

4.4.3.2.4 Job Autonomy

Job autonomy is another subscale of job resources. Its distribution is revealed by the histogram in Figure 36, which shows that for job autonomy, there are more respondents with lower levels when compared to other scales and items related to job resources. The distribution is negatively skewed and has a kurtosis that differs from that of a normal distribution.

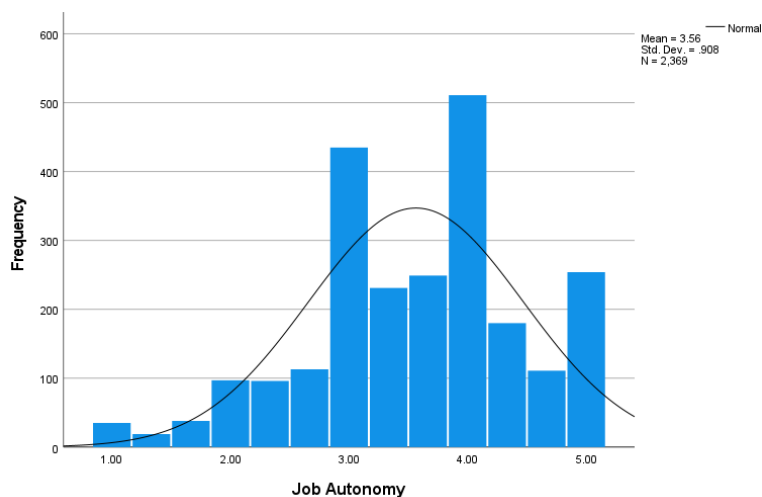


Figure 36. Histogram of the job autonomy scale.

The mean differences in job autonomy, as revealed by the tests conducted, are reported in Table 44. It is worth noting that job autonomy was found with statistically significant

differences among the age and experience categories. The senior-most in the age group and respondents with five to ten years of experience reported that they enjoyed the highest level of job autonomy compared to other groups.

Table 44: *Mean differences of the scale of job autonomy across the demographic variables*

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.55	.026	-0.95	2,366.79	0.342
	MOHAP	1,191	3.58	.026			
Nationality	Citizen	163	3.45	.075	-1.63	183.78	0.104
	Noncitizen	2,206	3.57	.019			
Gender	Female	340	3.51	.048	-1.19	468.69	0.233
	Male	2,029	3.57	.020			
Age	18-25	28	3.48	.196	3.47	4,146.51	0.01
	25-35	916	3.59	.030			
	35-45	898	3.51	.030			
	45-55	467	3.57	.043			
	55-65	60	3.92	.109			
Education	Diploma	508	3.57	.043	0.02	39.9	0.996
	Bachelor's	1,639	3.56	.022			
	Master's	219	3.56	.066			
	PhD	3	3.67	.882			
Experience	0-5	251	3.44	.060	3.97	2,616.63	0.019
	5-10	566	3.64	.037			
	10+	1,552	3.56	.023			
Tenure	0-5	1,080	3.58	.028	1.07	3,968.26	0.362
	5-10	465	3.50	.042			
	10-15	487	3.56	.041			
	15+	337	3.60	.050			
	Total	2,369	3.56	.019	-	-	-

4.4.3.3 Job Resources

The scale of job resources, calculated as the average of the subscales of social support and job autonomy, is presented in Figure 37. The distribution of the variable shows a more normal shape when compared to its own subscales. As we saw in Table 44, job resources has lower values for skewness and kurtosis than most of its items and subscales. Here, a person may witness an instance wherein a summation of a number of constructs tends to render the normal shape of distribution.

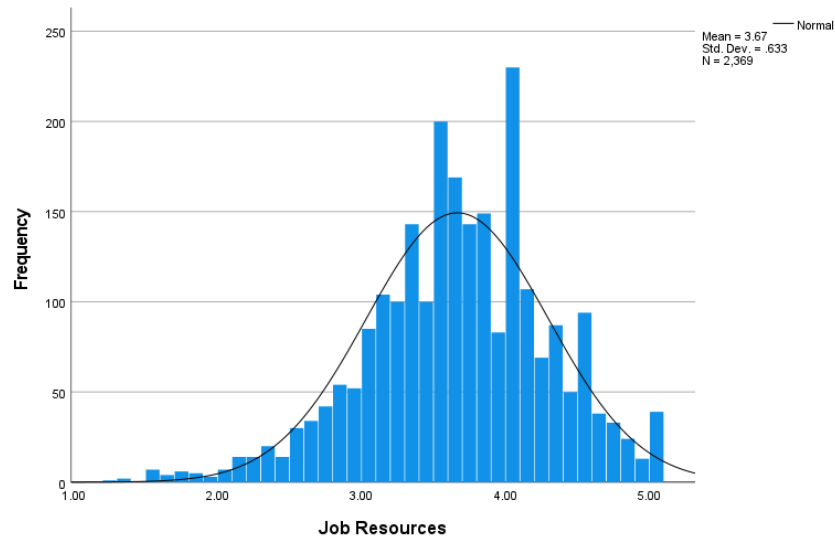


Figure 37. Histogram of the job resources scale.

The curious result of finding differences in job resources across different levels of demographic variables finds an answer in Table 45. First of all, the “job resources” scale does not differ across agencies. It may be remembered that SEHA was found to be better in terms of better-educated respondents. However, when it comes to the professional-level aspects of job resources, no difference was found across the respondents. The differences were found to be significant only across gender, age, and experience. While male respondents declared that they were endowed with better job resources, the senior-most respondents and those with five to ten years of experience found themselves with the best job resources.

Table 45: Mean differences of the scale of job resources across demographic variables

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.64	.018	-1.58	2,366.35	0.114
	MOHAP	1,191	3.69	.018			
Nationality	Citizen	163	3.56	.057	-1.95	180.38	0.052
	Non-Citizen	2,206	3.67	.013			
Gender	Female	340	3.58	.035	-2.52	454.01	0.012
	Male	2,029	3.68	.014			
Age	18-25	28	3.66	.147	3.15	4,146.53	0.016
	25-35	916	3.69	.021			
	35-45	898	3.63	.021			
	45-55	467	3.65	.028			
	55-65	60	3.89	.074			
Education	Diploma	508	3.71	.029	0.91	39.90	0.47
	Bachelor's	1,639	3.65	.015			

	Master's	219	3.65	.048			
	PhD	3	3.90	.670			
Experience	0-5	251	3.59	.043	4.50	2,609.44	0.011
	5-10	566	3.73	.026			
	10+	1,552	3.65	.016			
Tenure	0-5	1,080	3.69	.019	1.91	3,973.55	0.126
	5-10	465	3.61	.030			
	10-15	487	3.66	.028			
	15+	337	3.68	.035			
	Total	2,369	3.67	.013	-	-	-

4.4.3.4 Work Engagement

Most of the work engagement items and the scale have an average value greater than 4. Table 46 gives the estimates. Though the SD is found below 1 for all the items except one (WE3), all of them showed notable skewness and kurtosis, indicating a departure from the normal distribution.

Table 46: *Descriptive statistics of the items and scale of work engagement*

	Items and Scales	Mean	Std. Deviation	Skewness	Kurtosis
WE2	At my job, I feel strong and vigorous	3.76	.994	-.538	-.118
WE3	When I get up in the morning, I feel like going to work	3.76	1.102	-.670	-.210
WE4	I am enthusiastic about my job	4.17	.969	-1.125	.901
WE5	My job inspires me	4.26	.955	-1.290	1.220
WE6	I am proud of the work that I do	4.58	.759	-2.102	4.768
WE7	I feel happy when I am working intensely	4.21	.970	-1.202	1.025
WE8	I am immersed in my work	4.24	.854	-1.051	.961
WE	WORK ENGAGEMENT	4.14	.734	-1.112	1.488

A visual analysis of the boxplot of the items and the scale allows us to interpret the descriptive statistics. The scale construct was affected by outliers in the low ranges of values.

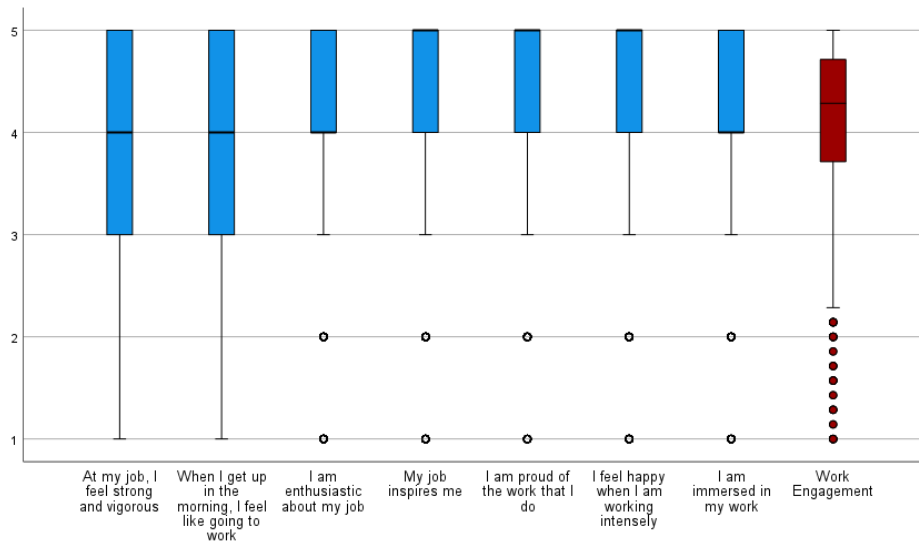


Figure 38. Boxplots of the items and scale of work engagement.

A histogram of the scale “work engagement” construct is presented in Figure 39, which exhibits the behavior of the variable, with notable skewness and kurtosis of the distribution.

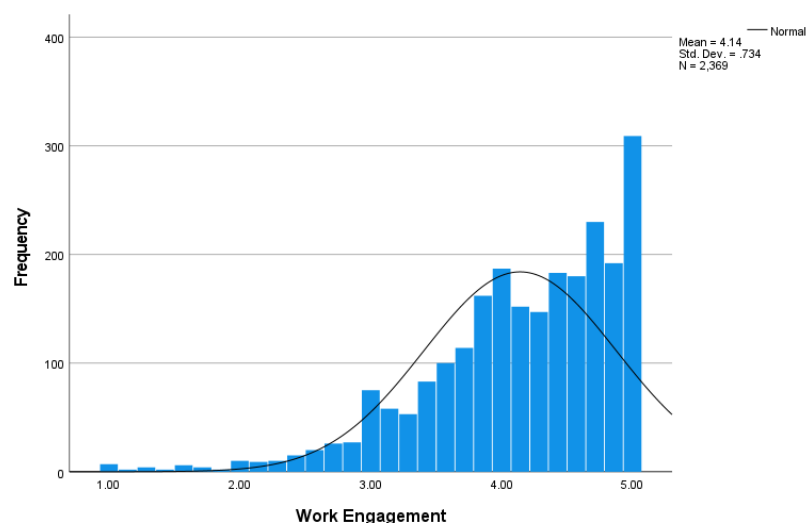


Figure 39. Histogram of the scale of work engagement.

The analysis of mean differences in work engagement across the categories of demographic variables provides interesting insights. The test results are shown in Table 47. In all the demographic variables, work engagement differed except for in agency. Thus, although job demands differed across agencies, it is interesting that the level of work engagement did not. As mentioned, all other comparisons showed that nurses who were noncitizens, male, senior-most, had the highest education levels, had five to ten years of experience, and had the

highest work tenure with the same employer all reported the highest levels of work engagement.

Table 47: *Mean differences of the scale of work engagement across demographic variables*

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	df	2-Sided p
Agency	SEHA	1,178	4.13	.022	-0.96	2,357.86	0.337
	MOHAP	1,191	4.16	.021			
Nationality	Citizen	163	3.93	.060	-3.68	184.27	< .001
	Noncitizen	2,206	4.16	.016			
Gender	Female	340	4.01	.043	-3.22	436.72	0.001
	Male	2,029	4.16	.016			
Age	18-25	28	3.91	.148	24.82	4,152.41	< .001
	25-35	916	4.11	.024			
	35-45	898	4.11	.026			
	45-55	467	4.20	.031			
	55-65	60	4.60	.047			
Education	Diploma	508	4.30	.031	9.74	39.93	0.003
	Bachelor's	1,639	4.11	.018			
	Master's	219	4.04	.055			
	PhD	3	4.14	.378			
Experience	0-5	251	4.01	.049	4.33	2,615.96	0.014
	5-10	566	4.16	.029			
	10+	1,552	4.15	.019			
Tenure	0-5	1,080	4.15	.022	4.44	3,967.59	0.004
	5-10	465	4.04	.036			
	10-15	487	4.14	.032			
	15+	337	4.23	.039			
	Total	2,369	4.14	.015	-	-	-

4.4.3.5 Job Performance

Job performance is calculated as the average of in-role performance and extra-role performance. The descriptive statistics of the items, subscales, and the scale are given in Table 48. The average of the scale construct was reported as 4.30. Among the subscales, in-role performance was rated higher than extra-role performance. SD was found to be low for all items and scales. Skewness is relatively higher for in-role performance than for extra-role performance and overall performance (JP). At the same time, the kurtosis value is more than 2 for the scale “job performance” construct, followed by the extra-role performance. The kurtosis value remained high for all items except for one (ERP3).

Table 48: Descriptive statistics of the items and scale of job performance

	Items and scales	Mean	Std. Deviation	Skewness	Kurtosis
IRP1	I adequately complete the duties assigned to me	4.49	.602	-1.226	3.463
IRP2	I fulfill the responsibilities specified in my job descriptions	4.49	.622	-1.390	4.016
IRP3	I perform tasks that are expected of me	4.51	.576	-1.025	2.421
IRP4	I meet the formal performance requirements of the job	4.46	.604	-1.169	3.611
IRP5	I engage in activities that will directly affect my performance evaluation	4.20	.833	-1.511	3.345
IR	In-role Performance	4.43	.522	-.931	2.647
ERP1	I help others who have been absent	4.24	.667	-.880	2.172
ERP2	I help others who have heavy workloads	4.44	.575	-.791	2.086
ERP3	I assist the supervisor with his/her work (when not asked from me)	3.80	.855	-.569	.217
ERP4	I take time to listen to co-workers' problems and worries	4.20	.698	-.987	2.385
ER	Extra-role Performance	4.17	.524	-.312	.910
JP	JOB PERFORMANCE	4.30	.453	-.591	2.081

The boxplot given in Figure 40 showed that the median of the items coincides with the upper edge of the boxes, meaning the median and Q3 become equal. It shows that the items, with the exception of only one, are skewed to the right, showing a negative value for skewness. The subscales and the scale construct appear with a number of outliers in the lower ranges of the values.

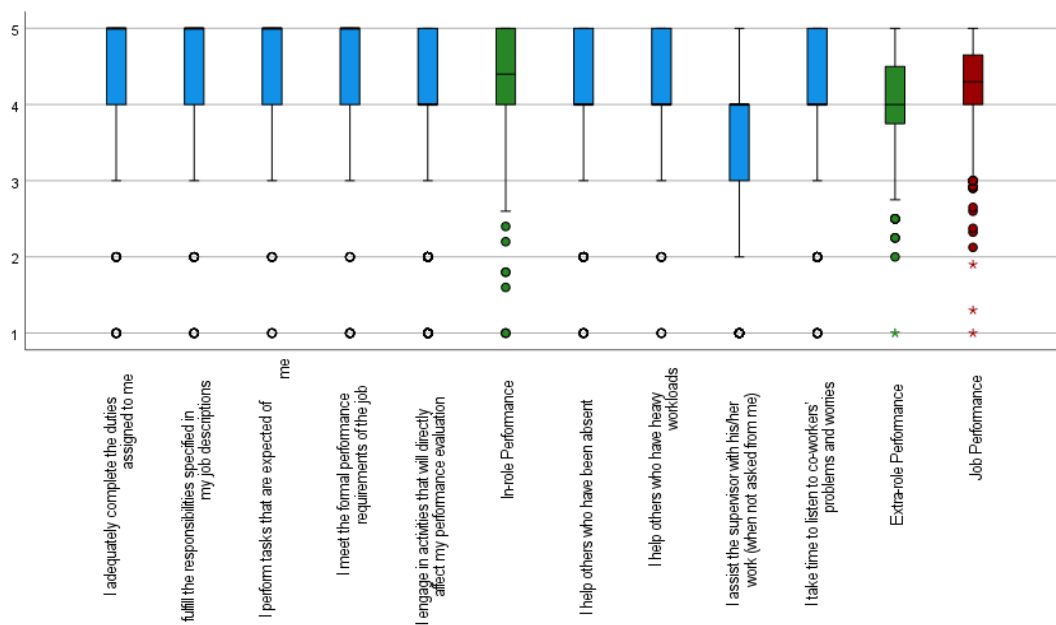


Figure 40. Boxplots of the items and scale of job performance.

4.4.3.5.1 In-role Performance

The histogram of the subscale in-role performance is given in Figure 41, which exhibits skewness and kurtosis from the normal shape very clearly. In fact, the distribution appears with dual-mode values, which are 4 and 5.

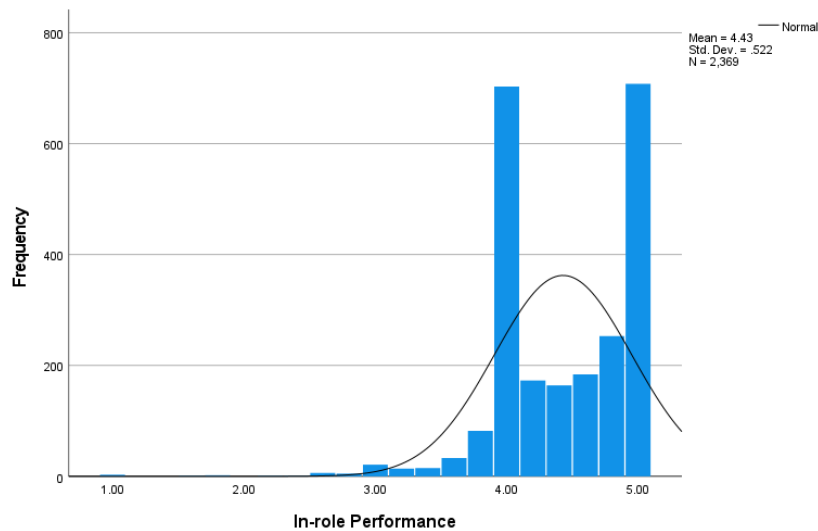


Figure 41. Histogram of the scale in-role performance.

Testing for the mean differences in the in-role performance of respondents reveals noteworthy findings. First, statistically significant differences were found across the agencies, wherein the respondents in SEHA were found to have a better score than their counterparts in MOHAP. It must be remembered that they had significant differences in education levels, with SEHA having better-educated respondents. It is not surprising to find that the most experienced respondents and those who had the longest tenure have the highest in-role performance score, a statistically significant difference from other groups.

Table 49: Mean differences of the scale of in-role performance across demographic variables

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	4.47	.014	3.34	2,351.77	< .001
	MOHAP	1,191	4.39	.016			
Nationality	Citizen	163	4.38	.039	-1.18	188.95	0.238
	Noncitizen	2,206	4.43	.011			
Gender	Female	340	4.43	.031	-0.01	434.31	0.991
	Male	2,029	4.43	.011			
Age	18-25	28	4.35	.119	1.48	4,147.28	0.211
	25-35	916	4.43	.017			

	35-45	898	4.42	.018			
	45-55	467	4.44	.024			
	55-65	60	4.55	.054			
Education	Diploma	508	4.42	.023	0.97	39.93	0.443
	Bachelor's	1,639	4.43	.013			
	Master's	219	4.48	.032			
	PhD	3	4.60	.306			
Experience	0-5	251	4.36	.032	3.82	2,627.51	0.022
	5-10	566	4.41	.021			
	10+	1,552	4.45	.013			
Tenure	0-5	1,080	4.41	.016	2.83	3,96.61	0.037
	5-10	465	4.41	.025			
	10-15	487	4.46	.024			
	15+	337	4.49	.028			
	Total	2,369	4.43	.011	-	-	-

4.4.3.5.2 Extra-role Performance

The distribution of the subscale “extra-role performance” is given in Figure 42, which gives a different picture than “in-role performance” with regard to its skewness and kurtosis. Though the skewness remains negative, its value is relatively less, and the kurtosis also has a lesser value. And, different from in-role performance, no dual-mode scenario is visible, and most of the observations have a value of 4.

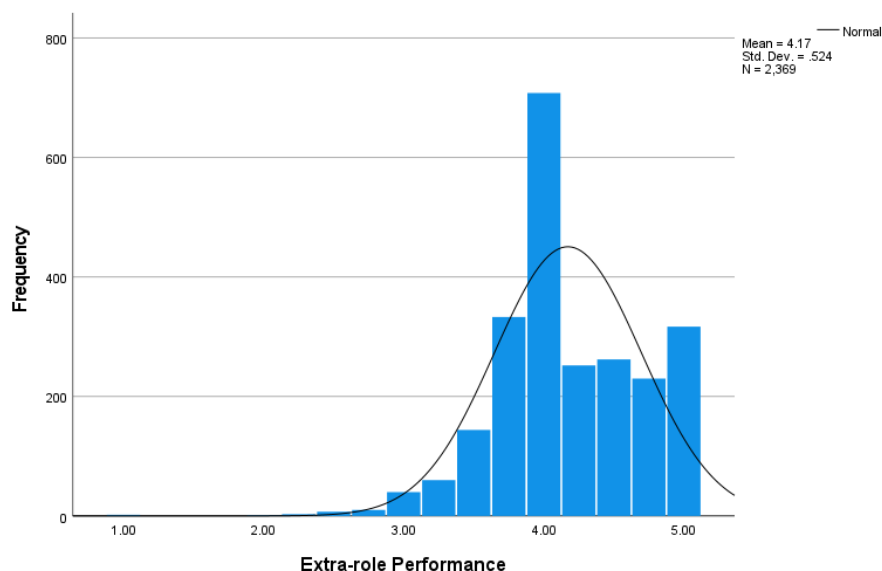


Figure 42. Histogram of the scale of extra-role performance.

Unlike in-role performance, no statistically significant difference was found for extra-role performance across the different demographic variables, except for education. Among the

levels of education, the highest average score was reported for respondents with the highest level of education.

Table 50: *Mean differences of the scale of extra-role performance across the demographic variables*

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	4.16	.015	-0.74	2,365.79	0.462
	MOHAP	1,191	4.18	.015			
Nationality	Citizen	163	4.15	.040	-0.63	187.75	0.529
	Noncitizen	2,206	4.17	.011			
Gender	Female	340	4.16	.029	-0.59	449.71	0.557
	Male	2,029	4.17	.012			
Age	18-25	28	4.12	.122	1.35	4,146.09	0.256
	25-35	916	4.19	.017			
	35-45	898	4.16	.017			
	45-55	467	4.16	.025			
	55-65	60	4.28	.066			
Education	Diploma	508	4.19	.025	5.03	310.01	0.022
	Bachelor's	1,639	4.16	.013			
	Master's	219	4.18	.037			
	PhD	3	4.75	.144			
Experience	0-5	251	4.19	.033	0.28	2,624.47	0.752
	5-10	566	4.18	.021			
	10+	1,552	4.17	.013			
Tenure	0-5	1,080	4.17	.015	1.43	3,953.16	0.233
	5-10	465	4.14	.026			
	10-15	487	4.21	.023			
	15+	337	4.17	.030			
	Total	2,369	4.17	.011	-	-	-

4.4.3.5.3 Job Performance

Now the focus is on the overall level of job performance, and its histogram is presented in Figure 43, which presents a non-normal shape for the distribution with negative skewness, as most respondents cumulated in the higher ranges of the values. It can also be seen that kurtosis is higher than normal, and the most repeated value was 4.

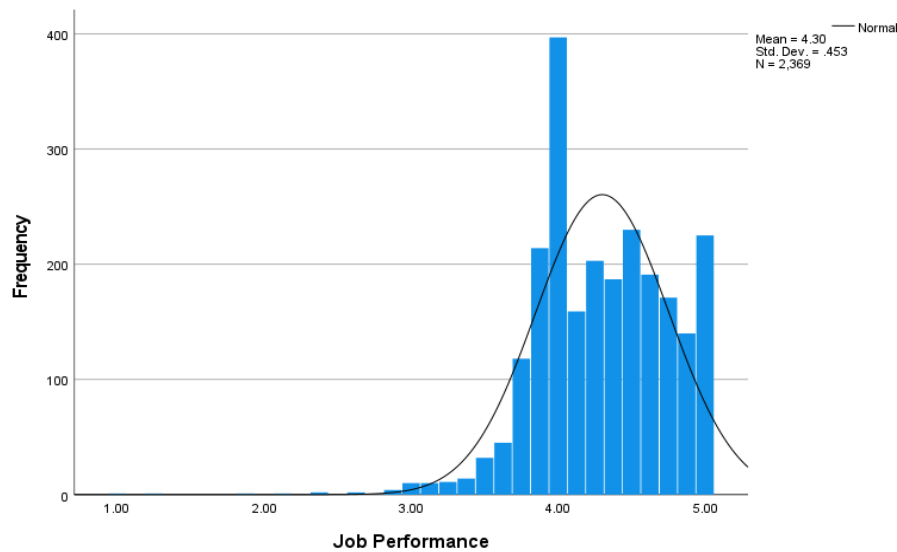


Figure 43. Histogram of the scale of job performance.

Surprisingly, not even a single demographic variable was found to have statistically significant different mean values for the scale “job performance” construct, despite there being significant differences when in-role performance and extra-role performance were taken separately, which means that those differences canceled each other out here. Indeed, finding the same level of job performance across agencies, nationality, gender, age, education, experience, and tenure with the same employer is a matter of importance that needs to be examined in further detail. This might be attributed to the nature of the duties attached to the profession to which nurses are bound. Hence, one may conclude that although there are differences in demographic aspects, nurses do not compromise when delivering their duties at the overall level.

Table 51: Mean differences of the scale of job performance across the demographic variables

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	df	2-Sided p
Agency	SEHA	1,178	4.31	.013	1.49	2,360.94	0.136
	MOHAP	1,191	4.29	.014			
Nationality	Citizen	163	4.27	.033	-1.07	190.22	0.285
	Noncitizen	2,206	4.30	.010			
Gender	Female	340	4.29	.026	-0.34	446.18	0.732
	Male	2,029	4.30	.010			
Age	18-25	28	4.23	.110	1.65	4,146.51	0.164
	25-35	916	4.31	.015			
	35-45	898	4.29	.015			

	45-55	467	4.30	.021			
	55-65	60	4.42	.051			
Education	Diploma	508	4.30	.021	1.68	39.95	0.233
	Bachelor's	1,639	4.29	.011			
	Master's	219	4.33	.031			
	PhD	3	4.68	.181			
Experience	0-5	251	4.27	.029	0.65	2,623.4	0.523
	5-10	566	4.29	.019			
	10+	1,552	4.31	.012			
Tenure	0-5	1,080	4.29	.013	1.98	3,958.59	0.115
	5-10	465	4.27	.022			
	10-15	487	4.33	.020			
	15+	337	4.33	.025			
	Total	2,369	4.30	.009	-	-	-

4.4.3.6 Perceived Overall Justice

The descriptive statistics of the scale of perceived overall justice, given in Table 52, clearly show the nature and features of the scale. The scale construct had a mean value of 3.68, and the items had very close values, meaning very low variations in the data. This is supported by the values of SD, which are below 1 for all items and the scale. All the items and the scale construct, except for one (POJ1), have skewness and kurtosis values less than 1.

Table 52: Descriptive statistics of the items and scale of perceived overall justice

	Items and Scales	Mean	Std. Deviation	Skewness	Kurtosis
POJ1	Overall, I'm treated fairly by my organization	3.73	.988	-1.005	.859
POJ2	In general, I can count on this organization to be fair	3.73	.963	-.955	.887
POJ3	In general, the treatment I receive around here is fair	3.72	.953	-.986	.959
POJ4	Usually, the way things work in this organization are fair	3.67	.944	-.858	.730
POJ5	For the most part, this organization treats its employees fairly	3.65	.957	-.855	.653
POJ6	Most of the people who work here would say they are often treated fairly	3.56	.959	-.707	.310
POJ	Perceived Overall Justice	3.68	.886	-.911	.944

The uniformity of the items that can be observed from the descriptive statistics table is illustrated visually in the boxplots in Figure 44. One important feature is that for all of them, the median value merges with the value of Q3, and it invariably results in skewness of the distributions. The scale construct is also left with a few outliers.

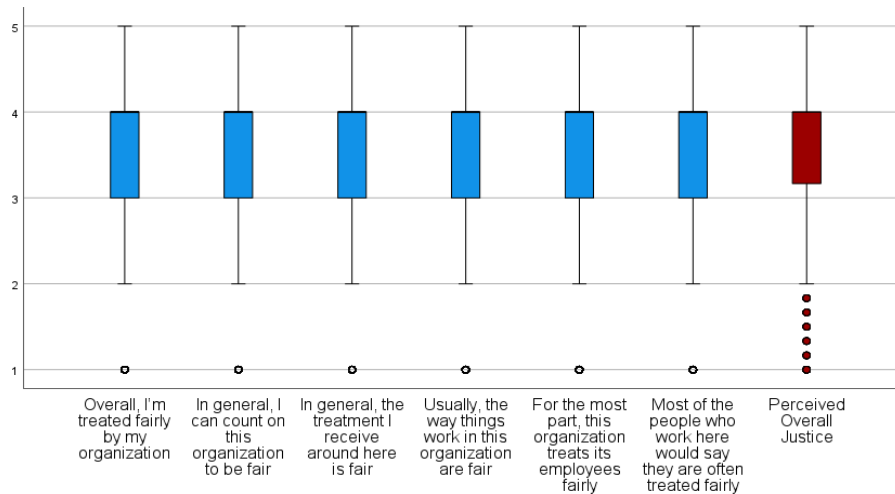


Figure 44. Boxplots of the items and scale of perceived overall justice.

The histogram given in Figure 45 shows the skewness in the distribution because of the cumulation of respondents at the value of 4. Its leptokurtic nature makes the distribution diverge notably from the normal shape. Also noticeable is the appearance of outliers with lower values in the distribution. There are a few observations with a value of 1 shaping the long tail of the distribution with visible skewness.

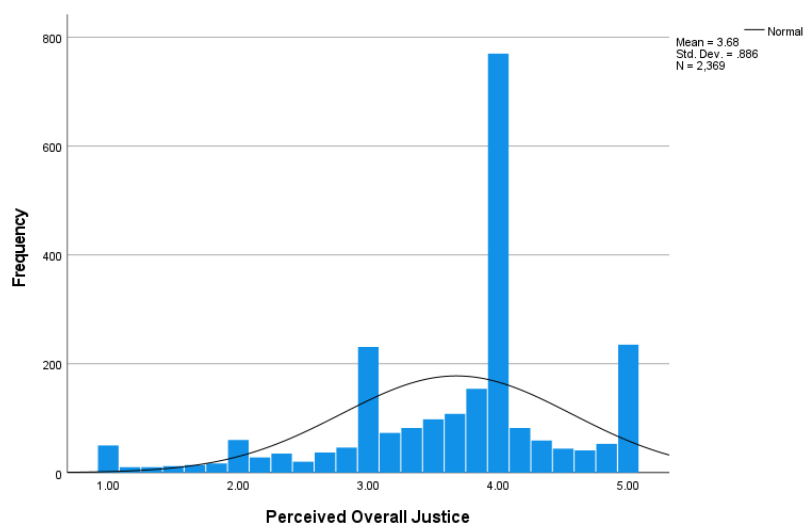


Figure 45. Histogram of the scale of perceived overall justice.

It is important to note that there are statistically significant differences in perceived overall justice among all demographic variables except for age. Among the agencies, MOHAP has a better position in maintaining overall justice. Noncitizen respondents recorded high POJ, and male nurses and the better-educated were found to have better POJ. Respondents with five

to ten years of experience and those with the lowest tenure with the same employer also had better POJ.

Table 53: *Mean differences of the scale of perceived overall justice across demographic variables*

Scale	Category	N	Mean	Std. Error	Test for Equality of Means		
					Statistic	Df	2-Sided p
Agency	SEHA	1,178	3.59	.026	-4.82	2,360.82	< .001
	MOHAP	1,191	3.77	.025			
Nationality	Citizen	163	3.34	.084	-4.22	178.09	< .001
	Noncitizen	2,206	3.70	.018			
Gender	Female	340	3.57	.053	-2.23	431.68	0.026
	Male	2,029	3.70	.019			
Age	18-25	28	3.68	.132	0.41	4,147.97	0.802
	25-35	916	3.71	.031			
	35-45	898	3.66	.029			
	45-55	467	3.65	.039			
	55-65	60	3.67	.123			
Education	Diploma	508	3.82	.038	7.01	39.91	0.008
	Bachelor's	1,639	3.67	.021			
	Master's	219	3.45	.071			
	PhD	3	3.78	.619			
Experience	0-5	251	3.66	.059	6.25	2,613.52	0.002
	5-10	566	3.79	.036			
	10+	1,552	3.64	.022			
Tenure	0-5	1,080	3.78	.026	9.36	3,957.61	< .001
	5-10	465	3.59	.041			
	10-15	487	3.56	.042			
	15+	337	3.63	.049			
Total		2,369	3.68	.018	-	-	-

4.4.4 Conclusion

The exploratory and comparative analysis of the items, along with their subscales and scales, offers a lot of insight into the issues of interest in the present research. The scales were found with varying levels of average values but with low SD values, indicating a good representative quality of the mean values. Skewness and kurtosis were found with values less than and around 1, indicating the possibility of a tendency among them to follow the normal distribution. There is reason to believe that as the sample size increases, their sampling distribution would tend to follow the normal distribution (Frost, 2018).

The testing of mean differences among the scales was attempted with an independent sample *t*-test, comparing the mean values of only two categories, and with one-way ANOVA, comparing more than two mean values from different categories. Both tests required homogeneity of variances among the categories to be compared, a condition the present research constructs could not satisfy. Therefore, a robust measure of Welch's statistic that remains immune to the heterogeneity of variances was used. The results gave valuable insights into the difference of scale constructs across different demographic variables. A summary is displayed in Table 54.

Table 54: *Summary of testing for the mean differences in the scale variables across demographic variables*

Code	Scales and Sub Scales	Agency	Nationality	Gender	Age	Education	Experience	Tenure
JD	JOB DEMANDS	0.022	0.009	< .001	0.042	< .001	< .001	< .001
S	Supervisors' Support	< .001	0.205	< .001	0.531	0.014	0.798	0.04
C	Co-workers' Support	0.254	0.093	0.329	0.006	0.333	< .001	0.054
SS	Social Support	0.06	0.092	< .001	0.234	0.059	0.078	0.073
JA	Job Autonomy	0.342	0.104	0.233	0.01	0.996	0.019	0.362
JR	JOB RESOURCES	0.114	0.052	0.012	0.016	0.47	0.011	0.126
WE	WORK ENGAGEMENT	0.337	< .001	0.001	< .001	0.003	0.014	0.004
IR	In-role Performance	< .001	0.238	0.991	0.211	0.443	0.022	0.037
ER	Extra-role Performance	0.462	0.529	0.557	0.256	0.022	0.752	0.233
JP	JOB PERFORMANCE	0.136	0.285	0.732	0.164	0.233	0.523	0.115
POJ	PERCEIVED OVERALL JUSTICE	< .001	< .001	0.026	0.802	0.008	0.002	< .001

The most important and interesting finding from the results is that although there are statistically significant differences across all demographic variables with regard to job demands, no differences were found across any demographic variables with regard to job performance. This striking and surprising finding can be explained by the nature of the duties attached to the respondents. For nurses, dealing with human life-related issues does not prevent them from delivering their duties, despite any differentiating factors among them. However, at the same time, in-role performance did differ according to agency, experience, and tenure, while extra-role performance differed across different education levels only.

Agencies also exhibit differences in supervisors' support and in perceived overall justice. A nationality-wise difference can be found only in job demands, work engagement,

and perceived overall justice. Gender shows differences in job demands, supervisors' support, social support, job resources, work engagement, and perceived overall justice. Meanwhile, age shows differences in job demands, co-workers' support, job autonomy, job resources, and work engagement. Education shows significant differences in job demands, supervisors' support, work engagement, extra-role performance, and perceived overall justice. Experience is revealed as an important attribute by which most of the scales and subscales have statistically significant differences: Except for supervisory and social support, extra-role performance, and overall performance, all other scales have significant differences. Tenure exhibits significant differences in job demands, supervisors' support, work engagement, in-role performance, and perceived overall justice.

4.5 Correlation Analyses

4.5.1 Introduction

After examining and understanding the nature and magnitude of the different scales, subscales, and their items using univariate analysis, we attempt to examine the relationship between them through bivariate and multivariate analyses in the following sections.

4.5.2 Bivariate Correlations

Using Pearson's coefficient of correlation, it is possible to explain the relationship between two variables in a range from -1 to $+1$ (Field, 2005). The value -1 signifies perfect negative correlation, $+1$ signifies perfect positive correlation, and 0 means there is no correlation whatsoever. For easy understanding and explanation, the coefficient value of correlation was categorized as follows:

0 to $\pm 0.2 \rightarrow$ Negligible correlation

± 0.2 to $\pm 0.4 \rightarrow$ Mild

± 0.4 to $\pm 0.6 \rightarrow$ Moderate

± 0.6 to $\pm 0.8 \rightarrow$ Strong

$\pm.8$ to $\pm 1 \rightarrow$ Very Strong

The results of the bivariate correlation analysis among the scales are shown in the correlation matrix given in Table 55.

Table 55: *Bivariate correlations between scale values*

		JD	JR	WE	POJ	IR	ER	JP
JD	Pearson's r	1						
	p-value	< .001						
JR	Pearson's r	-0.305	1					
	p-value	< .001	< .001					
WE	Pearson's r	-0.352	0.507	1				
	p-value	< .001	< .001	< .001				
POJ	Pearson's r	-0.359	0.491	0.478	1			
	p-value	< .001	< .001	< .001	< .001			
IR	Pearson's r	-0.076	0.278	0.386	0.233	1		
	p-value	< .001	< .001	< .001	< .001	< .001		
ER	Pearson's r	-0.07	0.279	0.334	0.207	0.504	1	
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	
JP	Pearson's r	-0.084	0.321	0.415	0.254	0.866	0.868	1
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	< .001

First of all, it is important to see that all correlation coefficients were statistically significant at less than the 0.001 level. In the self-explanatory color coding, the green shades indicate positive correlation and the red shades show negative correlations. As expected at the theoretical level, job demands are found to be negatively correlated with all other scale variables, but the degree of correlation needs to be analyzed carefully. The results showed that job demands have mild correlations with job resources, work engagement, and perceived overall justice, but they have a very negligible (close to zero) correlation with the performance scale constructs, in-role performance, extra-role performance, and job performance. This very low level of correlation shows that even with varying levels of job demands, nurses' performance level remains unaffected. Actually, this result is in line with the findings from the exploratory and comparative analyses of scale across different demographic variables. It was also found that job performance constructs remained unaffected across different demographic variables.

Among other bivariate correlations, very strong correlations are found between job performance and its components. The relationship between in-role performance and extra-role performance is found to be only moderate. Other moderate-level correlations are found between job resources, work engagement, and perceived overall justice. All other correlation values are negligible.

4.5.3 Canonical Correlation

Pearson's correlation analysis disregards the correlation among the variables within each X and Y variable, focusing only on the correlation between X and Y on their own. When there is a need to find the correlation between two sets of variables, it seems complex and difficult to estimate the correlation as a whole. In such situations, canonical correlation analysis (CCA) becomes a useful solution.

Hair, Black, Babin, Anderson, and Tatham (2014) defined CCA as a multivariate statistical method that analyses the relationship between two *sets* of variables, in which each set contains at least two variables. CCA works similarly to simple correlation. No matter how the data are analyzed, it is important to report on the percentage of variance explained by the independent variable in the dependent variable. CCA can therefore be understood as a method for evaluating the degree of relationship between two variables. It has a range of 0 to 1.

Figure 46 visually explains the concept of canonical variates and correlation.

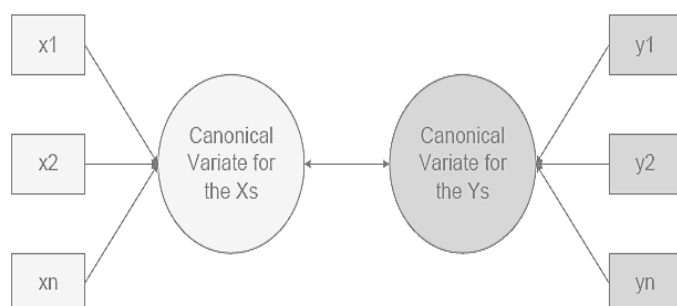


Figure 46. Diagram of the concept of canonical correlation.

Canonical correlation assumes a number of things, such as the multivariate normality of variables, homogeneous variances, the linear relation of each variable set to the canonical variables, and a large sample size.

Canonical variates, or canonical dimensions, are generated based on the number of variables in the smaller set, which results in multiple canonical variates per set. Canonical variates are latent variables that resemble factors obtained from factor analysis, except that they also maximize the correlation between two groups of variables, so statistical significance will not be found for all canonical dimensions. A significant variate corresponds to a significant canonical correlation, and the reverse is also true. A statistic known as Wilks's Lambda is used to determine the significance of the correlation. The measure of eigenvalue, also called the canonical root, displays how much of the variance in the canonical variates might be demonstrated by the corresponding canonical association. Thus, the first correlation's eigenvalue is the largest, while all following correlations have smaller eigenvalues.

Along with the correlation coefficient for each pair of variates, canonical correlation analysis output also gives the following measures:

- *Unstandardized and standardized canonical coefficients:* Canonical coefficients are the values used to produce the canonical variates for each set of variables. The way to understand them is similar to understanding regression coefficients. The coefficients can be standardized in a model when the variables have widely dissimilar standard deviations. As with standardized regression coefficients, standardized canonical coefficients can be interpreted similarly. Using it, the relative significance of the contributions of the different variables can be identified.
- *Canonical loadings:* These gauge the simple linear association between the independent variables and their corresponding *canonical variates*. They can also be

indicated as canonical structure correlations and can be explicated similarly to factor loadings.

- *Cross loadings* are the link between each observed independent or dependent construct and the reversed canonical variate.
- *Proportion of variance explained*: This gauges the proportion of the variance of the main variables of one group that is forecasted from the other groups.

Now, let us look into the results of the CCA attempted on the different scales in the present study. As we know, each scale is a set of items. Canonical correlation results are given in Tables 56–61. The detailed outputs of the analyses are given in Appendix 5.

4.5.3.1 Canonical Correlations Between Job Demands and Other Scales

The canonical correlation between the set of items of the “job demands” scale and the items of other scales is given in Table 56. The analysis identified two or three statistically significant dimensions in the correlations with other scales. However, by looking at the eigenvalues, it can be understood that the variance explained by the second and third canonical correlation dimensions are negligible in all the correlations. Therefore, the concentration is on the first correlation value only.

The canonical correlation values show that the items in the “job demands” scale have a moderate level of correlation with the items in the scale of the job resources, work engagement, and perceived overall justice. With in-role performance, extra-role performance, and job performance, the canonical correlation is negligible or mild. These correlation values are in conformity with the bivariate correlation findings, but it is noticed that the canonical correlation values are higher than those of bivariate values, which indicates that the canonical correlation analysis can reveal more of the strength of correlations between the scale constructs.

Table 56: *Canonical correlations between job demands and other scales*

	Correlation	Eigenvalue	Wilks's Lambda	F	Num Df	Denom Df	Sig.
JR							

1	0.442	0.243	0.760	8.581	77.000	14,095.621	0.000
2	0.170	0.030	0.945	2.236	60.000	12,327.915	0.000
3	0.106	0.011	0.973	1.440	45.000	10,528.643	0.028
4	0.087	0.008	0.984	1.184	32.000	8,682.718	0.219
5	0.071	0.005	0.992	0.955	21.000	6,762.839	0.518
6	0.052	0.003	0.997	0.676	12.000	4,712.000	0.776
7	0.026	0.001	0.999	0.328	5.000	2,357.000	0.896
WE							
1	0.458	0.266	0.760	13.585	49.000	11,960.355	0.000
2	0.156	0.025	0.962	2.581	36.000	10,348.681	0.000
3	0.083	0.007	0.985	1.384	25.000	8,757.368	0.096
4	0.068	0.005	0.992	1.132	16.000	7,204.447	0.318
5	0.046	0.002	0.997	0.812	9.000	5,741.337	0.605
6	0.030	0.001	0.999	0.592	4.000	4,720.000	0.668
7	0.009	0.000	1.000	0.185	1.000	2,361.000	0.667
POJ							
1	0.404	0.195	0.820	11.385	42.000	11,054.072	0.000
2	0.100	0.010	0.980	1.628	30.000	9,430.000	0.016
3	0.067	0.005	0.989	1.266	20.000	7,821.551	0.190
4	0.061	0.004	0.994	1.223	12.000	6,241.619	0.260
5	0.048	0.002	0.998	0.973	6.000	4,720.000	0.442
6	0.013	0.000	1.000				
IR							
1	0.217	0.049	0.931	4.893	35.000	9,917.433	0.000
2	0.103	0.011	0.976	2.361	24.000	8,227.289	0.000
3	0.083	0.007	0.987	2.081	15.000	6,512.562	0.008
4	0.075	0.006	0.994	1.863	8.000	4,720.000	0.061
5	0.025	0.001	0.999	0.509	3.000	2,361.000	0.676
ER							
1	0.159	0.026	0.954	3.964	28.000	8,503.312	0.000
2	0.116	0.014	0.979	2.799	18.000	6,672.745	0.000
3	0.081	0.007	0.992	1.818	10.000	4,720.000	0.052
4	0.034	0.001	0.999	0.686	4.000	2,361.000	0.602
JP							
1	0.227	0.054	0.903	3.840	63.000	13,258.325	0.000
2	0.142	0.020	0.952	2.408	48.000	11,586.729	0.000
3	0.118	0.014	0.972	1.929	35.000	9,909.020	0.001
4	0.083	0.007	0.986	1.422	24.000	8,220.312	0.083
5	0.068	0.005	0.993	1.179	15.000	6,507.041	0.280
6	0.046	0.002	0.997	0.822	8.000	4,716.000	0.583
7	0.026	0.001	0.999	0.527	3.000	2,359.000	0.664

4.5.3.2 Canonical Correlations Between Job Resources and Other Scales

The analysis results showed a number of significant dimensions in the canonical correlation between job resources and other scales. Particularly with job performance, six

dimensions were found in the relationship between the sets of items. However, looking through the eigenvalues, it may be concluded that only the first dimension is worth considering.

The canonical correlation values show that job resources have a moderate relationship with all other scales, except for in-role performance and extra-role performance. With in-role performance and extra-role performance, only mild relationships were found. The examination of detailed output can give more insight into the relationship between the items of the scales.

The outputs are given in Appendix 5.

Table 57: *Canonical correlations between job resources and other scales*

	Correlation	Eigenvalue	Wilks's Lambda	F	Num Df	Denom Df	Sig.
WE							
1	0.542	0.415	0.646	13.823	77.000	14,095.621	0.000
2	0.181	0.034	0.915	3.523	60.000	12,327.915	0.000
3	0.167	0.029	0.946	2.943	45.000	10,528.643	0.000
4	0.116	0.014	0.973	2.033	32.000	8,682.718	0.001
5	0.087	0.008	0.986	1.576	21.000	6,762.839	0.045
6	0.063	0.004	0.994	1.259	12.000	4,712.000	0.236
7	0.049	0.002	0.998	1.156	5.000	2,357.000	0.329
POJ							
1	0.570	0.480	0.645	16.318	66.000	12,590.651	0.000
2	0.145	0.021	0.954	2.228	50.000	10,734.695	0.000
3	0.107	0.012	0.974	1.697	36.000	8,823.265	0.006
4	0.082	0.007	0.986	1.405	24.000	6,830.818	0.090
5	0.069	0.005	0.993	1.262	14.000	4,712.000	0.223
6	0.052	0.003	0.997	1.079	6.000	2,357.000	0.372
IR							
1	0.342	0.133	0.849	7.107	55.000	10,895.088	0.000
2	0.140	0.020	0.962	2.273	40.000	8,927.948	0.000
3	0.106	0.011	0.982	1.628	27.000	6,878.457	0.021
4	0.073	0.005	0.993	1.073	16.000	4,712.000	0.376
5	0.044	0.002	0.998	0.639	7.000	2,357.000	0.724
ER							
1	0.384	0.172	0.779	13.815	44.000	9,007.770	0.000
2	0.226	0.054	0.913	7.233	30.000	6,913.066	0.000
3	0.169	0.029	0.962	5.056	18.000	4,712.000	0.000
4	0.097	0.009	0.991	2.785	8.000	2,357.000	0.005
JP							
1	0.408	0.199	0.707	8.455	99.000	16,576.634	0.000
2	0.276	0.082	0.847	4.933	80.000	14,913.278	0.000
3	0.179	0.033	0.917	3.254	63.000	13,247.061	0.000
4	0.139	0.020	0.948	2.650	48.000	11,576.889	0.000

5	0.117	0.014	0.966	2.312	35.000	9,900.607	0.000
6	0.111	0.013	0.980	2.009	24.000	8,213.335	0.002
7	0.074	0.005	0.992	1.257	15.000	6,501.519	0.221
8	0.042	0.002	0.997	0.756	8.000	4,712.000	0.641
9	0.028	0.001	0.999	0.615	3.000	2,357.000	0.605

4.5.3.3 Canonical Correlations Between Work Engagement and Other Scales

In the context of the relationship between work engagement and other scales, canonical correlations are also found to be of a moderate level, as shown in Table 58. Though more dimensions are found to be significant, again, it is necessary to concentrate on the first canonical function only. All other functions were found with negligible values.

Table 58: *Canonical correlations between work engagement and other scales*

POJ							
	Correlation	Eigenvalue	Wilks's Lambda	F	Num Df	Denom Df	Sig.
1	0.496	0.327	0.734	17.899	42.000	11,054.072	0.000
2	0.107	0.012	0.975	2.034	30.000	9,430.000	0.001
3	0.088	0.008	0.986	1.686	20.000	7,821.551	0.028
4	0.057	0.003	0.994	1.276	12.000	6,241.619	0.225
5	0.049	0.002	0.997	1.268	6.000	4,720.000	0.269
6	0.029	0.001	0.999				
IR							
1	0.432	0.229	0.798	15.608	35.000	9,917.433	0.000
2	0.096	0.009	0.981	1.889	24.000	8,227.289	0.005
3	0.077	0.006	0.990	1.548	15.000	6,512.562	0.080
4	0.055	0.003	0.996	1.138	8.000	4,720.000	0.334
5	0.029	0.001	0.999	0.646	3.000	2,361.000	0.585
ER							
1	0.393	0.183	0.824	16.720	28.000	8,503.312	0.000
2	0.117	0.014	0.975	3.360	18.000	6,672.745	0.000
3	0.090	0.008	0.988	2.780	10.000	4,720.000	0.002
4	0.060	0.004	0.996	2.114	4.000	2,361.000	0.077
JP							
1	0.472	0.287	0.740	11.568	63.000	13,258.325	0.000
2	0.137	0.019	0.952	2.415	48.000	11,586.729	0.000
3	0.120	0.015	0.970	2.038	35.000	9,909.020	0.000
4	0.090	0.008	0.985	1.532	24.000	8,220.312	0.046
5	0.072	0.005	0.993	1.182	15.000	6,507.041	0.278
6	0.043	0.002	0.998	0.679	8.000	4,716.000	0.711
7	0.022	0.000	1.000	0.374	3.000	2,359.000	0.771

4.5.3.4 Canonical Correlations Between Perceived Overall Justice and Other Scales

Perceived overall justice was found to have only moderate or mild correlation with all other scales, as shown in Table 59. Here, also, the first canonical function is the only relevant one, although there are further significant dimensions. Perceived overall justice has a canonical correlation with job performance at the 0.288 level only.

Table 59: *Canonical correlations between perceived overall justice and other scales*

IR							
	Correlation	Eigenvalue	Wilks's Lambda	F	Num Df	Denom Df	Sig.
1	0.262	0.074	0.918	6.787	30.000	9,434.000	0.000
2	0.087	0.008	0.986	1.688	20.000	7,824.868	0.028
3	0.061	0.004	0.993	1.304	12.000	6,244.265	0.208
4	0.051	0.003	0.997	1.131	6.000	4,722.000	0.341
5	0.016	0.000	1.000				
ER							
1	0.240	0.061	0.929	7.345	24.000	8,230.778	0.000
2	0.099	0.010	0.985	2.323	15.000	6,515.322	0.003
3	0.059	0.003	0.995	1.465	8.000	4,722.000	0.164
4	0.038	0.001	0.999	1.157	3.000	2,362.000	0.325
JP							
1	0.288	0.090	0.884	5.435	54.000	12,007.686	0.000
2	0.120	0.015	0.964	2.174	40.000	10,268.002	0.000
3	0.115	0.013	0.978	1.872	28.000	8,496.101	0.003
4	0.076	0.006	0.991	1.165	18.000	6,667.088	0.281
5	0.043	0.002	0.997	0.736	10.000	4,716.000	0.691
6	0.036	0.001	0.999	0.754	4.000	2,359.000	0.556

4.5.3.5 Canonical Correlations Between In-role Performance and Other Scales

The only remaining canonical correlation analysis between the different scales was between in-role performance and extra-role performance, which were found to be correlated at the 0.54 level, indicating a moderate correlation. Again, only the first dimension was taken up. It could not correlate in-role performance with job performance and extra-role performance with job performance, since job performance contained the same items included in the scales of in-role performance and extra-role performance.

Table 60: *Canonical correlations between in-role performance and other scales*

ER							
	Correlation	Eigenvalue	Wilks Statistic	F	Num. Df	Denom. Df	Sig.
1	0.548	0.430	0.677	48.916	20.000	7,828.184	0.000

2	0.170	0.030	0.968	6.496	12.000	6,246.910	0.000
3	0.047	0.002	0.996	1.436	6.000	4,724.000	0.197
4	0.038	0.001	0.999				

The first-dimension canonical correlation between the scales is summarized and presented in Table 61. As mentioned earlier, there is a noticeable difference in the values of correlation revealed by bivariate Pearson correlation and multivariate CCA. However, both indicate low levels of correlation between the scale constructs.

Table 61: *The first dimensions of canonical correlations among the scales*

	JD	JR	WE	POJ	IR	ER	JP
JD	1						
JR	0.442	1					
WE	0.458	0.542	1				
POJ	0.404	0.57	0.496	1			
IR	0.217	0.342	0.432	0.262	1		
ER	0.159	0.384	0.393	0.24	0.548	1	
JP	0.227	0.408	0.472	0.288	NA	NA	1

4.5.4 Conclusion

The relationship between the scales of the present research is important from an analytical point of view. Here, it was examined using bivariate and multivariate tools, the Pearson correlation coefficient, and the canonical correlation coefficient. While the Pearson coefficient gives the magnitude and direction of the correlation among the scale constructs, the canonical correlation gives only the magnitude and strength of the correlation. This is because the canonical correlation's range is limited, from zero to one. However, canonical correlation values can reveal the relationship in a better way, which is reflected in the correlation values, as all the canonical correlation values are higher than the values from the bivariate analysis.

Job demands were found to be negatively correlated to all constructs, but all relationships, though they were statistically significant, showed negligible or moderate levels. Indeed, the reason for the low levels of relationships can be attributed to the nature and features

of the sector to which the respondents belong. It might be explained because the public healthcare sector is highly supported by the government and the nurses are dedicated to provide the best services.

4.6 Cluster Analysis

This section is based on classifying the respondents by job performance indicators.

4.6.1 Introduction

The effort to classify the respondents according to their job performance status requires considering more than one item, which reflects the multidimensionality of their performance levels. Univariate or bivariate tools of analysis failed to achieve this objective; therefore, multivariate statistical tools are considered. In this context, the researcher identified cluster analysis as a suitable tool.

Cluster analysis, a multivariate statistics tool, is an exploratory method that investigates uncovering natural groupings/clusters within a set of data that would otherwise remain undetected (Hair et al., 2014). Among the different procedures by which cluster analysis can be carried out, hierarchical cluster analysis was used to identify the ideal number of clusters from the data, and two-step cluster analysis was selected as the procedure to finalize the analysis.

To carry out hierarchical cluster analysis, objects are first separated into clusters. Each stage of this analysis reduces the separation criteria, such that the two most similar clusters are connected in a complete classification tree (Hair et al., 2014). Any clustering is based on distance as a fundamental criterion. Objects that are close enough to each other should form a cluster, whereas objects too far apart should form their own clusters.

In comparison with traditional clustering methods, the algorithm employed by the two-step cluster analysis procedure has a number of advantages. In general, it allows the creation

of clusters based on both categorical and continuous variables, as well as the automatic determination of the number of clusters (Hair et al., 2014).

As a two-step cluster analysis process, a likelihood distance is employed, which postulates that the variables within the cluster model are independent. Further, a normal (Gaussian) distribution is postulated for each continuous construct, and a multinomial distribution is postulated for each categorical construct (Hair et al., 2014). The empirical internal testing in the context of the present research specifies that the procedure is fairly robust in terms of dealing with violations of the postulations of both independence and distribution to a satisfactory level.

The two steps in the two-step cluster analysis procedure can be summarized as follows:

Step 1: The construction of the Cluster Features Tree initiates the procedure. Starting from the root of the tree, the first case is presented in a leaf node, where variable details about the case are presented. As each successive case is added to an existing node or forms a new node, a similarity criterion is used to determine whether the case is similar to an existing node or not. Cases that are contained in a node contain a summary of the variable information about them. Thus, the CF tree serves the purpose of supplying a capsule summary of the data file.

Step 2: An agglomerative clustering algorithm is used to group the leaf nodes in the CF tree. Various solutions can be produced using the agglomerative clustering technique. Using the Akaike Information Criterion (AIC) as the clustering criterion, each of these cluster solutions is compared to decide which number of clusters is “best.”

In the present research, hierarchical cluster analysis attempts to classify the respondents into different clusters, and the resulting dendrogram helps in deciding the relevant number of clusters. Multiple items of job performance were used to classify the respondents. These items are shown in Table 62.

Table 62: *Items used for clustering*

		IRP1	I adequately complete the duties assigned to me
--	--	------	---

Job Performance (JR)	In-role Performance (IRP)	IRP2	<i>I fulfill the responsibilities specified in my job descriptions</i>
		IRP3	<i>I perform tasks that are expected of me</i>
		IRP4	<i>I meet the formal performance requirements of the job</i>
		IRP5	<i>I engage in activities that will directly affect my performance evaluation</i>
	Extra-role Performance (ERP)	ERP1	<i>I help others who have been absent</i>
		ERP2	<i>I help others who have heavy workloads</i>
		ERP3	<i>I assist the supervisor with his/her work (when not asked from me)</i>
		ERP4	<i>I take time to listen to co-workers' problems and worries</i>

4.6.2 Dendrogram

The dendrogram, which indicates the meaningful number of clusters, is given in Figure 47, where two clusters are clearly visible, although the sizes of the clusters are notably different.

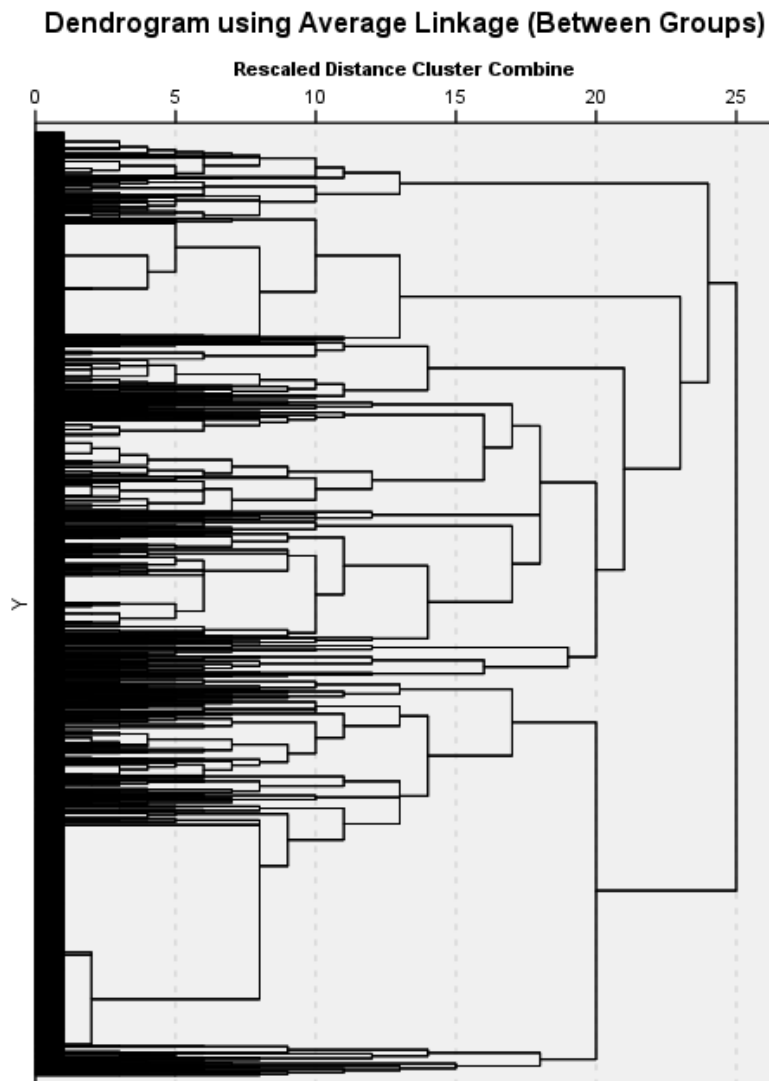


Figure 47. Dendrogram.

4.6.3 Results

With the information on the number of relevant clusters as two, a two-step cluster analysis was attempted. The results of the two-step cluster analysis are discussed below. Using the nine input variables, a model summary table shows the existence of two clusters in Figure 48. According to the cluster quality chart, the overall quality of the model is “Fair.”

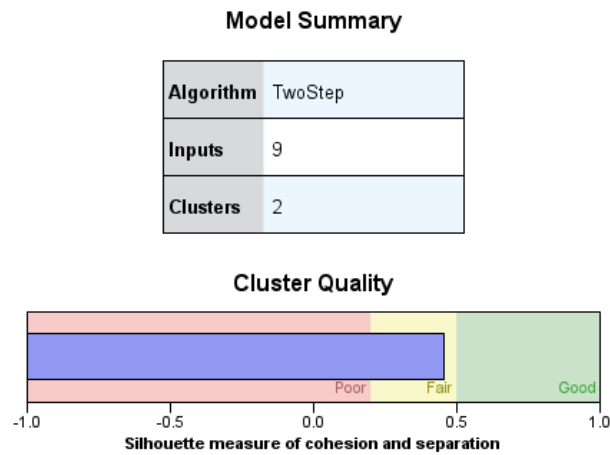
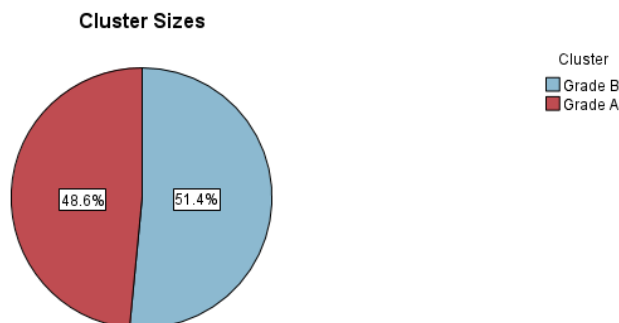


Figure 48. Model summary.



Size of Smallest Cluster	1151 (48.6%)
Size of Largest Cluster	1218 (51.4%)
Ratio of Sizes: Largest Cluster to Smallest Cluster	1.06

Figure 49. Cluster size.

Table 63: Cluster distribution

		N	% of Combined	% of Total
Clusters	1 (Grade B)	1,218	51.4%	51.4%
	2 (Grade A)	1,151	48.6%	48.6%
	Combined	2,369	100.0%	100.0%
Total		2,369		100.0%

The cluster size's view given in Figure 49 and Table 63 displays the frequency of each cluster. The number of records allocated to each cluster is displayed on each slice of the pie chart. Of the respondents, 51.4% (1218) were assigned to the first cluster and 48.6% (1151) to the second cluster.

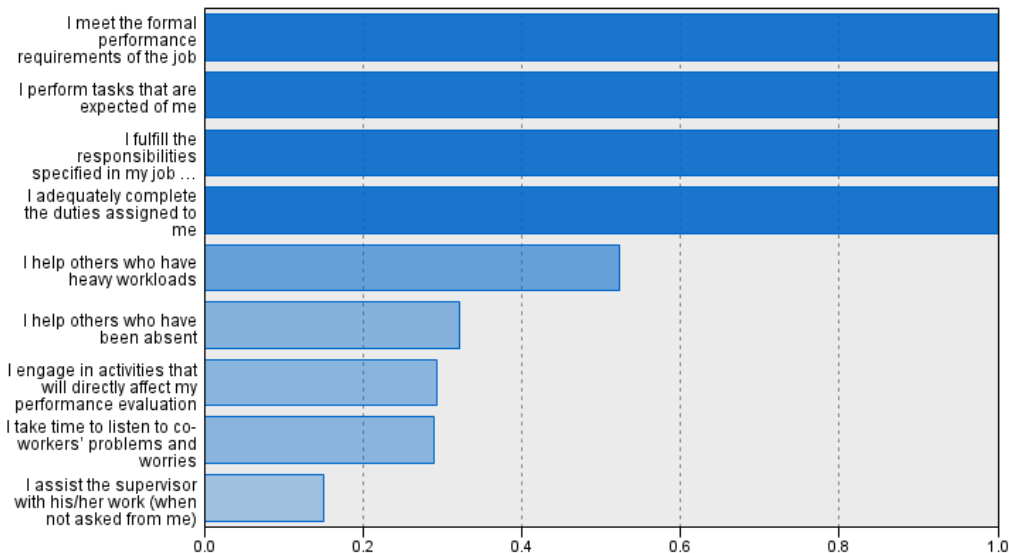
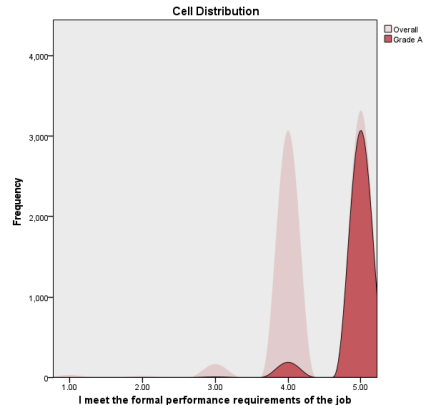


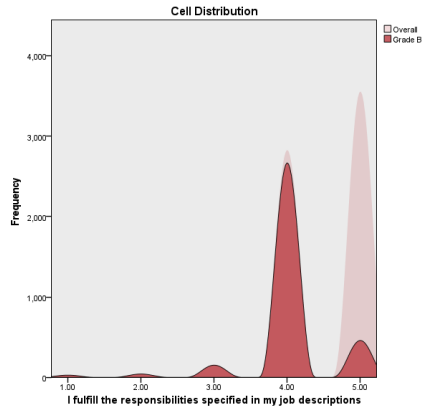
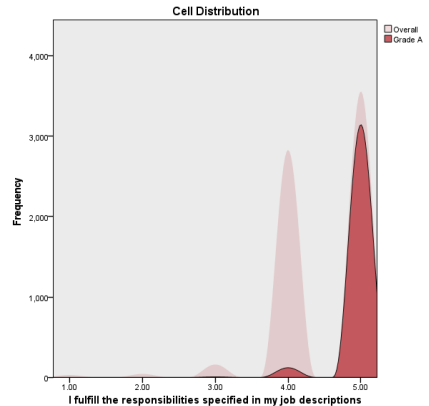
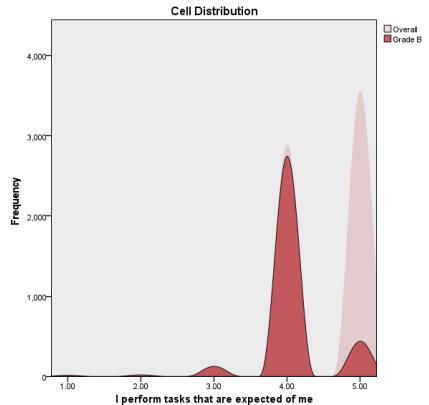
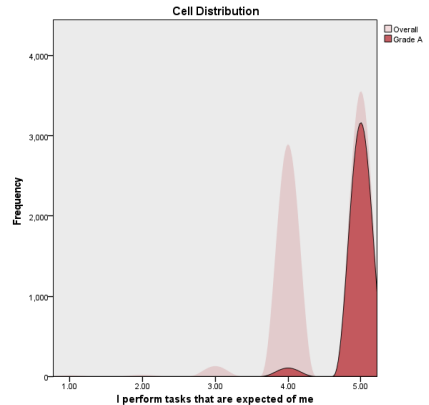
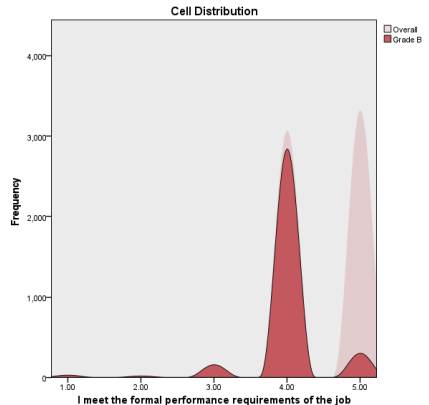
Figure 50. Predictor importance.

The relative significance of each variable in the cluster analysis procedure is illustrated visually in Figure 50. As can be seen, there are four important items in the clustering of the respondents into two clusters, while the item “*I assist the supervisor with his/her work (when not asked from me)*” is the least important item. The clusters can then be examined in detail by looking at Figure 51, which makes the groupings much clearer. It displays the distribution of the most important predictor items of the clusters in separate cells. These diagrams facilitate the comparison of the distribution of each item in both clusters.

Grade A



Grade B



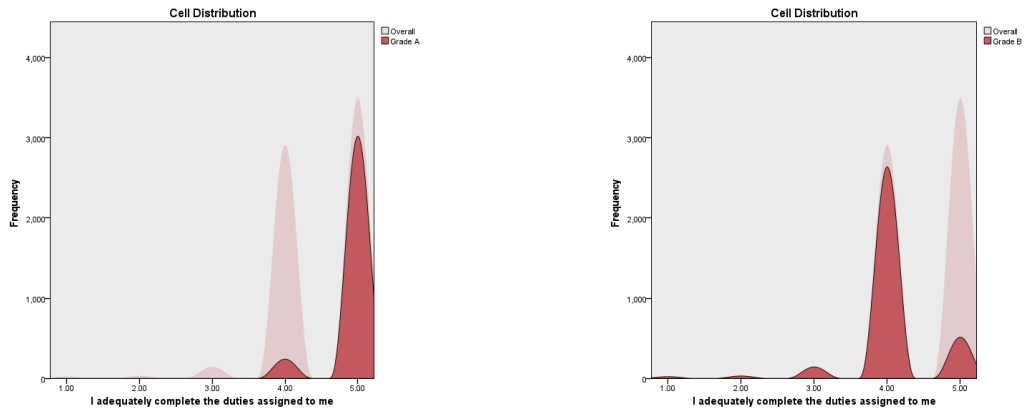


Figure 51. Distribution of the most important predictor items in the clusters.

The centroid values of each item in both clusters are given in Table 64, where Cluster Number 2 (renamed Grade A) is seen to have higher values for all the items.

Table 64: *The centroid values of each item in the clusters*

Centroids				
Items		Cluster		
		1 (Grade B)	2 (Grade A)	Combined
I adequately complete the duties assigned to me	Mean	4.07	4.93	4.49
	Std. Deviation	0.54	0.26	0.60
I fulfill the responsibilities specified in my job descriptions	Mean	4.04	4.96	4.49
	Std. Deviation	0.55	0.20	0.62
I perform tasks that are expected of me	Mean	4.07	4.97	4.51
	Std. Deviation	0.47	0.18	0.58
I meet the formal performance requirements of the job	Mean	4.01	4.94	4.46
	Std. Deviation	0.48	0.25	0.60
I engage in activities that will directly affect my performance evaluation	Mean	3.88	4.54	4.20
	Std. Deviation	0.64	0.88	0.83
I help others who have been absent	Mean	3.97	4.52	4.24
	Std. Deviation	0.58	0.63	0.67
I help others who have heavy workloads	Mean	4.15	4.75	4.44
	Std. Deviation	0.53	0.44	0.57
I assist the supervisor with his/her work (when not asked from me)	Mean	3.56	4.06	3.80
	Std. Deviation	0.77	0.87	0.85
I take time to listen to co-workers' problems and worries	Mean	3.94	4.49	4.20
	Std. Deviation	0.64	0.64	0.70

4.6.4 Comparative Analysis

The mean differences in the performance variables were examined across the clusters for the following two purposes:

1. To discover whether the mean differences in in-role performance and extra-role performance differed across the clusters; and
2. To cross-check the validity of the clustering by checking whether the clusters could identify differences in the performance construct.

The results of the analysis are given in Table 65. All the construct of performance scales—that is, in-role performance, extra-role performance, and their average job performance—were found to have statistically significant differences across the clusters. The Grade A cluster had a higher average, at 4.66, for the job performance scale, while the Grade B cluster had an average of only 3.96. For all the performance scales, the independent sample *t*-test found significant differences ($p < .001$).

Table 65: *Mean difference of job performance across clusters*

	Group	N	Mean	SE	Statistic	Df	p
In-role Performance	Grade A	1,151	4.87	0.006	69.99	1,922.4	< .001
	Grade B	1,218	4.01	0.011			
Extra-role Performance	Grade A	1,151	4.45	0.013	29.92	2,351.78	< .001
	Grade B	1,218	3.9	0.013			
Job Performance	Grade A	1,151	4.66	0.008	59.61	2,311.78	< .001
	Grade B	1,218	3.96	0.009			

The distribution of the clusters across the categories of demographic variables was examined in the cross-tabulation in Table 66. Moreover, the association between cluster membership and the demographic variables was tested with the appropriate chi-square tests, and the results are also shown in Table 66.

It was found that cluster membership and agency had statistically significant associations. A Fisher's exact test for the 2×2 table reported $p = 0.007$. SEHA has more Grade A performers. Another significant association was found with work experience, as those with more experience were found to be better performers. For all other demographic variables, there was no statistically significant association with cluster membership.

Table 66: *Demographic variables and clusters of respondents based on job performance*

	Cluster			Test for Association
	Grade A	Grade B	Total	

Agency	SEHA	603	575	1,178	Fisher's Exact Test (2 × 2 Table) $\chi^2 = 6.353$, $df = 1$, $p = .007$
		52.4%	47.2%	49.7%	
	MOHAP	548	643	1,191	
		47.6%	52.8%	50.3%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Nationality	Citizen	72	91	163	Fisher's Exact Test (2 × 2 Table) $\chi^2 = 1365$, $df = 1$, $p = .138$
		6.3%	7.5%	6.9%	
	Non-Citizen	1079	1,127	2,206	
		93.7%	92.5%	93.1%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Gender	Male	166	174	340	Fisher's Exact Test (2 × 2 Table) $\chi^2 = .009$, $df = 1$, $p = .485$
		14.4%	14.3%	14.4%	
	Female	985	1,044	2,029	
		85.6%	85.7%	85.6%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Age	18-25	12	16	28	Pearson chi-square $\chi^2 = 4.354$, $df = 4$, $p = .360$
		1.0%	1.3%	1.2%	
	25-35	448	468	916	
		38.9%	38.4%	38.7%	
	35-45	424	474	898	
		36.8%	38.9%	37.9%	
	45-55	231	236	467	
		20.1%	19.4%	19.7%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Education	Diploma	241	267	508	Pearson chi-square $\chi^2 = 2.037$, $df = 3$, $p = .565$
		20.9%	21.9%	21.4%	
	Bachelor	793	846	1,639	
		68.9%	69.5%	69.2%	
	Master	115	104	219	
		10.0%	8.5%	9.2%	
	PhD	2	1	3	
		0.2%	0.1%	0.1%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Work experience in years	0-5	107	144	251	Pearson chi-square $\chi^2 = 9.543$, $df = 2$, $p = .008$
		9.3%	11.8%	10.6%	
	5-10	255	311	566	
		22.2%	25.5%	23.9%	
	10+	789	763	1,552	
		68.5%	62.6%	65.5%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	
Tenure of working with the current employer	0-5	499	581	1,080	Pearson chi-square $\chi^2 = 7.506$, $df = 3$, $p = .057$
		43.4%	47.7%	45.6%	
	5-10	221	244	465	
		19.2%	20.0%	19.6%	
	10-15	251	236	487	
		21.8%	19.4%	20.6%	
	15+	180	157	337	
		15.6%	12.9%	14.2%	
	Total	1,151	1,218	2,369	
		100.0%	100.0%	100.0%	

4.6.5 Conclusion

In an attempt to classify the respondents based on job performance, a multivariate tool, Cluster Analysis, was used with the methods of hierarchical as well as two-step clustering. The analysis identified two clusters of respondents according to their performance (in in-role performance, extra-role performance, and overall job performance). The clusters were found to have sharp differences on different items of the scales. The clusters were named Grade A and Grade B performers. As expected, the clusters differed significantly across the mean values of different performance indicators, which was used to classify the respondents. When the clusters were examined for any significant associations with demographic variables, agency and experience were found to have statistically significant associations. As such, of the agencies, SEHA had better performers and more experienced respondents were better performers.

4.7 Moderation Analysis

4.7.1 Introduction

The present section examines the influence of organizational aspects (i.e., perceived overall justice) as a moderator factor in the causality running from job demands and job resources to work engagement.

4.7.2 Moderation Analysis

Whenever two variables are affected by a third variable, there is a moderating effect. It is called the moderator variable, or simply the moderator. In terms of moderating variables, an interaction takes place when it influences the direction and/or intensity of the association between the dependent and independent variables (Hayes, 2018). As illustrated in Figure 52, the moderator variable in regression can be represented graphically, with Y as the dependent variable and X as the independent variable, and the causality between X and Y as moderated by W.

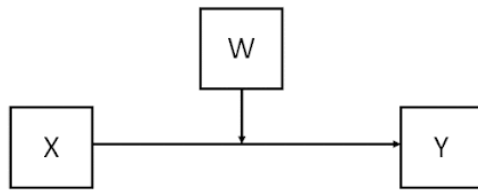


Figure 52. The moderator variable in the regression.

Linear multiple regression analysis is used in moderation analysis. An additional term needs to be added to the regression model to quantify the effect of a moderating variable, that is, the interaction between X_1 and the suggested moderating variable, X_2 .

Thus, the regression model can be expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 (X_1 * X_2) + \varepsilon$$

Here, the contribution of X_2 as a moderating variable can be tested using β_3 , the parameter estimates for the interaction term.

4.7.3 The Theoretical Model

The theoretical model of the study is presented in Figure 53. It explains the role of each construct in the model, along with the hypotheses put forward for testing in moderation analysis. The relationships and hypotheses subjected to moderation analyses are highlighted in

red.

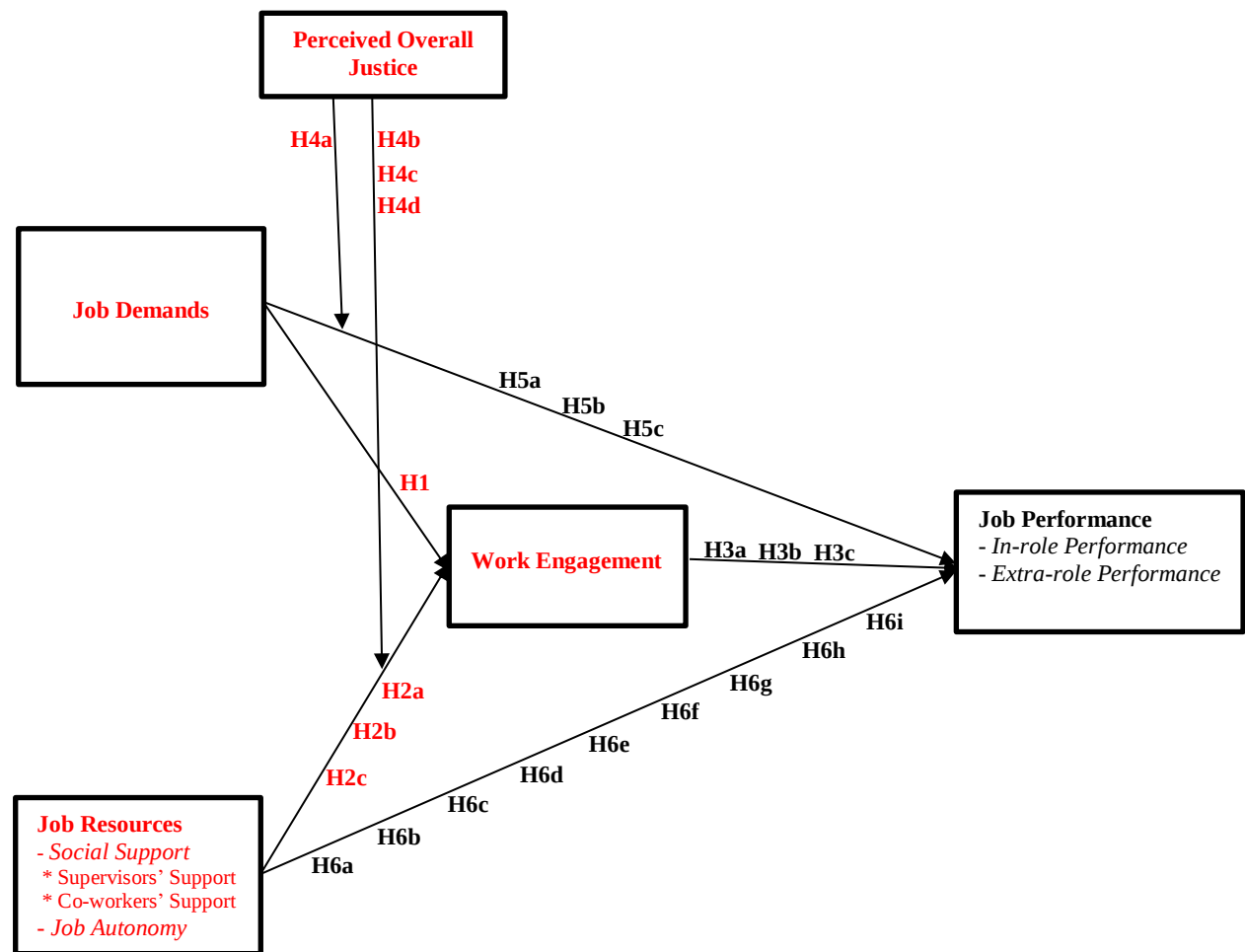


Figure 53. The theoretical model.

4.7.4 Moderation Effect of Perceived Overall Justice (POJ)

In this section, an attempt is made to measure the causality running from job demands and job resources to work engagement and to test for the presence and magnitude of moderation, if any, by the moderator variable “perceived overall justice.” The results of the moderation analysis are discussed in the following subsections. The analysis was performed with the aid of the statistical software *Jamovi 2.0* and its add-on module *Medmod* (Project, 2021).

4.7.4.1 Moderation Effect of POJ on Causality Between Job Demands and Work Engagement

The first moderation analysis was carried out with work engagement as the dependent variable, job demands as the independent variable, and perceived overall justice as the moderator variable. The results of the analysis are given in Table 67. The first part of the table shows the moderator estimates, which include estimates of the regression coefficients and their statistical significance. The p-value of the independent variable “job demands” is $p < .001$, showing that it is significant. The coefficient value shows there is a negative influence exerted by job demands on the dependent variable, which means that any increase in job demands will result in a decline in work engagement. The interaction term (JD*POJ) is also found with $p < 0.05$, indicating the statistical significance of the moderator variable in the causal relationship between job demands and work engagement.

Table 67: *Moderation analysis results – JD with WE by POJ*

Moderation Estimates				
	Estimate	SE	Z	P
JD	-0.176	0.016	-11.258	< .001
POJ	0.327	0.015	22.499	< .001
JD * POJ	0.059	0.015	4.011	< .001
Simple Slope Estimates				
	Estimate	SE	Z	P
Average	-0.176	0.016	-11.232	< .001
Low (-1SD)	-0.228	0.019	-12.057	< .001
High (+1SD)	-0.123	0.022	-5.651	< .001

Note. Shows the effect of the predictor (JD) on the dependent variable (WE) at different levels of the moderator (POJ).

The moderation analysis also produced simple slope estimates, as given in the second part of Table 67. A simple slope coefficient is defined as the regression coefficient of outcome Y on predictor X_1 at a specific value of moderator X_2 . In other words, these estimates show the slope of the regression lines at different values of the moderator variable, POJ. Though we can create simple slope estimates at any value of the moderator variable of our choice, the standard practice is to estimate them at the average value, and also at the values of $\pm 1SD$ from the average.

All the simple slope coefficients are found to be negative, showing negative causality between the dependent variable “work engagement” and the independent variable “job demands.” The value of the coefficient at the lower level of POJ is found to be greater than its value at the higher level, which means that respondents with lower POJ have a stronger negative causal relationship between job demands and work engagement. Figure 54 shows a simple slopes plot.

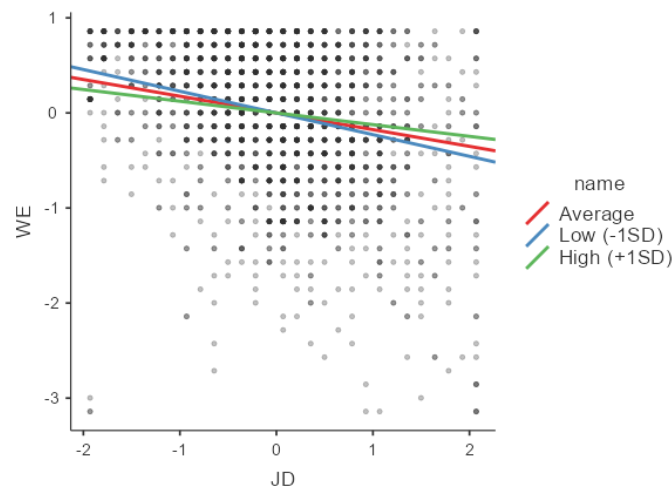


Figure 54. Simple slope plot – JD with WE by POJ.

4.7.4.2 Moderation Effect of POJ on Causality Between Social Support to Work Engagement

The moderation effect of perceived overall justice on the causality between social support and work engagement was estimated, and the results are presented in Table 68. All regression coefficients are found to be significant, as $p < .001$, and the coefficient of social support showed a positive influence of social support on work engagement, though its magnitude might be categorized as “mild.”

Table 68: Moderation analysis results - SS with WE by POJ

Moderation Estimates				
	Estimate	SE	Z	P
SS	0.295	0.022	13.606	< .001
POJ	0.279	0.014	19.273	< .001
SS * POJ	-0.062	0.018	-3.399	< .001

Simple Slope Estimates				
	Estimate	SE	Z	P
Average	0.295	0.022	13.588	< .001
Low (-1SD)	0.35	0.024	14.585	< .001
High (+1SD)	0.24	0.03	8.056	< .001
Note. This shows the effect of the predictor (SS) on the dependent variable (WE) at different levels of the moderator (POJ).				

The simple slope estimates show that among those with low perceived overall justice, the strength of causality between social support and work engagement is greater than those with high perceived overall justice. The simple slope coefficients are presented visually in Figure 55.

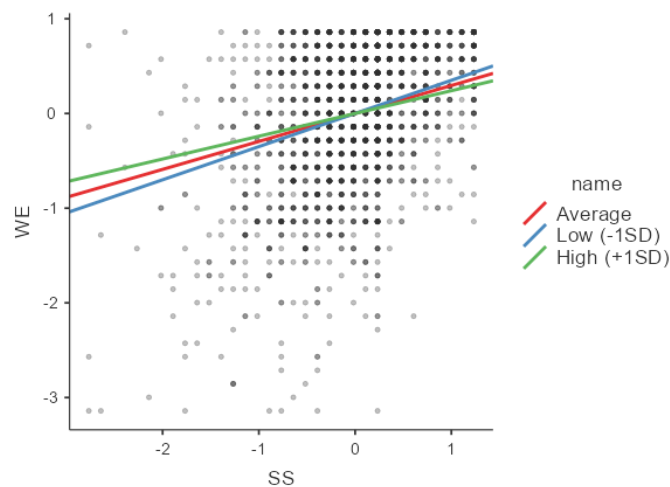


Figure 55. Simple slope plot – SS with WE by POJ.

4.7.4.3 Moderation Effect of POJ on Causality Between Job Autonomy and Work Engagement

Table 69 shows the moderation effect of perceived overall justice on the causality between job autonomy and work engagement. Here also, all the regression coefficients were found to be statistically significant. Notably, the influence of job autonomy on work engagement is only “mild,” similar to the finding for social support. The simple slope coefficients are also found to be significant at less than the 0.001 level, wherein those with low perceived overall justice show a stronger causal relationship between job autonomy and work engagement.

Table 69: *Moderation analysis results – JA with WE by POJ*

Moderation Estimates				
	Estimate	SE	Z	p
JA	0.232	0.014	16.619	< .001
POJ	0.305	0.014	21.514	< .001
JA * POJ	-0.041	0.013	-3.143	0.002
Simple Slope Estimates				
	Estimate	SE	Z	p
Average	0.232	0.014	16.595	< .001
Low (-1SD)	0.269	0.017	15.863	< .001
High (+1SD)	0.196	0.019	10.092	< .001

Note. Shows the effect of the predictor (JA) on the dependent variable (WE) at different levels of the moderator (POJ).

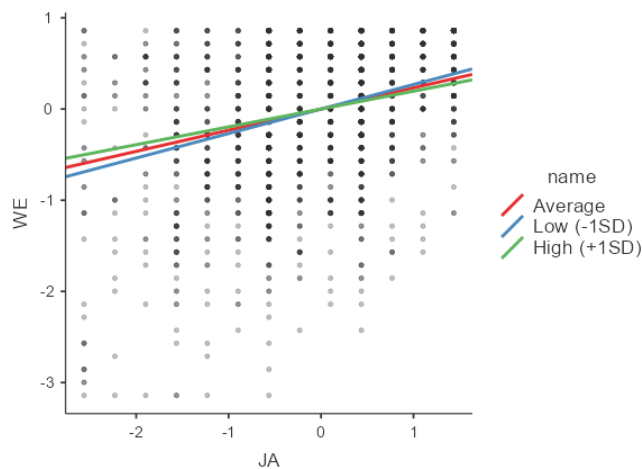


Figure 56. Simple slope plot – JA with WE by POJ.

4.7.4.4 Moderation Effect of POJ on Causality Between Job Resources and Work

Engagement

As observed, job resources are the construct created out of the average values of social support and job autonomy. The causal relationship between job resources and work engagement was hypothesized to be significant and positive. The results of the regression analysis, along with the moderation effect, are presented in Table 70. As expected, the coefficients were significant, and the causality of job autonomy on work engagement was found to be 0.412.

Table 70: *Moderation analysis results – JR with WE by POJ*

Moderation Estimates				
	Estimate	SE	Z	P
JR	0.412	0.02	20.809	< .001
POJ	0.234	0.014	16.825	< .001
JR * POJ	-0.078	0.017	-4.504	< .001
Simple Slope Estimates				
	Estimate	SE	Z	P
Average	0.412	0.02	20.755	< .001
Low (-1SD)	0.481	0.023	21.014	< .001
High (+1SD)	0.342	0.027	12.59	< .001
Note. This shows the effect of the predictor (JR) on the dependent variable (WE) at different levels of the moderator (POJ).				

All the simple slope coefficients are found to be significant. Here, also, those with low perceived overall justice have a stronger causal relationship between job resources and work engagement, as revealed by the simple slope coefficients, which are graphically presented in Figure 57.

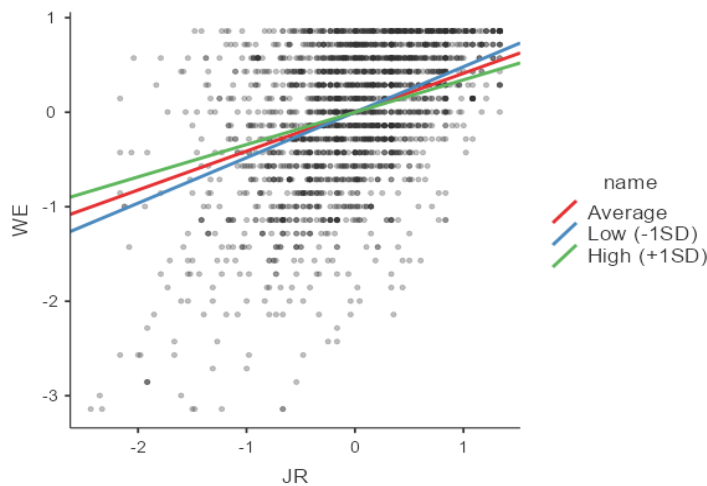


Figure 57. Simple slope plot – JR with WE by POJ.

4.7.5 Hypotheses Testing and Decisions

The results of the moderation analysis enable us to examine the hypotheses related to the moderating effect of perceived overall justice on the causal relationship between job demands, social support, job autonomy, and job resources and the dependent variable, work engagement. The hypotheses and their results are given in Table 71.

Table 71: Hypotheses on the moderation effect of POJ and their decisions

No.	Hypothesis	Decision
H1	Job demands negatively influence work engagement.	Accepted
H2a	Social support positively influences work engagement.	Accepted
H2b	Job autonomy positively influences work engagement.	Accepted
H2c	Job resources positively influence work engagement.	Accepted
H4a	Perceived overall justice moderates the influence of job demands on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.	Accepted
H4b	Perceived overall justice moderates the influence of social support on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.	Rejected
H4c	Perceived overall justice moderates the influence of job autonomy on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.	Rejected
H4d	Perceived overall justice moderates the influence of job resources on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.	Rejected

4.7.6 Conclusion

The analysis of the moderation effect of perceived overall justice shows that the role of the moderating variable is statistically significant in all the examined contexts, but its effect was found to be very small. The simple slope estimates showed the strength of the causal relationship between the independent variables on “work engagement” at different levels of the moderating variable “perceived overall justice.” The estimates showed that those with low perceived overall justice had stronger causality between the independent variables and the dependent variable. This indicates that even if the level of perceived overall justice is low, work engagement remains unaffected. This all leads to the conclusion that the moderation effect of perceived overall justice can be considered very small or negligible.

4.8 Mediation Analysis

4.8.1 Introduction

In this section, the influence of job demands and job resources on job performance and its components, in-role performance and extra-role performance, are examined. As is known, job resources have two components, social support and job autonomy; thus, their influence on job performance and its components were also examined.

The important aspect of these analyses is that the causalities between the independent variables and the dependent variable(s) are hypothesized to be influenced by work engagement. So, the major task of the analysis here is to see the existence, nature, and magnitude of the influence of work engagement as a mediator in the causalities mentioned above. Mediation analysis is taken up for this purpose.

4.8.2 Mediation Analysis

Mediation analysis examines the intervening behavior and influence of a mediating variable in the direct causal relationship between an independent variable and a dependent variable (Hayes, 2018). An interpretation of a mediation model is to presume that the independent variable has an effect on the mediator variable, which, in turn, can have an effect on the dependent variable. Therefore, a mediator variable is useful for clarifying the nature of the associations between independent and dependent variables (MacKinnon, 2008). Figure 58 explains the role of the variables in mediation analysis.

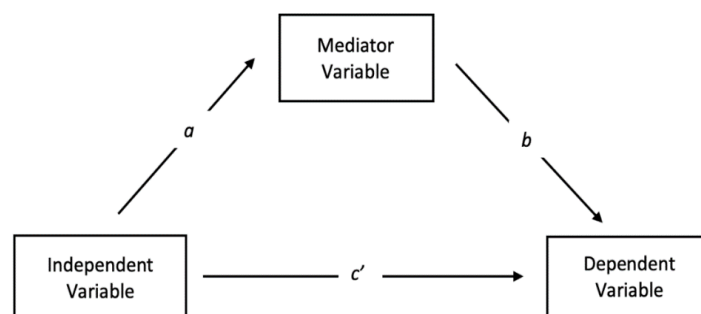


Figure 58. Variables in mediation analysis.

When an independent variable and a dependent variable do not have a clear direct connection, mediation analysis can help explain their relationship (Cohen, Cohen, West, & Aiken, 2003). In Figure 58, the direct effect is coefficient c' . The indirect effect is the product of path coefficients a and b . When the independent variable increases by one unit while the mediator variable stays unchanged, the direct impact measures how much the dependent variable changes. Conversely, indirect impact measures the amount that the dependent variable

alters when the independent variable is fixed and the mediator variable is altered by the amount that it would have changed if the independent variable were increased by one unit (Robins & Greenland, 1992). For linear systems, the total impact equals the total of both the direct and indirect effects ($c' + ab$).

A mediator may either fully or partially explain the causal linkage between the dependent and independent variables. There is full mediation when the interaction between the independent variable and the dependent variable becomes zero following the insertion of the mediation variable. With partial mediation, the mediating variable accounts for only some of the linkage between the independent variable and the dependent variable. Partial mediation occurs when the independent and dependent variables also have a direct relationship, in addition to there being a significant relationship between the mediator and the dependent variable.

To quantify the mediation effect, researchers have used a number of methods, starting from Baron and Kenny (1986), in the regression analysis framework. After measuring the direct and indirect mediation effect, statistical significance must be found. Sobel's test (Sobel, 1982) was used to assess whether a mediation effect was significant, but it had low statistical power because of its assumption of normality. The test needs a large sample size to have the power to determine significant mediations.

As theirs was a non-parametric test, Preacher and Hayes (2004) provided some advantages over Sobel's test by presenting the bootstrap method, which was an improvement over Sobel's test in terms of power. According to their findings, the bootstrapping method is preferable for testing mediation based on the normality assumption, and it can handle smaller sample sizes ($N < 25$) (Preacher & Hayes, 2004). As a bootstrapping procedure, observations are frequently resampled randomly, with substitution from the dataset, to calculate the coveted statistic in each resampling. The sampling distribution for the statistic of interest can be

approximated by calculating hundreds or thousands of bootstraps resamples. Using this method, one can determine the significance or non-significance of a mediator effect by providing point estimates and confidence intervals. Point estimates demonstrate the mean over all of the bootstrapped samples, and if zero does not fall into the bootstrapping method's confidence interval, one can be confident that a mediation effect does exist.

4.8.3 Theoretical Model

The theoretical model of the present research is presented in Figure 59. The causal relations and the hypotheses for the mediation analysis are highlighted in red.

The analysis was conducted with the assistance of the statistical software *Jamovi 2.0* and its add-on module *Medmod* (Project, 2021). This module draws heavily from the program Hayes prepared for use within SPSS for calculating bootstrap estimates of mediation analysis.

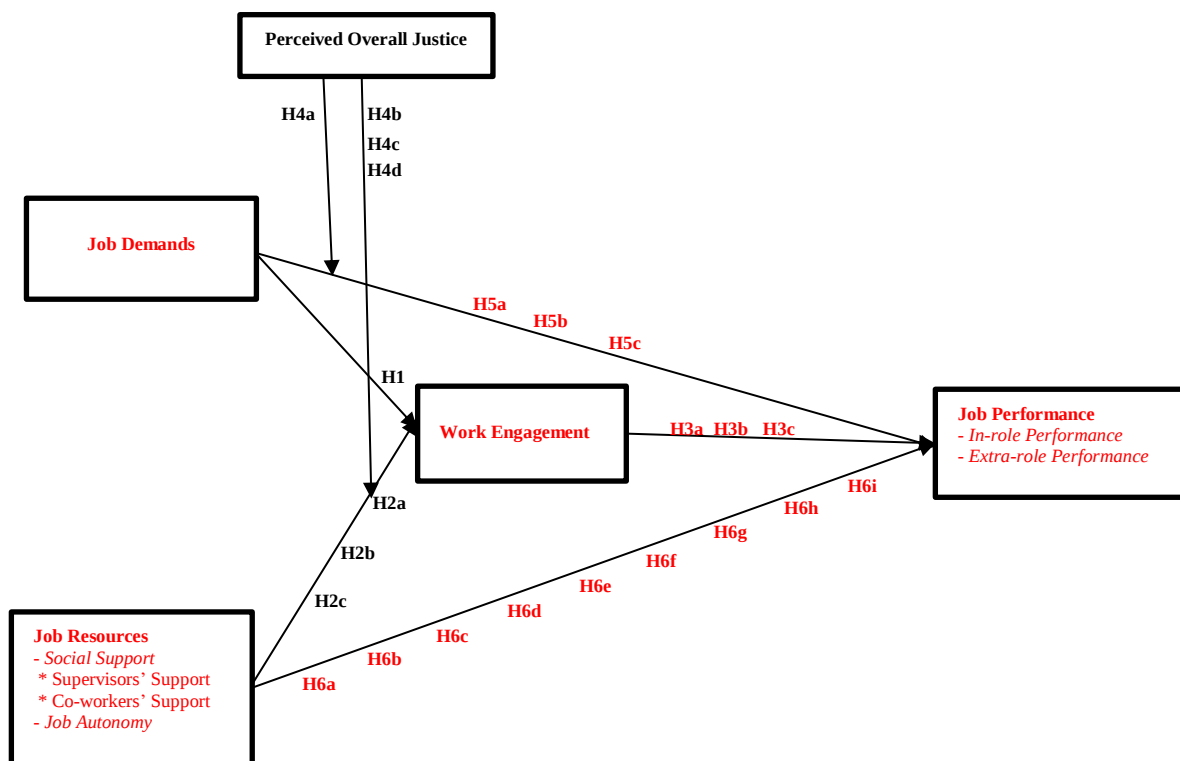


Figure 59. The theoretical model.

4.8.3.1 Influence of Work Engagement on Job Performance

The analysis started by examining the influence of work engagement on the performance variables, which are in-role performance, extra-role performance, and job performance. The results are given in Table 72, wherein all coefficients were found statistically significant and positive. The values of the coefficients show that the influence of work engagement on the performance variables was only mild. In-role performance was found to be more influenced by work engagement than extra-role performance and job performance.

Table 72: *Regression analysis results – WE on IR, ER, JP*

Model Coefficients - In-role Performance				
Predictor	Estimate	SE	t	p
Intercept	3.292	0.057	58.085	< .001
WE	0.275	0.013	20.382	< .001
Model Coefficients - Extra-role Performance				
Predictor	Estimate	SE	t	p
Intercept	3.183	0.058	54.688	< .001
WE	0.239	0.014	17.243	< .001
Model Coefficients - Job Performance				
Predictor	Estimate	SE	t	p
Intercept	3.238	0.049	66.625	< .001
WE	0.257	0.012	22.212	< .001

4.8.3.2 Mediation of Work Engagement in Causality Between Job Demands and In-role Performance.

The role of work engagement as a mediator in the causal relationship between job demands and in-role performance was examined, and the results are presented in Table 73. The model exhibits a partial mediation model, since both the indirect and direct effects remained statistically significant. For all effects, the bootstrap confidence intervals do not include the value of zero.

The indirect impact of job demands via work engagement is found to be negative, but surprisingly, the direct effect is positive. Thus, the total effect, which is the summation of direct and indirect effects, turned out to be negative, which means that the positive effect of direct causality was offset by the negative effect through the mediator variable. However, the values of the coefficients need close attention because they all show values close to zero, indicating a

negligible causal relationship. These negligible values of coefficients can be interpreted due to the lack of sensitivity of the independent variable “job demands” to the dependent variable “in-role performance.” In other words, the variations in job demands did not have a sizable impact on the performance of the respondents. Whatever impact is exhibited, 67.87% of it was through the mediator variable, as explained by the percentage of mediation.

The path estimates (i.e., the regression coefficients of each regression in the mediation model) are given in the second part of the table. The values of the effects from the mediation model are presented visually in Figure 60. As discussed above, the indirect and total effects were negative, while the direct effect was positive.

Table 73: *Mediation analysis results – JD on IR by WE*

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	a × b	-0.090	0.008	-0.107	-0.074	-11.08	< .001	67.866	
Direct	c	0.043	0.014	0.013	0.072	2.949	0.003	32.134	
Total	c + a × b	-0.048	0.014	-0.076	-0.019	-3.280	0.001	100	
Path Estimates									
			Label	Estimate	SE	95% Confidence Interval		Z	p
JD	→	WE	A	-0.309	0.021	-0.349	-0.269	-15.077	< .001
WE	→	IR	B	0.292	0.019	0.255	0.332	15.009	< .001
JD	→	IR	C	0.043	0.014	0.013	0.072	2.949	0.003

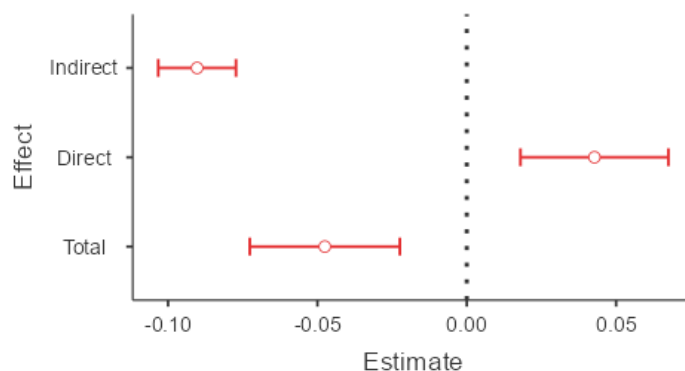


Figure 60. Estimate Plot – JD on IR by WE.

4.8.3.3 Mediation of Work Engagement in Causality Between Job Demands and Extra-role Performance.

Very similar results were found in the examination of the causality between job demands and extra-role performance. The mediation role of work engagement was identified

as a partial mediation, with a significant level, with a mediation percentage of 69.73. As is observed in the case of in-role performance, here, too, the coefficient values were very small, indicating near to zero influence in all effects. The direct effect was positive, which was offset by the indirect effects, leading to a negative total effect of job demands on extra-role performance. The results are given in Table 74 and Figure 61.

Table 74: *Mediation analysis results – JD on ER by WE*

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	a × b	-0.078	0.007	-0.092	-0.065	-11.003	< .001	69.725	
Direct	C	0.034	0.015	0.003	0.064	2.229	0.026	30.275	
Total	c + a × b	-0.044	0.015	-0.074	-0.016	-3.007	0.003	100	
Path Estimates									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	p
JD	→	WE	a	-0.309	0.021	-0.351	-0.269	-14.91	< .001
WE	→	ER	b	0.252	0.019	0.214	0.292	13.251	< .001
JD	→	ER	c	0.034	0.015	0.003	0.064	2.229	0.026

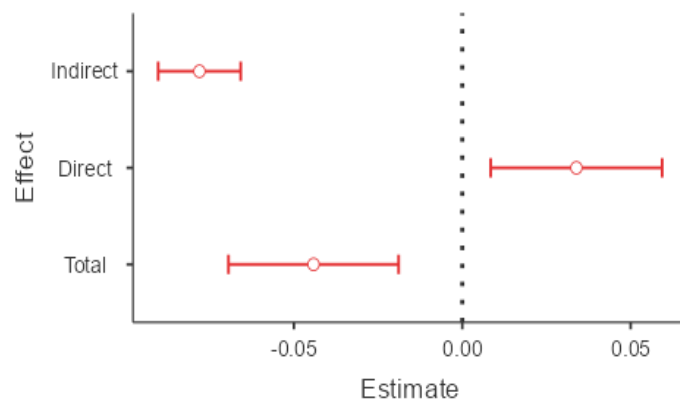


Figure 61. Estimate Plot - JD on ER by WE.

4.8.3.4 Mediation of Work Engagement in Causality Between Job Demands and Job Performance

The results of the mediation model, where the influence of job demands on job performance was estimated, are not surprising. The same pattern of results was obtained as in the case of in-role performance and extra-role performance for their summated variable “job performance.” The most important aspect of these results is the low value of the coefficients, which clearly denotes the practical significance of the effects. Here, too, they remained close

to zero, for the reasons we mentioned earlier in the case of in-role performance. The results are given in Table 75 and Figure 62.

Table 75: Mediation analysis results – JD on JP by WE

Mediation Estimates									
Effect	Label	Estimate	SE	95% Confidence Interval		Z	p	% Mediation	
				Lower	Upper				
Indirect	$a \times b$	-0.084	0.007	-0.099	-0.07	-11.346	< .001	68.716	
Direct	c	0.038	0.013	0.01	0.063	2.906	0.004	31.284	
Total	$c + a \times b$	-0.046	0.013	-0.073	-0.019	-3.462	< .001	100	
Path Estimates									
			Label	Estimate	SE	95% Confidence Interval		Z	p
						Lower	Upper		
JD	→	WE	a	-0.309	0.021	-0.352	-0.27	-14.753	< .001
WE	→	JP	b	0.272	0.017	0.238	0.304	15.99	< .001
JD	→	JP	c	0.038	0.013	0.01	0.063	2.906	0.004

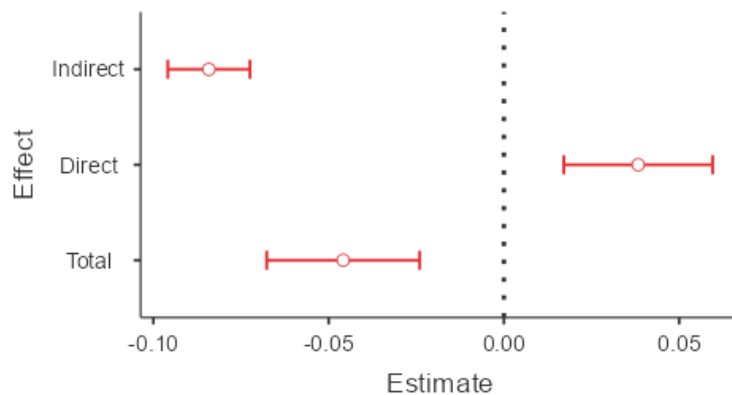


Figure 62. Estimate Plot – JD on JP by WE.

4.8.3.5 Mediation of Work Engagement in Causality Between Social Support on In-role Performance

Social support is expected to have a positive influence on performance variables. The mediation model examined how much of that impact was exerted through the mediation variable of work engagement. The estimation results are given in Table 76 and Figure 63. The total effect was estimated as 0.216, where 58.81% was found to be indirect, through work engagement (0.127). Though the effects were found to be small in magnitude, all were found to be statistically significant.

Table 76: Mediation analysis results – SS on IR by WE

Mediation Estimates									
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				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	$a \times b$	0.127	0.012	0.104	0.153	10.254	< .001	58.812	
Direct	c	0.089	0.023	0.047	0.134	3.893	< .001	41.188	
Total	$c + a \times b$	0.216	0.023	0.173	0.263	9.478	< .001	100	
<i>Path Estimates</i>									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	p
SS	→	WE	a	0.522	0.029	0.465	0.575	18.028	< .001
WE	→	IR	b	0.243	0.019	0.206	0.283	12.57	< .001
SS	→	IR	c	0.089	0.023	0.047	0.134	3.893	< .001

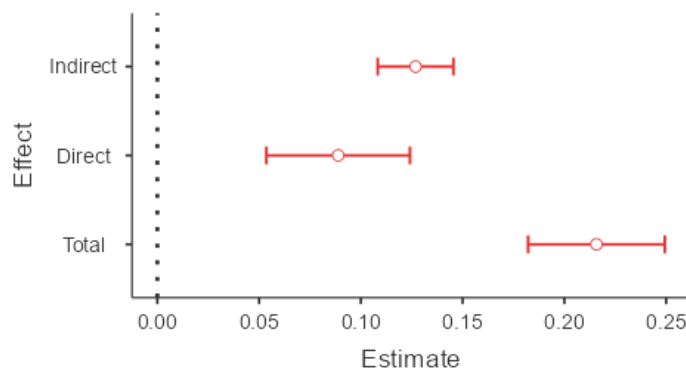


Figure 63. Estimate Plot – SS on IR by WE.

4.8.3.6 Mediation of Work Engagement in Causality Between Social Support and Extra-role Performance

The mediation impact of work engagement was found to be lower (32.70) in the model in which the dependent variable was extra-role performance than in the model in which the dependent variable was in-role performance. All effects were significant and positive in direction. The results are presented in Table 77 and Figure 64.

Table 77: Mediation analysis results – SS on ER by WE

Mediation Estimates								
				95% Confidence Interval				
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation
Indirect	$a \times b$	0.09	0.011	0.071	0.111	8.548	< .001	32.699
Direct	C	0.186	0.024	0.138	0.233	7.774	< .001	67.301
Total	$c + a \times b$	0.276	0.022	0.235	0.322	12.694	< .001	100
<i>Path Estimates</i>								
						95% Confidence Interval		
			Label	Estimate	SE	Lower	Upper	Z
SS	→	WE	A	0.522	0.028	0.472	0.577	18.947
WE	→	ER	B	0.173	0.019	0.137	0.213	9.024
SS	→	ER	C	0.186	0.024	0.138	0.233	7.774

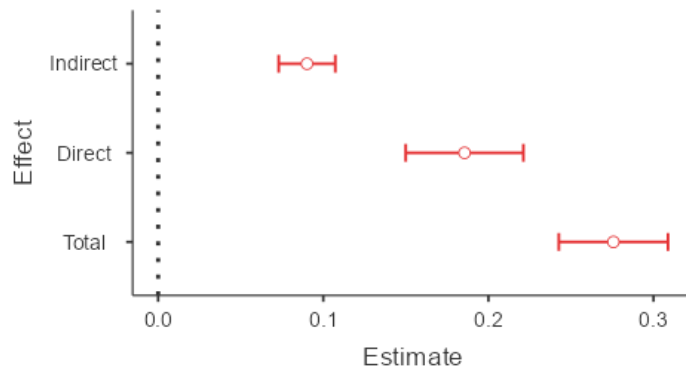


Figure 64. Estimate Plot – SS on ER by WE.

4.8.3.7 Mediation of Work Engagement in Causality Between Social Support and Job Performance

The mediation model estimates in which the dependent variable was job performance show the overall impact of social support on job performance. As expected, the mediation is significant and positive, though the coefficient value is .246. Indirect mediation was found to be 44.16% of the total effect. Table 78 and Figure 65 present the results.

Table 78: Mediation analysis results – SS on JP by WE

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	a × b	0.109	0.01	0.09	0.13	10.802	< .001	44.162	
Direct	C	0.137	0.019	0.099	0.177	7.037	< .001	55.838	
Total	c + a × b	0.246	0.018	0.212	0.282	13.762	< .001	100	
Path Estimates									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	p
SS	→	WE	a	0.522	0.027	0.47	0.577	19.007	< .001
WE	→	JP	b	0.208	0.017	0.176	0.242	12.367	< .001
SS	→	JP	C	0.137	0.019	0.099	0.177	7.037	< .001

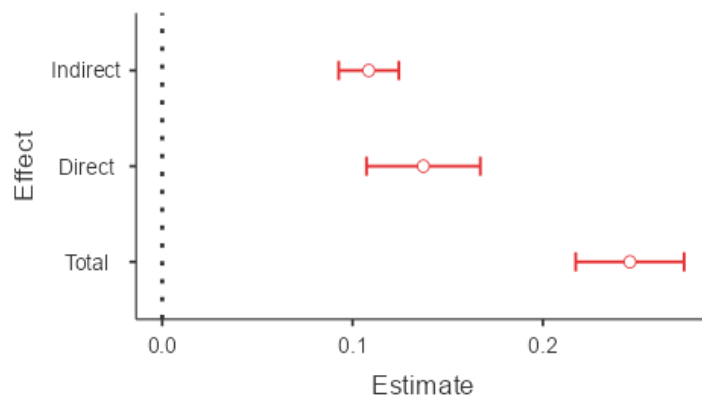


Figure 65. Estimate plot - SS on JP by WE.

4.8.3.8 Mediation of Work Engagement in Causality Between Job Autonomy and In-role Performance

Job autonomy is hypothesized to influence all levels of performance in positive and significant ways. It is expected to have a positive impact on work engagement as well, and through work engagement, to have impact on performance variables. These hypotheses were tested in the mediation model, and the results are given in Table 79 and Figure 66. As expected, all coefficients were significant and had positive values. However, we had very low values for the coefficients here as well. It is interesting to note that of the low amount of influence of job autonomy on in-role performance, 67.88% was mediated through work engagement.

Table 79: Mediation analysis results – JA on IR by WE

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	a × b	0.086	0.008	0.071	0.101	10.956	< .001	67.878	
Direct	C	0.041	0.012	0.018	0.065	3.399	< .001	32.122	
Total	c + a × b	0.127	0.013	0.102	0.152	10.061	< .001	100	
Path Estimates									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	p
JA	→	WE	a	0.339	0.018	0.302	0.375	18.65	< .001
WE	→	IR	b	0.254	0.019	0.215	0.29	13.281	< .001
JA	→	IR	c	0.041	0.012	0.018	0.065	3.399	< .001

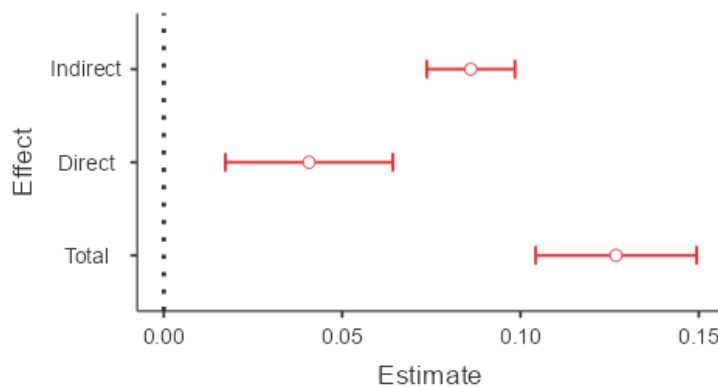


Figure 66. Estimate Plot – JA on IR by WE.

4.8.3.9 Mediation of Work Engagement in Causality Between Job Autonomy and Extra-role Performance

Relatively low values are found for the coefficients in the mediation analysis when extra-role performance is treated as the dependent variable. The most important thing to be noted here is that the direct effect was found to be statistically insignificant. Looking at the bootstrap confidence intervals, it can be seen that, for direct effects, the interval contains the value zero, which means that the model is becoming a full mediation model. The results are given in Table 80 and Figure 67.

Table 80: *Mediation analysis results – JA on ER by WE*

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation	
Indirect	a × b	0.077	0.007	0.064	0.091	11.148	< .001	75.251	
Direct	C	0.025	0.013	-0.003	0.051	1.896	0.058	24.749	
Total	c + a × b	0.102	0.013	0.074	0.127	7.819	< .001	100	
Path Estimates									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	p
JA	→	WE	a	0.339	0.018	0.304	0.375	18.637	< .001
WE	→	ER	b	0.226	0.018	0.189	0.26	12.466	< .001
JA	→	ER	c	0.025	0.013	-0.003	0.051	1.896	0.058

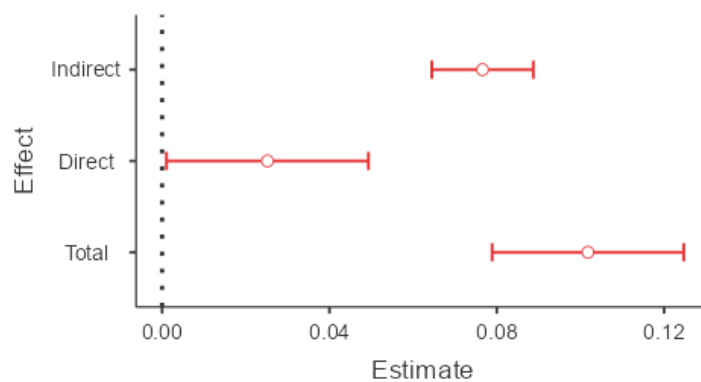


Figure 67. Estimate Plot – JA on ER by WE.

4.8.3.10 Mediation of Work Engagement in Causality Between Job Autonomy and Job Performance

Now, the mediation effect of work engagement on job performance was examined, and the results are given in Table 81 and Figure 68. The mediation was found to be partial, with all coefficients positive and statistically significant. The percentage of mediation through work engagement was found to be 71.16%. This is not surprising, as we observe the values of

coefficients go very low, indicating the very low influence of job autonomy on job performance. This is the same picture we saw with the split composites of job performance (i.e., in-role performance and extra-role performance).

Table 81: *Mediation analysis results – JA on JP by WE*

Mediation Estimates									
				95% Confidence Interval					
Effect	Label	Estimate	SE	Lower	Upper	Z	<i>p</i>	% Mediation	
Indirect	a × b	0.081	0.007	0.068	0.096	11.468	< .001	71.161	
Direct	C	0.033	0.011	0.012	0.054	3.076	0.002	28.839	
Total	c + a × b	0.114	0.012	0.092	0.138	9.537	< .001	100	
Path Estimates									
						95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z	<i>p</i>
JA	→	WE	A	0.339	0.019	0.302	0.377	17.636	< .001
WE	→	JP	B	0.24	0.016	0.209	0.272	14.707	< .001
JA	→	JP	C	0.033	0.011	0.012	0.054	3.076	0.002

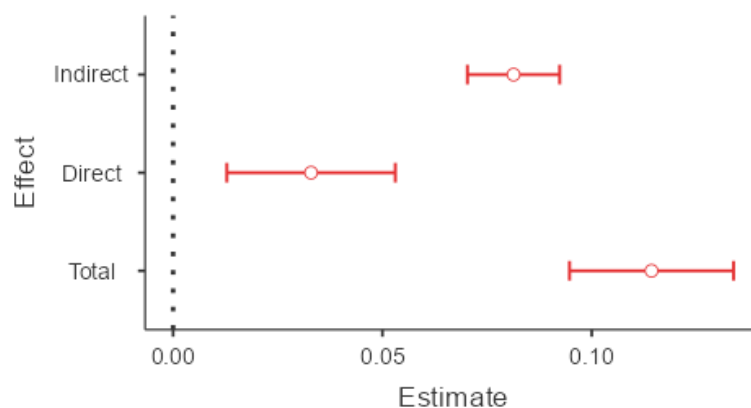


Figure 68. Estimate Plot – JA on JP by WE.

4.8.3.11 Mediation of Work Engagement in Causality Between Job Resources and In-role Performance

Job resources is the summated variable of social support and job autonomy and is hypothesized to have a significant positive influence on in-role performance. It was examined how much of the influence is made indirectly through work engagement, and the results are given in Table 82 and Figure 69. It is estimated that the influence of job resources on in-role performance is positive and significant. Mediation also is significant, and it amounts to 60.26% of the total effect, but the magnitude of the total effect itself is low, at 0.229.

Table 82: Mediation analysis results – JR on IR by WE

Mediation Estimates								
				95% Confidence Interval				
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation
Indirect	$a \times b$	0.138	0.013	0.113	0.163	10.975	< .001	60.26
Direct	C	0.091	0.02	0.053	0.131	4.584	< .001	39.74
Total	$c + a \times b$	0.229	0.02	0.191	0.268	11.53	< .001	100
Path Estimates								
				95% Confidence Interval				
			Label	Estimate	SE	Lower	Upper	Z
JR	→	WE	a	0.588	0.025	0.54	0.636	23.482
WE	→	IR	b	0.235	0.02	0.197	0.274	12.027
JR	→	IR	c	0.091	0.02	0.053	0.131	4.584

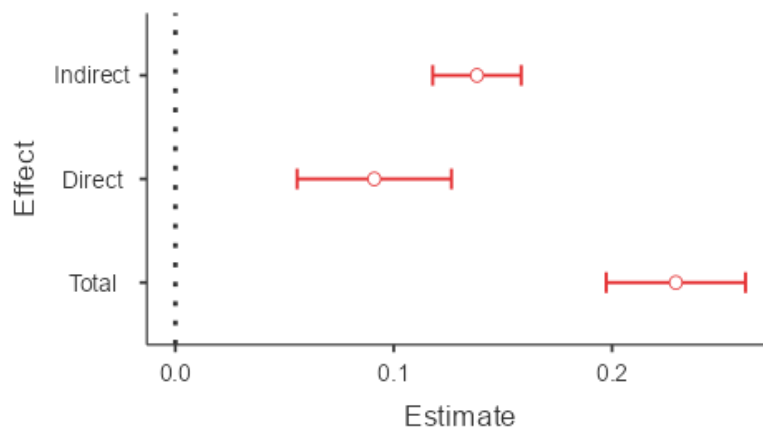


Figure 69. Estimate plot – JR on IR by WE.

4.8.3.12 Mediation of Work Engagement in Causality Between Job Resources and Extra-role Performance

Considering extra-role performance, the influence of job resources also shows the same results as found for in-role performance. The results are given in Table 83 and Figure 70, wherein 47.21% of the total effect was estimated to be indirect, through work engagement.

Table 83: Mediation analysis results – JR on ER by WE

Mediation Estimates								
				95% Confidence Interval				
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation
Indirect	$a \times b$	0.109	0.012	0.088	0.132	9.402	< .001	47.207
Direct	c	0.122	0.022	0.08	0.164	5.571	< .001	52.793
Total	$c + a \times b$	0.231	0.021	0.191	0.272	11.179	< .001	100
Path Estimates								
				95% Confidence Interval				
			Label	Estimate	SE	Lower	Upper	Z
								p

JR	→	WE	a	0.588	0.025	0.539	0.639	23.643	< .001
WE	→	ER	b	0.185	0.019	0.149	0.224	9.698	< .001
JR	→	ER	c	0.122	0.022	0.08	0.164	5.571	< .001

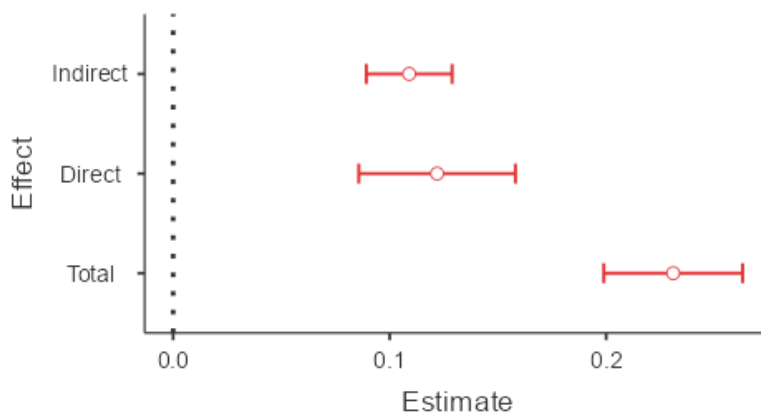


Figure 70. Estimate plot – JR on ER by WE.

4.8.3.13 Mediation of Work Engagement in Causality Between Job Resources and Job Performance

The influence of job resources on job performance and the mediating effect of work engagement in the causality were estimated in the mediation model, the results of which are given in Table 84 and Figure 71. The results showed that the mediation is significant and positive, amounting to 53.71% of the total effect. Similar to the results that had been seen with other causalities and mediation models, here, too, the coefficient values are found to be very low.

Table 84. Mediation analysis results – JR on JP by WE

Mediation Estimates								
				95% Confidence Interval				
Effect	Label	Estimate	SE	Lower	Upper	Z	p	% Mediation
Indirect	a × b	0.124	0.012	0.102	0.147	10.746	< .001	53.709
Direct	c	0.107	0.018	0.072	0.144	5.837	< .001	46.291
Total	c + a × b	0.23	0.017	0.197	0.265	13.264	< .001	100
Path Estimates								
					95% Confidence Interval			
			Label	Estimate	SE	Lower	Upper	Z
JR	→	WE	a	0.588	0.026	0.538	0.64	22.592
WE	→	JP	b	0.21	0.018	0.176	0.245	11.885
JR	→	JP	c	0.107	0.018	0.072	0.144	5.837

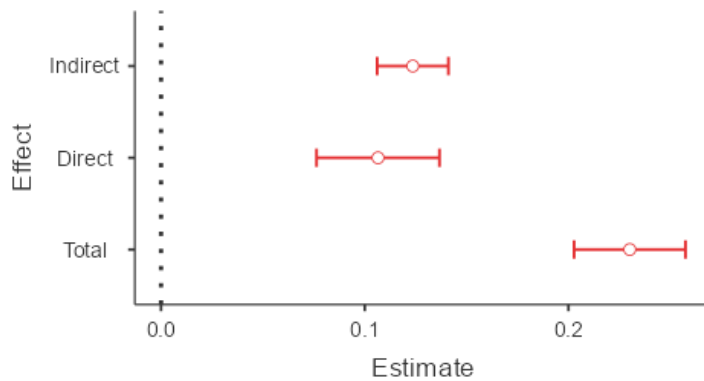


Figure 71. Estimate plot – JR on JP by WE.

4.8.4 Hypotheses Testing and Decisions

Table 85 shows the hypotheses that were tested in the mediation models and the decisions that were made after the estimation and testing procedures. Here, all of the hypotheses were accepted.

Table 85: *Hypotheses testing and decisions*

No.	Hypothesis	Decision
H3a	Work engagement positively influences in-role performance.	Accepted
H3b	Work engagement positively influences extra-role performance.	Accepted
H3c	Work engagement positively influences job performance.	Accepted
H5a	Work engagement mediates the influence of job demands on in-role performance.	Accepted
H5b	Work engagement mediates the influence of job demands on extra-role performance.	Accepted
H5c	Work engagement mediates the influence of job demands on job performance.	Accepted
H6a	Work engagement mediates the influence of social support on in-role performance.	Accepted
H6b	Work engagement mediates the influence of social support on extra-role performance.	Accepted
H6c	Work engagement mediates the influence of social support on job performance.	Accepted
H6d	Work engagement mediates the influence of job autonomy on in-role performance.	Accepted
H6e	Work engagement mediates the influence of job autonomy on extra-role performance.	Accepted
H6f	Work engagement mediates the influence of job autonomy on job performance.	Accepted
H6g	Work engagement mediates the influence of job resources on in-role performance.	Accepted
H6h	Work engagement mediates the influence of job resources on extra-role performance.	Accepted
H6i	Work engagement mediates the influence of job resources on job performance.	Accepted

4.8.5 Conclusion

The results of the mediation effect of work engagement on various causality examinations is summarized in Table 86.

Table 86: *Summary of the mediation effect of work engagement on different causations*

No.	Causation	Type of Mediation	Mediation Effect of WE (%)
1	JD on IR	Partial	67.87
2	JD on ER	Partial	69.72
3	JD on JP	Partial	68.71
4	SS on IR	Partial	58.81
5	SS on ER	Partial	32.70
6	SS on JP	Partial	44.16
7	JA on IR	Partial	67.88
8	JA on ER	Full	75.25
9	JA on JP	Partial	71.16
10	JR on IR	Partial	60.26
11	JR on ER	Partial	47.21
12	JR on JP	Partial	53.71

Only one model (job autonomy on extra-role performance) is found to be a fully mediated model. In all other mediation models, mediation was found to be partial. All mediation models gave significant results for the mediation, and it can be concluded that work engagement is a significant mediator variable. However, at the same time, it should be remembered that all coefficient values were found with low or very low values, indicating weak causal relationships between the independent and dependent variables.

CHAPTER 5: RESEARCH DISCUSSION AND CONCLUSION

5.1 Introduction

The discussion of the current research is explained in this chapter by combining the results and their analysis with the literature and interpreting it. This process is meant to assist in understating the research phenomena to provide both theoretical and empirical implications, as well as to pave a path for recommendations and suggestions for future studies. The purpose of this research was to improve the utilization of job demands and job resources in light of

perceived justice among nurses in the public healthcare sector of the UAE. The aim was to eventually assist policymakers to boost positivity in the workplace, to then foster better job performance by stimulating nurses' engagement. This chapter presents an outline and elucidation of the main findings.

5.2 Interpretation of the Findings

Numerous insights were identified in the findings of this research, shedding light on the data. In the following subsections, the explanation of the findings is outlined based on the research objectives.

The clearest conclusion about the research demographic variables of the respondents (i.e., nurses), is that females, noncitizens, and those 25 to 45 years of age dominate the sector. Also, the majority had graduated college and had more than ten years of experience, but their tenure with the current employer was less than five years. In terms of the two agencies, noncitizens and female nurses constituted the majority in both the MOHAP and SEHA, but the presence of male nurses in SEHA is greater than in MOHAP. Regarding age, the majority of MOHAP nurses belonged to the middle-age group, whereas SEHA had junior and senior employees as the dominant categories. In addition, SEHA nurses held higher educational qualifications and were relatively more experienced than MOHAP nurses.

The results of the reliability analysis for the present research show that the scales are well explained by the items, and the consistency in the scales has been established, which means the researcher may go further with the rest of the analyses and build on it with certainty. To reinforce this, subsequent to the modifications that occurred due to the processes of validity testing, all the scales remained qualified with good reliability. Moreover, both convergence validity and discriminant validity were attained for all the constructs of the research after taking the necessary actions, including deleting some items, covariance of other items, and running EFA wherever required for the CFA model for all the constructs.

Three sections will be covered in this chapter. First, it will discuss the relationships and levels of the research variables among nurses in the public healthcare sector of the UAE. A discussion will follow regarding the moderation role of perceived overall justice in the causation between job demands and job resources with regard to work engagement. Third is a discussion on the role of work engagement as a mediator between job demands and job resources with job performance.

5.2.1 The Relationships and Levels of the Research Constructs

5.2.1.1 Job Demands and Work Engagement

As a matter of fact, because it has been stated in the literature that job demands' correlation with work engagement received less study and examination (Breevaart & Bakker, 2018), the current research has participated in diminution of the ambiguity and variation in the literature in this regard, by providing evidence of a negative relationship. Regardless of the fact that the JD-R model does not postulate a direct link between job demands and work engagement (Radic et al., 2020), more job demands and the shortage of job resources might result in disengaging employees from their work (Demerouti et al., 2001a), which has been demonstrated in this research through accepting the hypothesis that job demands negatively influence work engagement; hence, in this research, the hypothesized negative relationship between job demands with work engagement was confirmed. In fact, this finding aligns with the extant literature, which says that elevated levels of job demands may have negative effects on work engagement (Pieters & Matheus, 2020). On top of that, the literature that built on the JD-R model as a theoretical framework has gotten inconsistent conclusions (Radic et al., 2020), suggesting that the association between job demands and work engagement is somewhat fuzzy (Sawang, 2012). The current research reinforces the negative relationship between job demands and work engagement, adding to the literature that proposes such a negative relationship (e.g., Breevaart & Bakker, 2018; Oshio et al., 2018). Moreover, job demands

diminish work engagement (Bakker, 2015), as proven by the literature in multiple sectors, including tourism and hospitality (Schaufeli, 2017). Therefore, the outcomes of this research contribute to the extant literature and align with it by confirming this relationship in the public healthcare sector.

As anticipated theoretically, job demands are found to be negatively associated with all other constructs, but the degree of the association has been found to be mild to negligible. To illustrate, job demands had mild associations with job resources, work engagement, and perceived overall justice, while it had a very negligible association, that is, close to zero, with job performance and its components. This very low level of association indicates that even with various levels of job demands, the level of the job performance of nurses endures unimpacted. Also, the relatively low levels of effects of job demands on job performance signal that nurses in the UAE public healthcare sector do not permit the demands of their work to restrain and avert them from fulfilling and attaining their duties, which explains the very negligible level of correlation (close to zero) between performance and its components. To put it differently, although job demands are known for their restrictive features and the literature has claimed a negative correlation with the business outcomes (and this research itself found the indirect association of job demands with job performance through the mediating role of work engagement to be negative), the negligible level of this impact is striking and reflects the loyal and sincere attitude of nurses in the UAE public healthcare sector. The rationality of being "striking" in this context is that the results of the research contradict the existing literature on the negative correlation between job demands and business outcomes. Means, it challenges the conventional wisdom that job demands have a significant negative impact on business outcomes. The fact that the impact is negligible suggests that it might there are some other factors may play a more significant role in determining the impact of job demands on job performance and work-related outcomes. In short, this "striking" result in the healthcare sector

challenges prevailing assumptions and highlights the need for further research to better understand the complex relationship between job demands, work engagement, and work-related outcomes. Moreover, the mild associations between job resources, work engagement, and perceived overall justice revealed that the influence job demands have over these constructs may not be as extreme, which can be attributed to the nature and characteristics of the sector the respondents belong to. Therefore, regardless of the level of job demands that nurses are exposed to, the impact on their engagement, their resources, and perceptions of justice in their entities may not be notably impacted. Thus, they will stay engaged and will use their resources wisely, and their perceptions about their healthcare entities will not be negatively affected. Thus, this will not have an adverse influence over their performance. It is worth mentioning that the analysis of job demands as an independent variable on work engagement as a dependent variable was found to be significantly negative, which means that any increase in job demands will result in a decline in work engagement. Yet, as already explained, the level of the influence is mild, so it is not expected to impact the engagement of nurses to any notable degree.

The effects of job demands over all the demographic variables were found to be different, which brings up many ideas about the job constraints among nurses. With respect to agencies, SEHA nurses were found to face more job demands in comparison to MOHAP nurses, although it has been found that SEHA nurses were more educated and experienced, which might be the reason for their heavier loads. Regarding nationality as a demographic variable, citizen nurses reported more burdens than noncitizens, which might be explained by the fact that the minority of locals in the sector might perceive the nursing occupation as demanding. Noncitizen nurses may not see job demands as a burden for several reasons. Firstly, many noncitizen nurses may come from countries where the nursing profession is highly respected, and where there is a shortage of healthcare professionals. Secondly,

noncitizen nurses may have come with the specific goal of working as a nurse. As a result, they may be highly motivated to work in their chosen profession, even if it means taking on a demanding job. Finally, noncitizen nurses may be more likely to have a strong work ethic and be willing to take on challenging jobs in order to provide for their families or to achieve their personal and professional goals. They may also be more resilient and adaptable, which can help them cope with the demands of their jobs. Overall, while the demands of the nursing profession can be challenging, noncitizen nurses may see these demands as an opportunity to make a positive impact and to achieve their goals, rather than as a burden. Among the genders, females faced more job demands than males, which could be explained by their nature and required off-work tasks. In addition, nurses in the highest age group only felt relaxed compared to other categories, which means the load existed for all the age groups; as nurses gain more experience, they become more indulgent and more capable of handling job demands. Nonetheless, it is astonishing to discover that the better-educated nurses confronted more burdens. Less surprising is that the less-educated nurses confronted more burdens, which might be interpreted as due to the amount of work assigned to them because of their qualifications. Considering tenure with the same employer as a demographic variable, nurses with 10–15 years faced more job demands than other groups, which might be attributed to the fact that as they get more experienced and become familiar with the work duties, they receive more demands than newcomers or seniors.

5.2.1.2 Job Resources and Work Engagement

In this research, it has been found that job resources impact work engagement positively. Thus, the hypothesis that stated a positive relationship between job resources and work engagement has been accepted, as social support and job autonomy were examined as components of job resources, as these are among its most prominent components (Buch et al., 2015). High levels of autonomy and social support are mainly linked with work engagement

(Bakker & Demerouti, 2007; Hakanen & Roodt, 2010), so it was important to examine these factors in the public healthcare sector and in the context of the UAE. The goal was to enrich and expand the literature and JD-R theory, and enhance the sector's performance, as well as offering policymakers empirical recommendations.

The results for job resources across diverse demographic variables found no difference across the agencies. Despite the fact that SEHA has better-educated nurses, as this research found, when it comes to the professional level aspects of the job resources, there were no differences across nurses, which may suggest that both agencies are making available the needed job resources for their nurses. The only significant differences were in gender, age, and experience. Male nurses stated that they are endowed with better job resources, which might reflect a gender bias wherein male employees get more support and autonomy. Looking at age as a demographic variable, nurses in the most senior age category were found to have the best job resources compared to the other groups, which means the work environment is more supportive for most senior nurses. In regard to experience, those with five to ten years of experience had the best job resources, which may suggest that the least experienced staff and those with over ten years of experience are receiving less support and autonomy.

5.2.1.2.1 Social Support and Work Engagement

When scholars mention of social support associated with work engagement, they commonly indicate the support of both supervisors and co-workers (Korunka et al., 2009). Hence, the social support in this research is attributed to both supervisor and co-worker support, which has been found to be positive in its relationship with work engagement, as hypothesized. This finding has been found compatible with the previous literature (e.g., Bakker & Demerouti, 2007; James et al., 2011; Schaufeli & Bakker, 2004; Xanthopoulou et al., 2008), which revealed a positive relationship between both the support of supervisors and co-workers and work engagement. In addition, the current study concluded that social support positively

impacts work engagement, a finding that has been confirmed in the literature. For instance, Crawford et al. (2010) pronounced that social support as a job resource had positive and great effects on work engagement. This finding adds to the literature mentioning that both supervisors' and co-workers' support are important facets of job resources, which has been confirmed to have a positive relationship with work engagement (Christian et al., 2011; Halbesleben, 2010).

In regard to the supervisors' support, there is a statistically significant difference in terms of the agency, gender, education, and tenure with the same employer. Nurses felt that supervisors' support was better in MOHAP than in SEHA. This might be explained by the fact that SEHA nurses had better education and more experience; they are getting less support than the nurses in MOHAP. Also, supervisors' support was found to be better for male nurses, which once again may reinforce the idea of gender bias. Plus, it was found to be better for better-educated nurses, which is contrary to the previous explanation related to agency. To put it differently, MOHAP has less-educated nurses, but they are receiving better support from their supervisors compared to MOHAP. Here, however, among the education category as a demographic variable, the better-educated got better support from their supervisor, which might be interpreted that due to their education (which means more knowledge), their supervisor offered them more support. Moreover, supervisor support was better for those with longer tenure. This might be because the longer they spend with their entity, the more support they receive.

With respect to co-workers' support, this was found significant only for age and experience as demographic variables. The juniors (nurses in the lowest age group) received the highest support, which is rational because the nurses in the lower-age group are more in need of their co-workers' support, as suggested by this present research. Likewise, those with five to ten years of experience got the greatest support from their co-workers when compared to the

other experience groups, although one may anticipate that the least experienced nurses would get the greatest support from their co-workers.

In regard to social support, the results differ significantly only in the gender category, where male nurses claimed that they received better social support than their female counterparts. Again, this may be considered a sign of gender bias, or it may be interpreted as an indication that, because they received better social support, they have less exhaustion due to job demands. As shown in this research, and as stated in the literature, job resources work as buffers for job demands.

5.2.1.2.2 Job Autonomy and Work Engagement

The current research admitted the hypothesis that job autonomy positively influences work engagement, which is consistent with the previous literature. For instance, employees who enjoy elevated levels of autonomy are enjoying and engaging more in their work tasks because of the feeling of activation and loyalty linked to autonomy, which spurs further work engagement (Bakker & Demerouti, 2007). Likewise, with the support of the JD-R model, on days employees are enjoying autonomy, it is predicted that work engagement will be elevated because of the motivating capabilities of job resources (Bakker & Bal, 2010), as well as helping in goal development and attainment (Bakker & Demerouti, 2007). Thus, the findings of this research align with the previous literature and enhance it by demonstrating a positive relationship between job autonomy and work engagement in the public healthcare sector, and in the context of the UAE.

In addition, it is worth noting that job autonomy was found to be statistically significantly different among the age and experience-based groups, wherein the senior-most in the age groups, and respondents with five to ten years of experience reported that they were enjoying the highest level of job autonomy compared to the other groups.

5.2.1.3 Work Engagement and Job Performance

The current research accepted the hypothesis that work engagement positively influences job performance, and this is in line with the previous literature with the same hypothesis. It has been found that engaged employees who enjoy towering energy levels are expected to have a high performance (Lazauskaite-Zabielske et al., 2018), and this result in the literature supports the finding in this research reached. Also, there is a confirmed work engagement–job performance linkage (Bakker & Bal, 2010; Xanthopoulou et al., 2008), as work engagement predicted performance in both self-employed and salaried employees (Gorgievski et al., 2010). Moreover, job performance is efficient when employees have dedication, vigor, and absorption in their work, which stimulates and urges hard work and good performance (Alessandri et al., 2018). Therefore, engaged employees positively influence job performance, based on the findings of the current research. To confirm, the previous literature, such as the work of Schaufeli and Bakker (2004), has confirmed that work engagement is associated with elevated job satisfaction, rising organizational commitment, elevated performance, as well as less absenteeism and turnover. Consequently, the UAE public healthcare sector is expected to gain similar fruitful results because the hypothesis has been accepted.

The UAE healthcare sector can benefit greatly from the positive relationship between work engagement and job performance. When healthcare professionals are engaged in their work, they are more likely to provide high-quality care to patients. This can lead to better health outcomes, which is a critical goal in the healthcare sector. Furthermore, engaged healthcare professionals are more likely to be proactive in identifying and addressing issues in the workplace. This can improve the efficiency and effectiveness of healthcare services, resulting in better patient outcomes and increased patient satisfaction. Increased work engagement can also have a positive impact on employee retention in the UAE healthcare sector. High turnover rates can be a significant challenge for healthcare organizations, leading to increased costs and

reduced quality of care. Engaged employees are more likely to remain with an organization, which can help to reduce turnover and its associated costs. Finally, work engagement can improve job satisfaction and organizational commitment among healthcare professionals. This can result in a more positive and productive workplace culture, where employees are motivated and committed to achieving organizational goals. In summary, the positive relationship between work engagement and job performance can have numerous benefits for the UAE healthcare sector, including improved patient outcomes, increased efficiency, reduced turnover, and a more positive workplace culture. By promoting work engagement among healthcare professionals, the UAE healthcare sector can achieve these benefits and continue to provide high-quality care to its patients.

5.2.1.3.1 Work Engagement, In-role Performance, and Extra-role Performance

The hypotheses that suggested a relationship between work engagement and both in-role performance and extra-role performance were found to be accepted, as work engagement positively influenced both in-role and extra-role performance, which is in line with the previous studies (Halbesleben, 2010; Halbesleben & Wheeler, 2008; Schaufeli et al., 2006b). Furthermore, work engagement is linked with job performance, both in-role and extra-role performance (Christian et al., 2011; Lorente et al., 2014). What's more, a substantial association was found between engagement and individual morale, individual task performance, organizational performance, and extra-role performance (Bailey et al., 2017), which bolstered the finding of this research. Nonetheless, the association between work engagement and performance is scarce in the literature in comparison to studies that examined the link between work engagement and other work outcomes (Lazauskaite-Zabielske et al., 2018). Thus, the current research participated in enriching the literature related to the relationship of work engagement with job performance.

Astonishingly, none of the demographic variables in the current research were found to be statistically significant with job performance. As a matter of fact, the presence of the same level of job performance across all the demographic variables is an issue of significance that needs to be looked further into in more detail. This might be attributed to the nature of the duties attached to the nursing profession that the nurses are bound to. Actually, it can be concluded that, notwithstanding the differences in their demographic aspects, nurses do not compromise when delivering their duties at the overall job performance level. In addition, the influence of work engagement on performance variables has been found to be only mild, wherein the in-role performance was found to be more influenced by work engagement when compared to extra-role performance and job performance. As a consequence, the nurses in the public healthcare sector of the UAE, who are considered the highest workforce category among the medical crew, are sincere and devoted in their efforts, and they work without boredom to deliver the best service to patients, regardless of any external factors and under diverse circumstances. As a result, the quality and productivity of public healthcare services in the UAE will progress, which may contribute to the country achieving its ambition and its vision of providing high-quality healthcare services. What's more, these outcomes may also contribute to promoting health tourism in the country, as it may lead to elevated performance and productivity, which will attract attention to the sector. Indeed, when healthcare employees are engaged and performing at their best, it can lead to a positive reputation for the healthcare facility or hospital. This can attract more patients to seek healthcare services in the UAE. With the healthcare sector being a critical aspect of health tourism, a positive reputation and increased demand can lead to a flourishing health tourism industry in the country. In addition, engaged and motivated healthcare employees are more likely to provide a high level of personalized care, which is a key factor that health tourists consider when choosing a destination for their medical treatment. A reputation for excellent care can also lead to

increased referrals and recommendations from satisfied patients, which can further enhance the reputation of the healthcare facility and the UAE as a whole.

5.2.1.4 General Insights

- Despite the fact that job demands differ across the agency variable, it is interesting to find that the work engagement level does not vary across the agencies. However, work engagement varies across all the demographic variables except agency. Therefore, it might be concluded that regardless of the job demands to which nurses are exposed in both agencies, their engagement levels remain unaltered. As a result, this research concludes that the quality of the services and the productivity of the sector are promising, and they may keep flourishing. As a public sector that mainly receives support and budget from the government, such astonishing findings may participate and aid in achieving the UAE vision. Thus, the performance of public healthcare has been guaranteed based on the results of this research, and through guaranteeing the same level of performance in the private sector via conducting research, the healthcare sector (public and private) is anticipated to be among the prosperous sectors that support and facilitate the achievement of the country's visions and agendas.
- The in-role performance of nurses showed noteworthy findings, as statistically significant differences across the agencies were found. SEHA's nurses scored higher than their counterparts in MOHAP, which may be due to the fact that in this research, SEHA's nurses were found to have better education levels. Here, the importance of educational qualifications of nurses may arise. Moreover, an unsurprising finding is that the most experienced nurses and those with the longest tenure had the highest in-role performance scores compared to other categories. Unlike in-role performance, no statistically significant difference was found for

extra-role performance across the different demographic variables except for education, wherein the highest score was found with the nurses with the highest education level. That is a substantial finding to added to the body of literature, as it emphasizes the role of the educational qualifications for nurses to become aware of extra-role performance factors and to raise their prominence in the workplace.

- It is important to note that there are statistically significant differences in perceived overall justice among all demographic variables except for age. Among the agencies, MOHAP has a better perception of overall justice, which means a better atmosphere for nurses, which may lead to less impact of job demands over work engagement and more impact of job resources on work engagement. Noncitizen nurses recorded a higher perceived overall justice than citizens. As noncitizens were also the most numerous among all the respondents, encouraging fairness in the entities means better engagement and augmented performance. Regarding gender, male nurses were found to have better perceived overall justice, which might be correlated to their lower burden due to job demands and their receiving better job resources. In addition, the better-educated nurses perceived overall justice as higher, and this is apparently the case because they might be appraised according to their qualifications. Also, nurses with five to ten years of experience have better perceptions of overall justice scores, which again demonstrates that this category of experience is the best. Moreover, those with the lowest tenure with the same employer have better perceived overall justice, which might be explained by less experience and lack of familiarity with the new atmosphere in terms of fairness.

5.2.2 The Moderation Role of Perceived Overall Justice

Comprehending the approach in which people make judgments about fairness in organizations is significant, in addition to their reactions to such perceptions, as it is a pathway

to understanding organizational behavior (Colquitt & Greenberg, 2005; Ghosh et al., 2014), as those perceptions may influence attitudes and behaviors in the workplace (Colquitt et al., 2001; Yang et al., 2014). To illustrate, justice and fairness are among the work conditions whose low levels lead to burnout, while the perception of the existence of fairness and justice leads to a positive increase in work engagement (Maslach et al., 2001), as demonstrated in this research. This means that, when perceived overall justice was studied as a moderator variable, it was confirmed that the value of the coefficient at the lower level of perceived overall justice was greater than its value at the higher level, which led to accepting the following hypothesis: “Perceived overall justice moderates the influence of job demands on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.” This means that nurses with a lower perceived overall justice have a stronger negative causal relationship between job demands and work engagement. On the other hand, organizational elements and external factors have an influence on employee engagement (Heyns & Rothmann, 2018). Thus, when employees perceive fairness in their firms as low, this may impact their engagement, as well as the other positive organizational outcomes (Cenkci & Otken, 2019). However, the results of this research do not confirm this. In the current research, the moderation effect of perceived overall justice on the causality between job resources and its components (social support and job autonomy) on work engagement was estimated. The results found were significant, with a positive influence of job resources and their components (social support and job autonomy) on work engagement, though its magnitude might be categorized as “mild.” However, among those with low perceived overall justice, the strength of causality between job resources and its components (social support and job autonomy) with work engagement was stronger than those with high perceived overall justice, which led to a rejection of the following hypotheses: “Perceived overall justice moderates the influence of social support on work engagement such that the influence will be stronger for employees with perceptions of

higher overall justice.”; “Perceived overall justice moderates the influence of job autonomy on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.”; and “Perceived overall justice moderates the influence of job resources on work engagement such that the influence will be stronger for employees with perceptions of higher overall justice.” Consequently, this research on the UAE public healthcare sector came up with results that are contrary to the previous literature, such as Biswas et al. (2013), which stated that those employees who received justice and fair treatment at the workplace were more engaged than employees who felt unfairness. Conversely, employees who have less of a sense of justice might pull out and disengage from their work satisfaction, as in Suliman and Al Kathairi (2013), which claimed that justice was positively associated with both employee satisfaction and work engagement.

Few studies have empirically shown that organizational justice is believed to be among the diverse antecedents of work engagement (Moliner et al., 2008; Saks, 2006), which was the prime motive behind considering justice as one of the constructs whose impact should be examined in this research. Also, only a few studies have been carried out on the link between justice and employee engagement (Agarwal, 2014), which means that this research contributes to the literature on the relationship between justice and work engagement by scrutinizing justice as a moderator variable. In fact, the analysis of the current research on the moderation effect of perceived overall justice shows that the role of the moderating variable is statistically significant in all of the examined contexts, but the moderation effect was found to be very small. It showed that those who with low perceived overall justice had stronger causality between the independent variables and the dependent variable, which signals that even if the level of perceived overall justice was low, work engagement remained unaffected. This led to the conclusion that the moderation effect of perceived overall justice was very small or negligible. However, a few studies have examined the justice–engagement relationship, like

Saks (2006), and found no linkage between procedural and distributive justice with work engagement. Therefore, this research participated in the dialogue regarding this relationship by considering justice as a moderator variable and studying it as an overall concept instead of concentrating on one aspect of organizational justice. This confirmed the suggested hypotheses regarding the relationship between job demands and work engagement and rejected the relationship between job resources and work engagement.

5.2.3 The Mediation Role of Work Engagement

5.2.3.1 The Mediation Role of Work Engagement Between Job Demands on Job Performance

The current research decided to accept the suggested hypotheses regarding the causalities between job demands and job performance and its components through work engagement. Partial mediations for work engagement were confirmed between job demands and in-role performance, extra-role performance, and job performance, as the indirect effect was found to be negative, while surprisingly, the direct effect was positive. Thus, the total effect became negative. This means that the positive effect of direct causality is offset by the negative effect through the mediator variable, yet the value of the coefficients is close to zero, indicating a negligible causal relationship. This can be inferred as a lack of sensitivity to job demands (an independent variable) in in-role performance, extra-role performance, and job performance (dependent variables). In other words, variations in job demands did not have a considerable influence on the performance of nurses, and whatever influence was displayed, 67.87%, 69.73%, and 68.72% of it was through the mediator variable work engagement. Accordingly, the outcomes of this research are compatible with previous studies, and thus, it enriched the literature related to both the context and the sector. Previous studies mainly concentrated on the job demands–burnout relationship and job resources–work engagement relationship. For example, job demands lead to ill health, and job resources are behind the

motivational operation (Demerouti & Bakker, 2011); moreover, job demands basically anticipate negative work-related consequences (Bakker et al., 2003c, 2004), while work engagement is predicted by job resources (Hakanen et al., 2006). In contrast, this research concentrated on the relationship between job demands and work engagement, relying on the JD-R model. This means that this research suggested that job demands would impact work engagement negatively because work engagement is the opposite of burnout; thus, as job demands are positively associated with burnout, they were anticipated to negatively impact work engagement. Indeed, the results of this research added to the extant literature, which is enriched, by confirming the negative link between job demands and work engagement. Furthermore, this research participated in minimizing the uncertainty and ambiguity in the literature related to the relationship between job demands and work engagement and demonstrated a negative association. In the extant literature, Oshio et al. (2018) stated that the relationship between both workload and time pressure with work engagement is vague for reverse reasons: staying busy reflects the significance of employees for their firms, which enhances work engagement, or excessive workload may lead to minifying the positive emotions of employees toward their firms. However, the current research provided evidence for the negative impact of job demands on work engagement and aligned with other previous studies (e.g., Breevaart & Bakker, 2018; Oshio et al., 2018) that found a straight negative association between job demands and work engagement (Breevaart & Bakker, 2018; Oshio et al., 2018). Saari et al. (2017) confirmed that both insecurity and time pressure lessened work engagement, and Bakker (2015) attributed the weakening of work engagement to job demands.

Furthermore, in addition to the aforementioned outcome, this research corroborated the relationship between work engagement and job performance and its components—in-role performance and extra-role performance—and stated that it is a positive association. According to the extant literature, a significant connection between work engagement and in-role

performance has been proven (Halbesleben et al., 2013), plus a positive association between task performance and work engagement has been confirmed (Geue, 2018). Work engagement has been confirmed as an identical and rigid proof for organizational citizenship behavior (Matta et al., 2015); work engagement is positively related to both OCB-O and OCB-I (Halbesleben et al., 2013). Consequently, the current research aligned with the previous literature that confirmed the negative association between job demands and work engagement, and it found a positive relationship between work engagement and job performance, as claimed in previous studies. This led to the conclusion that work engagement is a significant mediator variable between job demands and job performance, which supports the JD-R model and adds to the theory-related literature.

5.2.3.2 The Mediator Role of Work Engagement on the Relationship Between Job Resources and Job Performance

This research reached the decision to accept the proposed hypotheses regarding the causalities between job resources and its components and job performance and its components through work engagement. Partial mediations for work engagement have been confirmed between job resources and its components (i.e., social support and job autonomy with in-role performance, extra-role performance, and job performance). In fact, all causalities were found to be statistically significant but small in magnitude, indicating very low influences of job resources and its components on job performance and its components. While 58.81% of the total effect is found to be indirect through work engagement in the causality between social support and in-role performance, it was found to be lesser for extra-role performance, at 32.70%, and for job performance, at 44.16% of the total effect. Regarding job autonomy, it is interesting to note that the lowest level of influence of job autonomy was in-role performance, which was mediated partially through work engagement, at 67.88%. Indeed, a full mediation model, with 75.25%, was confirmed in the case of extra-role performance. Then, the mediation

of job performance was found to be partial, while the percentage of the mediation through work engagement was found to be 71.16%. Regarding job resources, the mediation influence of job resources on in-role performance was 60.26% of the total effect, while it was 47.21% of the total effect in the case of extra-role performance, and job performance impact amounted to 53.71% of the total effect.

These outcomes were compatible with the extant literature, as it has been confirmed that both the support of the supervisor and of co-workers are components of social support (Korunka et al., 2009), and a positive association has been confirmed between supervisor support and work engagement (Bakker & Demerouti, 2007; James et al., 2011). In addition, job resources explained by social support have a positive and strong impact on work engagement (Crawford et al., 2010). In addition, the link between job autonomy and both work engagement and career commitment proved to be positive, while a negative association was found between job autonomy and both burnout and emotional distress (Littman-Ovadia et al., 2013). In addition, it has been confirmed that the relationship between autonomy and commitment and vigor is significant and stronger than the relationship between autonomy and commitment and exhaustion (Demerouti et al., 2010).

On the other hand, the current research emphasized the positive association between work engagement and job performance and its components (i.e., in-role performance and extra-role performance) and underlined the outcomes of the extant literature. In addition, it confirmed the positive association between job resources and its components with work engagement, by which we can infer that work engagement was a significant mediator variable between job resources and its components with job performance and its components. To exemplify, the relationship between work engagement and in-role performance has been found to be positive (Halbesleben et al., 2013), and a considerable association was found between work engagement and task performance (Geue, 2018). There was a positive association between work

engagement and organizational citizenship behavior at both the organizational and individual levels (Halbesleben et al., 2013), as well as a significant link between work engagement and organizational citizenship behavior (Halbesleben et al., 2009; Matta et al., 2015).

5.3 Implications

5.3.1 Theoretical Implications

Our findings contribute to the literature on the JD–R model and help to reduce the ambiguity of the job demands–work engagement relationship. They support the existence of a direct negative relationship. Previous studies have mainly considered the relationship between job demands and burnout (see, e.g., Demerouti et al., 2001). We have also expanded the literature by exploring the theory in a non-Western context, and in the field of nursing, which has not previously been much investigated. The mediating role of work engagement is also new, and supports the modified version of the JD–R model that emphasizes the importance of studying positive psychological aspects to create a more holistic model (Schaufeli and Bakker, 2004). Our study also enriches the literature on organizational factors, especially overall justice, because our results on this are contrary to previous studies. This was a surprising and striking result, with a stronger influence between job resources and work engagement among nurses with lower perceptions of organizational justice. Our study also provided new findings on the time pressure and workload measurement scales, with no discriminant validity between the two subscales. We therefore combined job demands as a unidimensional construct with items from both subscales.

5.3.2 Practical Implications

The thesis on work engagement and job performance among nurses in the public healthcare sector in the United Arab Emirates has several practical implications for policymakers and managers. Here are some of them:

5.3.2.1 Policymaker Implications

- The government needs to invest in providing a supportive work environment that enhances the work engagement and job performance of nurses. This includes ensuring adequate staffing levels, providing opportunities for professional development and training, and improving the quality of workplace relationships.
- Policymakers should establish policies that recognize and reward nurses who demonstrate high levels of work engagement and job performance, such as promotions and salary increase.
- The government should develop strategies to attract and retain qualified nurses in the public healthcare sector, including offering competitive compensation packages, providing a positive work environment, and implementing effective recruitment and retention policies.
- Policymakers need to recognize the importance of job demands and resources for nurses in the public healthcare sector. They should work to ensure that policies and regulations are in place to support job demands and resources that enhance work engagement and job performance among nurses.
- Policymakers should also promote overall justice in the public healthcare sector by ensuring that policies and regulations are fair and equal for all employees. This can include regulations around salary, benefits, and working conditions.

5.3.2.2 Managerial Implications

- Hospital managers should prioritize creating a supportive work environment that enhances work engagement and job performance, including providing opportunities for professional development and training, ensuring adequate staffing levels, and improving the quality of workplace relationships.

- Managers should establish clear goals and expectations for nurses, provide regular feedback on their performance, and recognize and reward high levels of work engagement and job performance.
- Hospital managers should foster a culture of continuous improvement, where nurses are encouraged to identify areas for improvement and suggest innovative solutions to enhance patient care.
- Managers in the public healthcare sector need to pay attention to the job demands and resources of nurses. They need to identify which job demands and resources are important for nurses and how they can be improved to enhance work engagement and job performance.
- Managers need to create a supportive work environment for nurses that fosters overall justice. This can be achieved by providing fair and equal treatment to all employees, listening to their concerns, and providing feedback and recognition for their contributions.
- Managers should also consider implementing job crafting strategies that allow nurses to tailor their job demands and resources to their individual preferences and strengths. This can enhance work engagement and job performance.

In summary, the study on work engagement and job performance among nurses in the public healthcare sector in the United Arab Emirates highlights the need for policymakers and managers to invest in creating a supportive work environment that enhances work engagement and job performance. This includes providing opportunities for professional development, ensuring adequate staffing levels, and improving the quality of workplace relationships. Furthermore, policymakers need to develop strategies to attract and retain qualified nurses in the public healthcare sector.

5.4 Limitations

The outcomes of the present research should be seen in light of specific restrictions, similar to other research. The current research depended on a cross-sectional design in which the survey data were gathered at one point in time, which could be seen as a restriction for the generalization of the results. Hence, a longitudinal study is recommended to overcome this limitation and have better generalization chances for the outcomes. Moreover, the outcomes of this research may be impacted by using self-reported responses, which might be conquered by attempting to get responses from the supervisors regarding job performance. In addition, the research design is liable to common method bias because the author of this research relied solely on one online survey, which may influence the associations between the research constructs. Therefore, conducting mixed-method research that combines both qualitative and quantitative methods is advised to reduce bias and increase generalizability. Another limitation is that it considered only the public healthcare sector and excluded the private sector; hence, the findings may not be applicable and cannot be generalized to the sector as a whole. Thus, a comparative study that covers both the private and the public healthcare sector is encouraged.

5.5 Strengths

There are some strengths related to this research, despite its limitations. The researcher followed random sampling, which is multistage stratified sampling, which strengthened the ability to generalize the conclusions and findings of the research. Also, the high response rate of this research is astonishing; it helped to achieve a random sample and thus to generalize the results. Moreover, gathering the data was done through central entities, MOHAP and SEHA, which likely reduced subjectivity and led to more accurate surveys and genuine attitudes. In addition, surveying nurses as a specific professional category of the medical workforce is a strength because they are a homogeneous group who have particular job resources and job demands, which allowed inferences from the sample to the research population.

5.6 Agenda for Future Research

The researcher in this research investigated the association between job demands, job resources, work engagement, job performance, and overall justice in the public healthcare sector in the UAE. Thus, future research may be carried out by selecting different variables of job resources and job demands, rather than those used in this research. Also, future researchers may study other outcome variables beyond job performance. Another research possibility is to repeat the same research but in the private healthcare sector of the UAE and then carry out a comparative study to determine the variances between the public and private healthcare sectors of the UAE. In addition, the current research was restricted to a specific sector and context, so similar research may be conducted by changing the sector and context. Moreover, the current research relied solely on nurses from the healthcare sector workforce, so a different sample from the medical workforce may reveal different results and inferences. Additionally, future studies examining the relationship of other organizational variables beyond overall justice or investigating overall justice as an independent variable instead of treating it as a moderator variable, are encouraged. In addition, a future area for research that authors may take into account is conducting this research by following a qualitative design, which may offer a deeper understanding of the research variables and reinforce the current findings. Plus, this study used a cross-sectional design, in which the data were collected at one point in time, which may restrict the generalizability of the results. A longitudinal study would be helpful to bridge this restriction and provide a better opportunity to generalize findings. Our data were also collected via a self-reported survey, which may result in issues of common-method variance (Podsakoff et al., 2003). We addressed this by selecting measurement scales from previous studies that have proven validity. We also ensured the anonymity of the respondents. However, future studies should gather data from multiple sources to further reduce common method variance. Moreover, though the findings of this research did not support the moderator role of overall justice between job resources and work engagement, a further exploration of such contradictory

results with the extant literature needs to be conducted. In addition, because of the low or negligible impact of job demands on job performance, a profound investigation of this association is indispensable to furnish healthcare entities with the best tailored job conditions as a way to boost performance and guarantee quality services.

5.7 Conclusion

As its primary objective, this study examined the level of and associations between work engagement and both its pre- and post-conditions, with job demands and job resources as pre-conditions, and job performance as a post-condition. Furthermore, it examined the moderating role of perceived overall justice in the association between job demands and job resources with work engagement and the mediating effect of work engagement between job demands and job resources in its association with job performance.

The research's findings demonstrate that the associations between job demands, job resources, work engagement, and job performance are significant, which led to accepting the related hypotheses. On the other hand, it signals that overall justice is not a moderating variable on the relationship between job resources and work engagement, but the role of overall justice as a moderating variable supports the link between job demands and work engagement.

The present research emphasized the importance of keeping work engagement and job performance high and positive; thus, it delivered theoretical implications for the literature related to the JD-R model, as well as practical implications to be used by decision makers and managers alike. Most notably, the study findings indicated that the performance of nurses in the UAE public healthcare sector remained unimpacted by job demands, which reflects the dedication of the nurses and the high quality of the sector, which promises to contribute to the country's vision. Also, the findings of this research rejected the hypotheses related to the moderator role of overall justice between job resources and work engagement, which is a new addition to the literature that requires further investigation.

6. References

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7. Appendices

Appendix 1: Pilot Study

Dear Participants,

Thank you for agreeing to participate in this PILOT study on workplace positivity and job performance. The general purpose of this pilot study is to know “**how much clarity each item/question**” in this survey has. Please read the instructions carefully, don’t leave any questions unanswered, and be as honest and open as possible. If you have any questions, please feel free to contact **Fatima Al Badi** at (albadi-f@hotmail.com).

Please read each statement and respond by circling the statement/item in terms of clarity or how clear the message is communicated to you. Responses to each item are measured on a **10 point scale** wherein **1 = extremely unclear** and **10 = extremely clear**.

INSTRUCTIONS

In this section, the item describes about workload. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	I have too much work to do.	1	2	3	4	5	6	7	8	9	10
2	I have to work extra hard to finish a task.	1	2	3	4	5	6	7	8	9	10
3	I have to deal with a backlog at work.	1	2	3	4	5	6	7	8	9	10
4	I have problems with the workload.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about time pressure. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	I had to work faster than usual to get my work done.	1	2	3	4	5	6	7	8	9	10
2	I was pressed for time.	1	2	3	4	5	6	7	8	9	10
3	I had to keep up with a high working pace.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about social support. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	My supervisor is around when I am in need.	1	2	3	4	5	6	7	8	9	10
2	I can share my joys and sorrows with my supervisor.	1	2	3	4	5	6	7	8	9	10
3	My supervisor is a real source of comfort to me.	1	2	3	4	5	6	7	8	9	10
4	My supervisor cares about my feelings.	1	2	3	4	5	6	7	8	9	10
5	My co-workers really try to help me.	1	2	3	4	5	6	7	8	9	10
6	I can count on my co-workers when things go wrong.	1	2	3	4	5	6	7	8	9	10
7	I have co-workers with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	8	9	10
8	I can talk about my problems with my co-workers.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about job autonomy. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	I have significant autonomy in determining how I do my job.	1	2	3	4	5	6	7	8	9	10
2	I can decide on my own how to go about doing my work.	1	2	3	4	5	6	7	8	9	10
3	I have considerable opportunity for independence and freedom in how I do my job.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about work engagement. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	At my work, I feel that I am bursting with energy.	1	2	3	4	5	6	7	8	9	10
2	At my job, I feel strong and vigorous.	1	2	3	4	5	6	7	8	9	10
3	When I get up in the morning, I feel like going to work.	1	2	3	4	5	6	7	8	9	10
4	I am enthusiastic about my job.	1	2	3	4	5	6	7	8	9	10
5	My job inspires me.	1	2	3	4	5	6	7	8	9	10
6	I am proud of the work that I do.	1	2	3	4	5	6	7	8	9	10
7	I feel happy when I am working intensely.	1	2	3	4	5	6	7	8	9	10
8	I am immersed in my work.	1	2	3	4	5	6	7	8	9	10
9	I get carried away when I am working.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about in-role performance. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	I adequately complete the duties assigned to me.	1	2	3	4	5	6	7	8	9	10
2	I fulfil the responsibilities specified in my job descriptions.	1	2	3	4	5	6	7	8	9	10
3	I perform tasks that are expected of me.	1	2	3	4	5	6	7	8	9	10
4	I meet the formal performance requirements of the job.	1	2	3	4	5	6	7	8	9	10
5	I engage in activities that will directly affect my performance evaluation.	1	2	3	4	5	6	7	8	9	10

In this section, the item describes about extra-role performance. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	I help others who have been absent.	1	2	3	4	5	6	7	8	9	10
2	I help others who have heavy workloads.	1	2	3	4	5	6	7	8	9	10
3	I assist the supervisor with his/her work (when not asked from me).	1	2	3	4	5	6	7	8	9	10
4	I take time to listen to co-workers' problems and worries.	1	2	3	4	5	6	7	8	9	10
5	I go out of the way to help new employees.	1	2	3	4	5	6	7	8	9	10
6	I take a personal interest in other employees.	1	2	3	4	5	6	7	8	9	10

7	I pass along information to co-workers.	1	2	3	4	5	6	7	8	9	10
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In this section, the item describes about perceived overall justice. Please let us know, to what extent the statement communicates clear message to you. Wherein, 1 = extremely unclear and 10 = extremely clear

1	Overall, I'm treated fairly by my organization.	1	2	3	4	5	6	7	8	9	10
2	In general, I can count on this organization to be fair.	1	2	3	4	5	6	7	8	9	10
3	In general, the treatment I receive around here is fair.	1	2	3	4	5	6	7	8	9	10
4	Usually, the way things work in this organization are fair.	1	2	3	4	5	6	7	8	9	10
5	For the most part, this organization treats its employees fairly.	1	2	3	4	5	6	7	8	9	10
6	Most of the people who work here would say they are often treated fairly.	1	2	3	4	5	6	7	8	9	10

Background Information

Your Gender:

- ☐ M
☐ F

Your Age:

- ☐ 23-28
☐ 29-34
☐ 35-40
☐ 41-46
☐ 47-52
☐ 53-58
☐ 59+

Your educational qualifications:

- ☐ Diploma
☐ Graduate
☐ Post Graduate

Your total Work experience

- ☐ 0-5 years
☐ 6-9 years
☐ 10+ years

How long you have been working with your current employer:-----years(s),
-----month(s).

Your Nationality:

- ☐ Citizen
☐ Expat

Thank you

Appendix 2: Institutional Review Board (IRB) Approval



Abu Dhabi University Ethical Approval

Date(mm/dd/yyyy)

File Number: COBA – 20-06-00015

06/12/2020

Ethical Approval Notice

Principal Investigator/ Supervisor/ Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Ms.Fatma	Al Badi	Abu Dhabi University	Principle Investigator
Dr. Sanjay	Kumar Singh	Abu Dhabi University	Co- Investigator
Dr. Jacob	Cherian	Abu Dhabi University	Co- Investigator

File Number:

COBA – 20-06-00015

Type of Project:

PhD Thesis

Title:

Workplace Positivity and Job Performance: The Dance of Job Demands and Job Resources

Approval Date (mm/dd/yyyy)

06/12/2020

Expiry Date (mm/dd/yyyy)

06/11/2021

Special Conditions / Comments

NA

IRB Chair

Dr. Rania AL Dweik



Appendix 3: The Research Survey and the Consent Form

الإيجابية في مكان العمل والأداء الوظيفي Workplace Positivity and Job Performance

Welcome to My Survey

Are you a nurse working in a public hospital/clinic? If yes, please proceed with the survey. If not, kindly ignore this survey. Thank you.

هل أنت ممرض/ممرضة يعمل في مستشفى أو عيادة حكومية؟ إذا كانت الإجابة بنعم، يرجى متابعة الاستطلاع. إذا لم يكن كذلك، يرجى تجاهل هذا الاستطلاع. شكرا

Purpose of the Survey

The purpose of this research is to examine the level of job demands, job resources, overall justice, work engagement, and job performance among nurses working in the public hospitals and clinics of the UAE healthcare sector in order to enhance the positivity in the healthcare sector as an approach to create a positive workplace that boosts the job performance by fostering the positive psychology pathway.

Thank you for participating in this survey. Your feedback is important.

الغرض من البحث

الغرض من هذا البحث هو فحص مستوى متطلبات العمل، والموارد الوظيفية، والعدالة الشاملة، والمشاركة في العمل، والأداء الوظيفي بين الممرضين/الممرضات العاملين في المستشفيات والعيادات الحكومية في قطاع الرعاية الصحية في دولة الإمارات العربية المتحدة من أجل تعزيز الإيجابية في قطاع الرعاية الصحية كنهج لخلق مكان عمل إيجابي يعزز الأداء الوظيفي من خلال تعزيز مسار علم النفس الإيجابي.

شكرا لك على المشاركة في هذه الدراسة. ملاحظتك مهمة.

Consent to take part in research

- I voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that I will not benefit directly from participating in this research.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by masking my name and disguising any details which may reveal my identity or the identity of people I speak about or the organization I am working in.
- I understand that disguised extracts from my response in the questioner may be quoted in the dissertation, conference presentation, published papers.
- I understand that if I inform the researcher that myself or someone else is at risk of harm, they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

If you have any questions, please feel free to contact Fatma Al Badi, a DBA candidate, Abu Dhabi university at (1031892@students.adu.ac.ae or albadi-f@hotmail.com).

For any ethical issue related to the study, you may contact: Fauzia Bahajjaj at 042301172, email: fauzia.bahajjaj@mohap.gov.ae.

موافقة على المشاركة في البحث

- أنا أوافق طواعية على المشاركة في هذه الدراسة البحثية.
- أنا أفهم أنه حتى إذا وافقت على المشاركة الآن، فإنه يمكنني الانسحاب في أي وقت أو رفض الإجابة على أي سؤال بدون عواقب من أي نوع.
- لقد تم شرح غرض وطبيعة الدراسة لي كتابياً، وقد أتيت لي الفرصة لطرح الأسئلة حول الدراسة.
- أنا أفهم أنني لن أستفيد مباشرة من المشاركة في هذا البحث.
- أنا أفهم أن جميع المعلومات التي أقدمها لهذه الدراسة سيتم التعامل معها بسرية تامة.
- أنا أفهم أنه في أي تقرير عن نتائج هذا البحث ستظل هويتي مجهولة. سيتم ذلك عن طريق حجب اسمي وإخفاء أي تفاصيل يمكن أن تكشف هويتي أو هوية الأشخاص الذين أتحدث عنهم أو المؤسسة التي أعمل بها.
- أنا أفهم أنه في حالة إخباري للباحث بأني أو أي شخص في خطر، فإنه قد يضطر إلى إبلاغ السلطات المعنية - سيتم مناقشة هذا في البداية معي، لكن قد يضطر إلى الإبلاغ سواء بموافقتي أو بدونها.
- أنا أفهم أنه لدي مطلق الحرية للتواصل بأي من الأشخاص العاملين على البحث لمزيد من الإيضاح والمعلومات. إذا كان لديك أي أسئلة، الرجاء عدم التردد في التواصل مع فاطمة البادي، طالبة دكتوراه، جامعة أبو ظبي، على البريد الإلكتروني: 1031892@students.adu.ac.ae أو albadi-f@hotmail.com أو فورية بهجت علي 042301172، البريد الإلكتروني: fauzia.bahajjaj@mohap.gov.ae

المعلومات الأساسية Background Information

Kindly select the best option describes you يرجى تحديد الاختيار الأمثل

1. Gender الجنس
 - Male ذكر
 - Female أنثى
2. Age العمر
 - 18-24.1
 - 25-34
 - 35-44
 - 45-54
 - 55-64
 - 65+
3. Educational Qualification المؤهل العلمي
 - Diploma Degree درجة الدبلوم
 - Bachelor Degree درجة البكالوريوس
 - Master Degree درجة الماجستير
 - Other (please specify) أخرى (يرجى التحديد)
4. Total Years of Work Experience إجمالي سنوات الخبرة العملية
 - 0-5 Years
 - 6-9 Years
 - 10+ Years
5. Tenure of Working with the Current Employer: Years and/or Months مدة العمل مع صاحب العمل الحالي: سنوات و/أو شهور
.....
6. Nationality الجنسية
 - Citizen مواطن
 - Non-Citizen غير مواطن

عبء العمل Workload

This section displays the items related to Workload. Please let us know, to what extent you agree with the below statements, wherein, 1=Never and 5=Always

يعرض هذا القسم العناصر المتعلقة بعبء العمل. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=إطلاقاً و5=دائماً

1. I have a heavy workload. لدي عبء عمل ثقيل
1. Never إطلاقاً 2. Rarely نادرًا 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً
2. I have to spend extra time to finish a task. احتاج لقضاء وقت إضافي لإنهاء مهمة ما

- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً
3. I have to manage a backlog at work. اضطر للتعامل مع الأعمال المتراكمة في العمل
- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً
4. I have issues with the workload. لدي مشاكل مع عبء العمل
- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً

Time Pressure ضغط الوقت

This section displays the items related to Time Pressure. Please let us know, to what extent you agree with the below statements, wherein, 1=Never and 5=Always

يعرض هذا القسم العناصر المتعلقة بضغط الوقت. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=إطلاقاً و5=دائماً

1. I had to work faster than usual to get my work done. اضطر أن أعمل بشكل أسرع من المعتاد. لإنجاز عملي
- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً
2. I was pressed for time. تم الضغط عليّ بداعي الوقت
- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً
3. I had to keep up with a high working pace. كان عليّ مواكبة وتيرة عمل عالية.
- 1.Never إطلاقاً 2. Rarely نادراً 3. Sometimes أحياناً 4. Often غالباً 5. Always دائماً

Social Support المساعدة الاجتماعية

This section displays items related to Social Support. Please let us know, to what extent you agree with the below statements, wherein, 1=Strongly Disagree and 5=Strongly Agree

يعرض هذا القسم العناصر المتعلقة بالمساعدة الاجتماعية. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=لا أوافق بشدة و5=أوافق بشدة

1. My supervisor is available when I am in need. مشرفي متواجد عندما أكون في حاجته.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
2. I can share my joys and sorrows with my supervisor. يمكنني مشاركة أفراحي وأحزاني مع مشرفي
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
3. My supervisor is a real source of comfort to me. يُعتبر مشرفي مصدر حقيقي للراحة بالنسبة لي.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
4. My supervisor cares about my feelings. مشرفي يهتم بمشاعري.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
5. My co-workers really try to help me. يحاول زملائي في العمل مساعدتي بصدق.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
6. I can count on my co-workers when things go wrong. يمكنني الاعتماد على زملائي في العمل عندما تسوء الأمور.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
7. I have co-workers with whom I can share my joys and sorrows. لدي زملاء عمل يمكنني مشاركة أفراحي وأحزاني معهم.
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة ولا أعترض 4. Agree أوافق 5. Strongly Agree أوافق بشدة
8. I can talk about my problems with my co-workers. يمكنني التحدث عن مشاكلي مع زملائي في العمل.

1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة

الحكم الذاتي الوظيفي/الاستقلالية الوظيفية Job Autonomy

This section displays the items related to Job Autonomy. Please let us know, to what extent you agree with the below statements, wherein, 1=Never and 5=Always

يعرض هذا القسم العناصر المتعلقة بالحكم الذاتي الوظيفي/الاستقلالية الوظيفية. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=إطلاقاً و5=دائماً

- I have significant autonomy in determining how I do my job. لدي استقلالية كبيرة في تحديد كيفية أداء عملي
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- My job permits me to decide on my own how to go about doing my work. تسمح لي وظيفتي أن أقرر بنفسى كيفية القيام بعملي
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- My job gives me a considerable opportunity for independence and freedom in how I do my job. وظيفتي تمنحني فرصة كبيرة للاستقلال والحرية في طريقة أدائي عملي.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً

المشاركة في العمل/الارتباط بالعمل Work Engagement

This section displays the items related to Work Engagement. Please let us know, to what extent you agree with the below statements, wherein, 1=Never and 5=Always

يعرض هذا القسم العناصر المتعلقة بالمشاركة في العمل/الارتباط بالعمل. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=إطلاقاً و5=دائماً

- At my work, I feel that I am bursting with energy. في عملي، أشعر أنني ممتلئ بالطاقة.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- At my job, I feel strong and vigorous. في عملي، أشعر بالقوة والنشاط.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- When I get up in the morning, I feel like going to work. عندما انهض صباحاً، أشعر برغبة في الذهاب للعمل.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- I am enthusiastic about my job. أنا متحمس لعملي.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- My job inspires me. وظيفتي تلهمني.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- I am proud of the work that I do. أنا فخور بالعمل الذي أعمله.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- I feel happy when I am working intensely. أشعر بالسعادة عندما أعمل بشكل مكثف.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- I am immersed in my work. أنا منغمس في عملي.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً
- I get carried away when I am working. أنا أتحمس بشدة عند قيامي بعملي.
 1. Never إطلاقاً
 2. Rarely نادراً
 3. Sometimes أحياناً
 4. Often غالباً
 5. Always دائماً

أداء الدور المطلوب/الأساسي In-role Performance

This section displays items related to In-role Performance. Please let us know, to what extent you agree with the below statements, wherein, 1=Strongly Disagree and 5=Strongly Agree

يعرض هذا القسم العناصر المتعلقة بأداء الدور المطلوب/الأساسي. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=لا أوافق بشدة و5=أوافق بشدة

- أنا أقوم بأداء المهام المسندة إلي بشكل كافٍ
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
2. I fulfil the responsibilities specified in my job descriptions. أنا أؤدي المسؤوليات المحددة في الوصف الوظيفي الخاص بي
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
3. I perform tasks that are expected of me. أنا أنفذ المهام المتوقعة مني
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
4. I meet the formal performance requirements of the job. ألتبي متطلبات الاداء الرسمية للوظيفة
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
5. I engage in activities that will directly affect my performance evaluation. أنا اشارك في أنشطة من شأنها أن تؤثر بشكل مباشر على تقييم أدائي
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة

Extra-role Performance الأداء الدور الإضافي

This section displays items related to Extra-role Performance. Please let us know, to what extent you agree with the below statements, wherein, 1 = Strongly Disagree and 5 = Strongly Agree

يعرض هذا القسم العناصر المتعلقة بأداء الدور الإضافي. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=لا أوافق بشدة و 5=أوافق بشدة

1. I help others who have been absent. أنا أساعد الآخرين عندما يتغيّبوا عن العمل
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
2. I help others who have heavy workloads. أنا اساعد الآخرين الذين لديهم اعباء عمل ثقيلة
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
3. I assist the supervisor with his/her work (when not asked from me). أنا اساعد المشرف في عمله/عملها (عندما لا يُطلب مني ذلك)
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
4. I take time to listen to co-workers' problems and worries. أنا أستقطع وقتا للاستماع لمشاكل وهموم زملاء العمل
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
5. I go out of the way to help new employees. أبذل جهد إضافي لمساعدة الموظفين الجدد
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
6. I take a personal interest in other employees. أنا أبدي اهتمام شخصي بالموظفين الآخرين
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة
7. I pass along information to co-workers. أنا أقوم بتمرير/نقل المعلومات لزملاء العمل
1. Strongly Disagree لا أوافق بشدة 2. Disagree لا أوافق 3. Neither Agree nor Disagree لا أوافق بشدة 4. Agree أوافق 5. Strongly Agree أوافق بشدة

Perceived Overall Justice العدالة الشاملة الملموسة

This section displays items related to Perceived Overall Justice. Please let us know, to what extent you agree with the below statements, wherein, 1=Strongly Disagree and 5=Strongly Agree

يعرض هذا القسم العناصر المتعلقة بالعدالة الشاملة الملموسة. الرجاء إخبارنا إلى أي مدى توافق على العبارات أدناه، حيث 1=لا أوافق بشدة و 5=أوافق بشدة

1. Overall, I'm treated fairly by my organization. بصورة شاملة، تتم معاملتي بعدل من قبل مؤسستي.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة
2. In general, I can count on this organization to be fair. بشكل عام، يمكنني الاعتماد على هذه المؤسسة كونها عادلة.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة
3. In general, the treatment I receive around here is fair. بشكل عام، المعاملة التي ألقاها هنا عادلة.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة
4. Usually, the way things work in this organization are fair. عادة، الطريقة التي تعمل بها الأمور في هذه المؤسسة عادلة.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة
5. For the most part, this organization treats its employees fairly. غالباً، هذه المؤسسة تعامل موظفيها بعدل.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة
6. Most of the people who work here would say they are often treated fairly. معظم الأشخاص العاملين هنا سيقولون إنه تتم معاملتهم بعدل في الغالب.
 1. Strongly Disagree لا أوافق بشدة
 2. Disagree لا أوافق
 3. Neither Agree nor Disagree لا أوافق بشدة ولا اعترض
 4. Agree أوافق
 5. Strongly Agree أوافق بشدة

شكراً Thank you

Appendix 4: Reliability Analysis Results

1. Job Demands

1.1. Workload

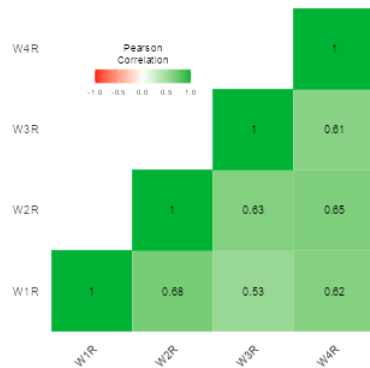
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
scale	3.17	0.858	0.866	0.869

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
W1R	2.72	0.922	0.700	0.836	0.838
W2R	3.10	0.986	0.767	0.808	0.812
W3R	3.33	1.087	0.678	0.846	0.848
W4R	3.54	1.060	0.727	0.824	0.832

Correlation Heatmap



1.2. Time Pressure

Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
Scale	2.93	0.937	0.847	0.848

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
TP1R	2.76	1.02	0.722	0.781	0.782
TP2R	3.18	1.09	0.738	0.764	0.765

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
TP3R	2.86	1.10	0.687	0.815	0.815

Correlation Heatmap



2. Job Resources

2.1 Social Support

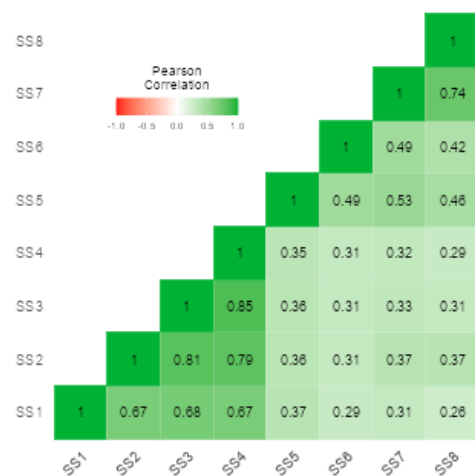
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
scale	3.77	0.606	0.873	0.875

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
SS1	3.89	0.818	0.656	0.855	0.857
SS2	3.51	0.940	0.755	0.843	0.845
SS3	3.54	0.943	0.753	0.843	0.846
SS4	3.54	0.935	0.738	0.845	0.847
SS5	4.07	0.680	0.551	0.866	0.869
SS6	3.83	0.759	0.482	0.872	0.875
SS7	3.97	0.720	0.581	0.863	0.868
SS8	3.79	0.815	0.525	0.869	0.871

Correlation Heatmap



2.2 Job Autonomy

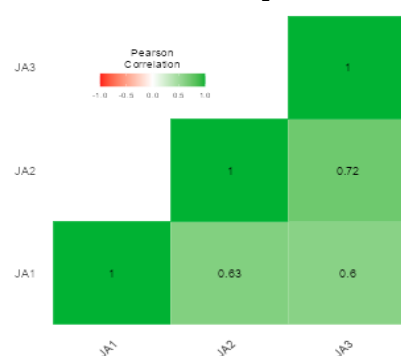
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
scale	3.56	0.908	0.849	0.851

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
JA1	3.62	0.996	0.663	0.839	0.839
JA2	3.53	1.078	0.759	0.748	0.748
JA3	3.54	1.033	0.734	0.773	0.774

Correlation Heatmap



3. Work Engagement

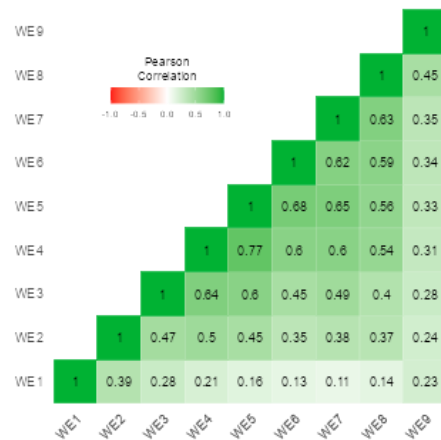
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
Scale	3.99	0.674	0.862	0.877

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
WE1	3.30	1.065	0.289	0.878	0.888
WE2	3.76	0.994	0.562	0.850	0.871
WE3	3.76	1.102	0.647	0.842	0.862
WE4	4.17	0.969	0.754	0.832	0.849
WE5	4.26	0.955	0.754	0.832	0.848
WE6	4.58	0.759	0.666	0.844	0.858
WE7	4.21	0.970	0.676	0.839	0.856
WE8	4.24	0.854	0.648	0.843	0.861
WE9	3.64	1.076	0.437	0.864	0.879

Correlation Heatmap



4. Job Performance

4.1. In-role Performance

Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
Scale	4.43	0.522	0.857	0.885

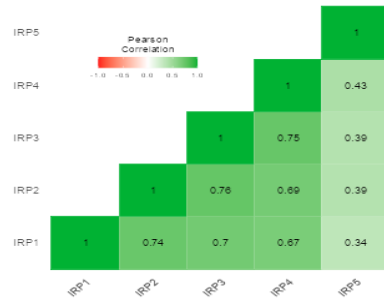
Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
IRP1	4.49	0.602	0.729	0.815	0.854
IRP2	4.49	0.622	0.776	0.801	0.842
IRP3	4.51	0.576	0.783	0.803	0.840
IRP4	4.46	0.604	0.763	0.806	0.850

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
IRP5	4.20	0.833	0.437	0.910	0.911

Correlation Heatmap



4.2 Extra-role Performance

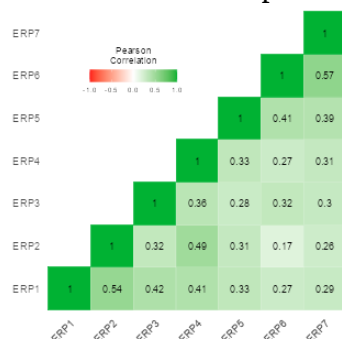
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
Scale	4.02	0.538	0.779	0.791

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
ERP1	4.24	0.667	0.529	0.750	0.757
ERP2	4.44	0.575	0.482	0.760	0.765
ERP3	3.80	0.855	0.480	0.756	0.769
ERP4	4.20	0.698	0.514	0.751	0.760
ERP5	4.06	0.907	0.512	0.750	0.767
ERP6	3.49	1.041	0.522	0.752	0.770
ERP7	3.93	0.900	0.554	0.741	0.765

Correlation Heatmap



5. Perceived Overall Justice

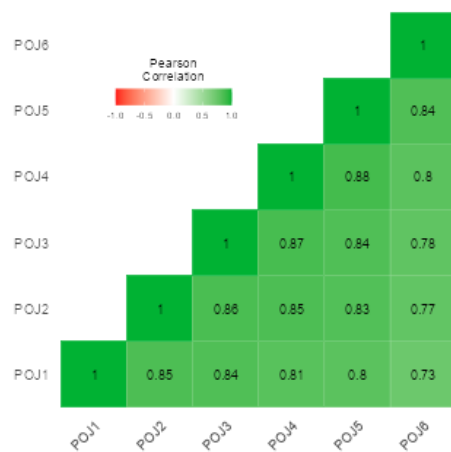
Scale Reliability Statistics

	Mean	SD	Cronbach's α	McDonald's ω
Scale	3.68	0.886	0.965	0.965

Item Reliability Statistics

	Mean	SD	Item-rest correlation	if item dropped	
				Cronbach's α	McDonald's ω
POJ1	3.73	0.988	0.865	0.961	0.961
POJ2	3.73	0.963	0.898	0.957	0.958
POJ3	3.72	0.953	0.906	0.956	0.957
POJ4	3.67	0.944	0.912	0.956	0.956
POJ5	3.65	0.957	0.907	0.956	0.957
POJ6	3.56	0.959	0.837	0.964	0.964

Correlation Heatmap



Appendix 5: Canonical Correlation Analysis Results

- Job Demands with Other Scales
 - o Job Resources

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.442	.243	.760	8.581	77.000	14095.621	.000
2	.170	.030	.945	2.236	60.000	12327.915	<.001
3	.106	.011	.973	1.440	45.000	10528.643	.028
4	.087	.008	.984	1.184	32.000	8682.718	.219
5	.071	.005	.992	.955	21.000	6762.839	.518
6	.052	.003	.997	.676	12.000	4712.000	.776
7	.026	.001	.999	.328	5.000	2357.000	.896

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	-.424	-.535	-.454	.063	.306	-.481	1.104
JD2	.051	.094	.515	-1.079	-.620	-.720	-.512
JD3	-.037	-.283	-1.168	-.137	.197	.432	-.551
JD4	-.454	.678	.159	.497	-.904	.653	.315
JD5	.126	-.507	.017	1.119	-.326	-.519	-.620
JD6	-.400	.903	.240	-.093	1.254	-.130	-.239
JD7	.012	-.770	.727	-.387	.017	.827	.163

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
SS1	.100	-.339	-.020	-.485	-.078	-.778	-.611
SS2	-.063	.067	.020	-1.008	.188	.061	.399
SS3	.553	-.302	-.351	1.107	.306	-.442	-.061
SS4	.181	.710	.277	-.109	-.444	1.379	-.168
CS1	.212	.228	.452	-.170	-.574	-.470	.660
CS2	-.113	-.191	-.255	-.286	-.115	.293	.090
CS3	-.075	-.592	-1.002	.262	.191	.205	.637
CS4	.071	.748	.783	.128	.850	-.268	-.325
JA1	-.084	-.799	.743	-.241	.484	.409	.048
JA2	-.139	.214	.301	.659	-.583	-.037	.389
JA3	.514	-.098	-.577	.087	.005	-.307	-.493

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	-.460	-.581	-.492	.068	.332	-.522	1.198
JD2	.051	.095	.523	-1.095	-.629	-.731	-.519
JD3	-.034	-.260	-1.074	-.126	.181	.397	-.507
JD4	-.428	.640	.150	.469	-.853	.616	.297
JD5	.123	-.496	.016	1.094	-.319	-.508	-.607
JD6	-.368	.832	.221	-.085	1.155	-.119	-.220
JD7	.011	-.698	.659	-.350	.016	.749	.148

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
SS1	.122	-.415	-.025	-.593	-.096	-.951	-.748
SS2	-.067	.071	.021	-1.072	.200	.065	.424
SS3	.587	-.321	-.373	1.174	.325	-.469	-.065
SS4	.194	.759	.296	-.116	-.474	1.475	-.180
CS1	.312	.335	.665	-.250	-.844	-.691	.970
CS2	-.149	-.252	-.336	-.376	-.152	.386	.119
CS3	-.104	-.822	-1.392	.364	.265	.285	.885
CS4	.087	.917	.961	.156	1.042	-.328	-.398
JA1	-.084	-.802	.746	-.242	.486	.411	.048
JA2	-.129	.199	.279	.611	-.541	-.035	.361
JA3	.498	-.094	-.559	.084	.005	-.297	-.477

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7
JD1	-.854	-.341	-.105	-.050	.007	-.285	.246
JD2	-.725	-.134	.099	-.395	-.280	-.313	-.339
JD3	-.664	-.233	-.472	-.185	-.031	.210	-.451
JD4	-.884	.144	.025	.104	-.377	.196	-.075
JD5	-.618	-.383	.189	.417	-.037	-.227	-.457
JD6	-.835	.066	.210	.031	.380	-.041	-.327
JD7	-.603	-.537	.403	-.092	.110	.357	-.196

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7
SS1	.697	-.177	.014	-.398	-.019	-.204	-.158
SS2	.757	.072	-.010	-.397	.151	.155	.124
SS3	.895	.005	-.051	-.017	.091	.144	.011
SS4	.831	.148	.017	-.181	-.042	.429	-.006
CS1	.515	.061	.182	-.201	-.151	-.287	.682
CS2	.302	-.143	-.153	-.234	.029	.135	.426
CS3	.366	-.088	-.288	.011	.458	-.027	.627
CS4	.380	.287	.128	.044	.660	-.152	.371
JA1	.351	-.695	.535	.101	.124	.201	.085
JA2	.391	-.285	.343	.451	-.227	.019	.132
JA3	.663	-.314	.056	.276	-.058	-.045	-.062

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7
JD1	-.378	-.058	-.011	-.004	.000	-.015	.006
JD2	-.321	-.023	.011	-.034	-.020	-.016	-.009
JD3	-.294	-.040	-.050	-.016	-.002	.011	-.012
JD4	-.391	.024	.003	.009	-.027	.010	-.002
JD5	-.273	-.065	.020	.036	-.003	-.012	-.012
JD6	-.370	.011	.022	.003	.027	-.002	-.009
JD7	-.267	-.091	.043	-.008	.008	.019	-.005

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7
SS1	.309	-.030	.002	-.034	-.001	-.011	-.004

SS2	.335	.012	-.001	-.034	.011	.008	.003
SS3	.396	.001	-.005	-.001	.006	.008	.000
SS4	.368	.025	.002	-.016	-.003	.022	.000
CS1	.228	.010	.019	-.017	-.011	-.015	.018
CS2	.133	-.024	-.016	-.020	.002	.007	.011
CS3	.162	-.015	-.031	.001	.033	-.001	.017
CS4	.168	.049	.014	.004	.047	-.008	.010
JA1	.155	-.118	.057	.009	.009	.011	.002
JA2	.173	-.048	.037	.039	-.016	.001	.003
JA3	.293	-.053	.006	.024	-.004	-.002	-.002

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.560	.110	.355	.069
2	.093	.003	.076	.002
3	.069	.001	.051	.001
4	.055	.000	.067	.001
5	.054	.000	.070	.000
6	.063	.000	.040	.000
7	.106	.000	.113	.000

o Work Engagement

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.458	.266	.760	13.585	49.000	11960.355	.000
2	.156	.025	.962	2.581	36.000	10348.681	<.001
3	.083	.007	.985	1.384	25.000	8757.368	.096
4	.068	.005	.992	1.132	16.000	7204.447	.318
5	.046	.002	.997	.812	9.000	5741.337	.605
6	.030	.001	.999	.592	4.000	4720.000	.668
7	.009	.000	1.000	.185	1.000	2361.000	.667

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	-.087	.286	.390	.242	.786	.083	-1.139
JD2	.052	-.206	1.314	-.003	-.324	-.082	.850
JD3	-.121	.450	-.594	1.076	.291	.099	.414
JD4	-.750	-.696	-.449	-.637	.079	.781	.104
JD5	.062	.309	-.406	-.697	.845	-.730	.539
JD6	-.327	-.465	-.192	.442	-.946	-.956	-.569
JD7	.098	.924	.109	-.439	-.676	.669	-.109

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.052	.870	-.579	-.236	-.253	.417	-.211
WE3	.212	.327	.306	.981	.092	-.655	-.464
WE4	.297	-.357	.630	.146	.660	1.387	.165
WE5	.311	-.727	-.391	-.903	-.570	-.612	-1.008
WE6	-.023	.650	.088	-.453	1.062	-.512	.448

WE7	.513	-.317	-.870	.525	-.285	.033	.886
WE8	-.158	.240	.980	-.190	-.882	-.085	.206

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	-.094	.310	.423	.263	.852	.089	-1.235
JD2	.053	-.209	1.333	-.003	-.329	-.084	.863
JD3	-.111	.414	-.547	.990	.267	.091	.381
JD4	-.708	-.656	-.423	-.602	.075	.737	.098
JD5	.061	.302	-.397	-.682	.826	-.714	.527
JD6	-.301	-.429	-.177	.407	-.871	-.881	-.524
JD7	.089	.837	.099	-.398	-.612	.606	-.099

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.052	.875	-.583	-.237	-.255	.420	-.212
WE3	.193	.297	.278	.890	.084	-.594	-.421
WE4	.307	-.368	.650	.151	.681	1.432	.171
WE5	.325	-.762	-.410	-.946	-.597	-.641	-1.056
WE6	-.031	.857	.116	-.597	1.399	-.674	.590
WE7	.528	-.327	-.896	.541	-.294	.034	.913
WE8	-.185	.281	1.147	-.222	-1.032	-.100	.241

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7
JD1	-.693	.322	.395	.064	.338	-.084	-.369
JD2	-.690	.181	.605	.070	.010	-.140	.317
JD3	-.693	.412	-.077	.496	.092	.012	.299
JD4	-.967	-.043	.002	-.153	.058	.173	.084
JD5	-.588	.445	-.011	-.345	.217	-.503	.193
JD6	-.781	.197	.035	.027	-.314	-.484	-.125
JD7	-.527	.741	.073	-.232	-.334	.044	-.026

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7
WE2	.465	.710	-.232	-.139	-.205	.329	-.239
WE3	.741	.309	.205	.402	.033	-.190	-.337
WE4	.856	.052	.288	-.103	.143	.375	-.101
WE5	.873	-.042	.055	-.385	-.072	-.117	-.257
WE6	.672	.331	.167	-.406	.328	-.278	.250
WE7	.865	.041	-.143	.020	-.200	-.068	.429
WE8	.549	.279	.515	-.241	-.459	-.070	.285

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7
JD1	-.317	.050	.033	.004	.015	-.003	-.003
JD2	-.316	.028	.050	.005	.000	-.004	.003
JD3	-.318	.064	-.006	.033	.004	.000	.003
JD4	-.443	-.007	.000	-.010	.003	.005	.001
JD5	-.269	.069	-.001	-.023	.010	-.015	.002

JD6	-.358	.031	.003	.002	-.014	-.015	-.001
JD7	-.242	.115	.006	-.016	-.015	.001	.000

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7
WE2	.213	.111	-.019	-.009	-.009	.010	-.002
WE3	.340	.048	.017	.027	.001	-.006	-.003
WE4	.392	.008	.024	-.007	.007	.011	-.001
WE5	.400	-.007	.005	-.026	-.003	-.004	-.002
WE6	.308	.052	.014	-.027	.015	-.008	.002
WE7	.397	.006	-.012	.001	-.009	-.002	.004
WE8	.252	.044	.043	-.016	-.021	-.002	.003

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.515	.108	.537	.113
2	.156	.004	.113	.003
3	.076	.001	.071	.000
4	.064	.000	.080	.000
5	.055	.000	.061	.000
6	.078	.000	.055	.000
7	.055	.000	.082	.000

○ Perceived Overall Justice

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.404	.195	.820	11.385	42.000	11054.072	.000
2	.100	.010	.980	1.628	30.000	9430.000	.016
3	.067	.005	.989	1.266	20.000	7821.551	.190
4	.061	.004	.994	1.223	12.000	6241.619	.260
5	.048	.002	.998	.973	6.000	4720.000	.442
6	.013	.000	1.000	.	.	.	.

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
JD1	.203	-.159	.838	1.058	.451	.149
JD2	-.220	.200	.717	-1.215	.117	-.710
JD3	.257	1.126	-.199	.530	-.424	-.100
JD4	.661	-.612	-.933	-.006	.012	-.550
JD5	-.028	-.298	-.339	.125	.664	-.207
JD6	.251	.384	-.100	-.569	.242	1.384
JD7	-.001	-.672	.390	-.027	-1.168	-.001

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.138	-.144	-.647	-1.414	-.533	1.278
POJ2	-.010	-.273	.054	.556	2.265	.152
POJ3	.038	-.360	1.174	1.562	-1.163	.770
POJ4	-.620	.875	1.374	-1.470	.040	-1.108

POJ5	-.114	-1.738	-1.262	.330	-.496	-1.108
POJ6	-.217	1.621	-.799	.539	-.087	.218

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
JD1	.220	-.173	.909	1.147	.490	.161
JD2	-.223	.203	.728	-1.232	.119	-.721
JD3	.236	1.035	-.183	.487	-.390	-.092
JD4	.624	-.578	-.881	-.006	.011	-.519
JD5	-.028	-.291	-.332	.123	.649	-.202
JD6	.231	.354	-.092	-.524	.223	1.275
JD7	-.001	-.609	.353	-.024	-1.058	-.001

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.140	-.146	-.654	-1.431	-.540	1.293
POJ2	-.010	-.283	.056	.578	2.352	.158
POJ3	.040	-.377	1.232	1.639	-1.220	.808
POJ4	-.657	.927	1.456	-1.557	.043	-1.174
POJ5	-.119	-1.816	-1.318	.345	-.518	-1.158
POJ6	-.226	1.689	-.833	.562	-.091	.227

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6
JD1	.736	-.085	.585	.229	.239	-.014
JD2	.651	.129	.486	-.460	.110	-.293
JD3	.754	.520	.112	.048	-.237	-.132
JD4	.942	-.150	-.119	-.124	.040	-.223
JD5	.616	-.201	.128	-.140	.230	.063
JD6	.777	.023	.167	-.328	.064	.485
JD7	.596	-.319	.340	-.124	-.523	.147

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6
POJ1	-.864	-.172	-.104	-.162	-.011	.433
POJ2	-.880	-.165	.017	.143	.368	.207
POJ3	-.889	-.154	.194	.277	-.112	.245
POJ4	-.980	-.018	.167	-.058	.009	-.083
POJ5	-.928	-.256	-.204	.131	-.055	-.111
POJ6	-.888	.275	-.272	.242	-.027	.054

Set 1 Cross Loadings

Variable	1	2	3	4	5	6
JD1	.297	-.008	.039	.014	.011	.000
JD2	.263	.013	.033	-.028	.005	-.004
JD3	.305	.052	.007	.003	-.011	-.002
JD4	.380	-.015	-.008	-.008	.002	-.003
JD5	.249	-.020	.009	-.009	.011	.001
JD6	.314	.002	.011	-.020	.003	.006
JD7	.241	-.032	.023	-.008	-.025	.002

Set 2 Cross Loadings

Variable	1	2	3	4	5	6
POJ1	-.349	-.017	-.007	-.010	-.001	.006
POJ2	-.355	-.016	.001	.009	.018	.003
POJ3	-.359	-.015	.013	.017	-.005	.003
POJ4	-.396	-.002	.011	-.004	.000	-.001
POJ5	-.375	-.025	-.014	.008	-.003	-.001
POJ6	-.358	.027	-.018	.015	-.001	.001

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.537	.088	.820	.134
2	.066	.001	.037	.000
3	.109	.000	.032	.000
4	.061	.000	.034	.000
5	.065	.000	.025	.000
6	.059	.000	.052	.000

○ In-role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.217	.049	.931	4.893	35.000	9917.433	.000
2	.103	.011	.976	2.361	24.000	8227.289	<.001
3	.083	.007	.987	2.081	15.000	6512.562	.008
4	.075	.006	.994	1.863	8.000	4720.000	.061
5	.025	.001	.999	.509	3.000	2361.000	.676

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
JD1	-.426	-.402	.503	.494	-.406
JD2	.390	-.466	-1.133	-.056	-.826
JD3	.185	-.250	.724	-.856	-.068
JD4	.819	.588	.624	.399	.099
JD5	-.183	.047	-.161	-1.046	.503
JD6	.413	.224	-.625	.552	.809
JD7	-.556	-.697	.272	.496	.248

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.373	.275	.630	-.404	1.348
IRP2	-.356	.851	-1.397	.419	-.320
IRP3	-.209	-.322	1.182	1.118	-.618
IRP4	-.279	-.669	-.295	-1.292	-.610
IRP5	.243	-.762	-.377	.435	.532

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
JD1	-.463	-.436	.545	.536	-.440

JD2	.396	-.473	-1.149	-.057	-.838
JD3	.170	-.230	.666	-.787	-.063
JD4	.773	.555	.589	.377	.093
JD5	-.179	.046	-.158	-1.023	.492
JD6	.381	.206	-.575	.508	.745
JD7	-.504	-.632	.246	.449	.224

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.619	.458	1.046	-.671	2.240
IRP2	-.573	1.368	-2.247	.673	-.514
IRP3	-.362	-.559	2.051	1.941	-1.072
IRP4	-.462	-1.108	-.489	-2.140	-1.011
IRP5	.292	-.915	-.452	.523	.639

Set 1 Canonical Loadings

Variable	1	2	3	4	5
JD1	.305	-.681	.180	.237	-.042
JD2	.619	-.701	-.272	-.025	-.154
JD3	.560	-.610	.362	-.337	.080
JD4	.804	-.299	.292	.175	.173
JD5	.279	-.538	-.109	-.316	.516
JD6	.536	-.492	-.165	.183	.580
JD7	.079	-.801	.134	.186	.465

Set 2 Canonical Loadings

Variable	1	2	3	4	5
IRP1	-.887	-.031	.096	-.027	.450
IRP2	-.887	.050	-.383	.253	-.001
IRP3	-.854	-.276	.194	.360	-.163
IRP4	-.826	-.464	-.113	-.256	-.158
IRP5	-.225	-.743	-.376	.345	.369

Set 1 Cross Loadings

Variable	1	2	3	4	5
JD1	.066	-.070	.015	.018	-.001
JD2	.134	-.072	-.023	-.002	-.004
JD3	.121	-.063	.030	-.025	.002
JD4	.174	-.031	.024	.013	.004
JD5	.061	-.056	-.009	-.024	.013
JD6	.116	-.051	-.014	.014	.015
JD7	.017	-.083	.011	.014	.012

Set 2 Cross Loadings

Variable	1	2	3	4	5
IRP1	-.192	-.003	.008	-.002	.011
IRP2	-.192	.005	-.032	.019	.000
IRP3	-.185	-.029	.016	.027	-.004
IRP4	-.179	-.048	-.009	-.019	-.004
IRP5	-.049	-.077	-.031	.026	.009

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.258	.012	.607	.028
2	.370	.004	.170	.002
3	.054	.000	.070	.000
4	.053	.000	.076	.000
5	.126	.000	.078	.000

○ Extra Role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.159	.026	.954	3.964	28.000	8503.312	<.001
2	.116	.014	.979	2.799	18.000	6672.745	<.001
3	.081	.007	.992	1.818	10.000	4720.000	.052
4	.034	.001	.999	.686	4.000	2361.000	.602

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
JD1	-.484	-.241	-.345	1.025
JD2	.062	-.422	-.312	-.892
JD3	.529	.760	.848	.534
JD4	.926	-.129	-.531	-.239
JD5	-.158	.742	-.710	.457
JD6	.110	-1.050	.663	.142
JD7	-.296	.550	-.158	-.837

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	.408	-.020	.230	1.169
ERP2	-.959	.358	-.744	-.055
ERP3	.082	.931	.464	-.441
ERP4	-.381	-.758	.811	-.207

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
JD1	-.525	-.261	-.374	1.112
JD2	.063	-.428	-.316	-.905
JD3	.486	.699	.780	.491
JD4	.874	-.122	-.501	-.225
JD5	-.155	.726	-.695	.447
JD6	.101	-.967	.611	.131
JD7	-.268	.498	-.143	-.759

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	.612	-.030	.345	1.753

ERP2	-1.669	.624	-1.295	-.096
ERP3	.096	1.089	.542	-.515
ERP4	-.545	-1.086	1.161	-.296

Set 1 Canonical Loadings

Variable	1	2	3	4
JD1	.239	-.129	-.520	.476
JD2	.498	-.124	-.441	-.082
JD3	.705	.343	.084	.246
JD4	.823	-.075	-.480	.061
JD5	.258	.279	-.603	.227
JD6	.439	-.249	-.188	.130
JD7	.193	.324	-.339	-.239

Set 2 Canonical Loadings

Variable	1	2	3	4
ERP1	-.229	.256	.354	.870
ERP2	-.898	.276	-.078	.334
ERP3	-.189	.764	.615	-.042
ERP4	-.651	-.256	.709	.083

Set 1 Cross Loadings

Variable	1	2	3	4
JD1	.038	-.015	-.042	.016
JD2	.079	-.014	-.036	-.003
JD3	.112	.040	.007	.008
JD4	.131	-.009	-.039	.002
JD5	.041	.032	-.049	.008
JD6	.070	-.029	-.015	.004
JD7	.031	.038	-.027	-.008

Set 2 Cross Loadings

Variable	1	2	3	4
ERP1	-.036	.030	.029	.030
ERP2	-.142	.032	-.006	.011
ERP3	-.030	.089	.050	-.001
ERP4	-.103	-.030	.057	.003

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.254	.006	.330	.008
2	.057	.001	.198	.003
3	.174	.001	.253	.002
4	.060	.000	.219	.000

○ Job Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.227	.054	.903	3.840	63.000	13258.325	.000
2	.142	.020	.952	2.408	48.000	11586.729	<.001

3	.118	.014	.972	1.929	35.000	9909.020	<.001
4	.083	.007	.986	1.422	24.000	8220.312	.083
5	.068	.005	.993	1.179	15.000	6507.041	.280
6	.046	.002	.997	.822	8.000	4716.000	.583
7	.026	.001	.999	.527	3.000	2359.000	.664

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	.420	.150	-.445	-.707	-.153	1.134	.129
JD2	-.306	.442	-.708	.836	.330	-.449	.899
JD3	-.275	-.957	.522	.046	.696	.493	.031
JD4	-.834	-.054	.266	-.630	-.922	-.507	.085
JD5	.183	-.569	-.047	.921	-.881	.274	-.477
JD6	-.382	.960	.176	-.007	.761	.078	-1.002
JD7	.543	-.460	-.619	-.569	.239	-.844	-.023

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
IRP1	.287	-.329	.420	-.276	-.206	.058	-1.208
IRP2	.326	.763	.336	.649	-.170	-.879	.124
IRP3	.200	-.159	-.265	-1.569	-.007	.150	.624
IRP4	.228	-.538	-.342	.938	.403	.497	.610
IRP5	-.208	.105	-.839	-.035	.366	-.206	-.557
ERP1	-.313	-.112	.312	-.076	.075	.711	-.361
ERP2	.314	.089	-.426	.359	-.742	.251	.098
ERP3	.054	-.714	.334	.151	.279	-.555	.108
ERP4	.086	.715	.383	-.068	.748	.194	.073

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
JD1	.456	.163	-.483	-.766	-.166	1.230	.139
JD2	-.310	.449	-.718	.848	.335	-.455	.912
JD3	-.253	-.880	.480	.042	.640	.453	.029
JD4	-.787	-.051	.251	-.595	-.870	-.479	.080
JD5	.179	-.556	-.045	.901	-.861	.268	-.466
JD6	-.352	.884	.162	-.007	.701	.072	-.923
JD7	.492	-.416	-.561	-.515	.216	-.765	-.021

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
IRP1	.476	-.547	.697	-.458	-.343	.097	-2.007
IRP2	.525	1.227	.540	1.043	-.273	-1.413	.199
IRP3	.346	-.276	-.459	-2.723	-.013	.261	1.082
IRP4	.378	-.892	-.566	1.554	.668	.824	1.011
IRP5	-.249	.126	-1.008	-.042	.439	-.248	-.669
ERP1	-.470	-.167	.467	-.114	.113	1.066	-.541
ERP2	.546	.154	-.742	.625	-1.291	.436	.171
ERP3	.063	-.835	.391	.177	.326	-.649	.126
ERP4	.123	1.024	.549	-.098	1.071	.277	.104

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7
JD1	-.300	-.076	-.718	-.278	-.052	.550	-.079
JD2	-.594	-.070	-.738	.224	.143	.082	.144
JD3	-.599	-.606	-.244	-.026	.378	.251	-.088
JD4	-.810	-.189	-.378	-.283	-.257	-.019	-.133
JD5	-.273	-.347	-.578	.335	-.259	.153	-.517
JD6	-.526	.068	-.501	-.013	.231	.084	-.638
JD7	-.087	-.412	-.722	-.229	.167	-.274	-.381

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7
IRP1	.840	-.142	.058	-.118	.029	.046	-.479
IRP2	.855	.152	-.025	.036	.075	-.184	-.114
IRP3	.811	-.108	-.175	-.439	.168	.093	.079
IRP4	.786	-.246	-.261	.167	.306	.235	.086
IRP5	.226	.007	-.662	.004	.484	-.091	-.447
ERP1	.192	-.149	.187	.044	.210	.604	-.305
ERP2	.629	.058	-.096	.236	-.152	.411	-.129
ERP3	.248	-.535	.293	.143	.444	-.172	-.073
ERP4	.412	.396	.249	.055	.625	.301	-.055

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7
JD1	-.068	-.011	-.085	-.023	-.004	.025	-.002
JD2	-.135	-.010	-.087	.019	.010	.004	.004
JD3	-.136	-.086	-.029	-.002	.026	.012	-.002
JD4	-.184	-.027	-.045	-.024	-.018	-.001	-.003
JD5	-.062	-.049	-.068	.028	-.018	.007	-.013
JD6	-.119	.010	-.059	-.001	.016	.004	-.017
JD7	-.020	-.058	-.086	-.019	.011	-.013	-.010

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7
IRP1	.191	-.020	.007	-.010	.002	.002	-.012
IRP2	.194	.022	-.003	.003	.005	-.008	-.003
IRP3	.184	-.015	-.021	-.037	.012	.004	.002
IRP4	.178	-.035	-.031	.014	.021	.011	.002
IRP5	.051	.001	-.078	.000	.033	-.004	-.012
ERP1	.044	-.021	.022	.004	.014	.028	-.008
ERP2	.143	.008	-.011	.020	-.010	.019	-.003
ERP3	.056	-.076	.035	.012	.030	-.008	-.002
ERP4	.094	.056	.029	.005	.043	.014	-.001

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.260	.013	.381	.020
2	.101	.002	.065	.001
3	.339	.005	.081	.001

4	.053	.000	.035	.000
5	.054	.000	.113	.001
6	.068	.000	.085	.000
7	.125	.000	.064	.000

- Job Resources with Other Scales

o Work Engagement

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.542	.415	.646	13.823	77.000	14095.621	.000
2	.181	.034	.915	3.523	60.000	12327.915	.000
3	.167	.029	.946	2.943	45.000	10528.643	<.001
4	.116	.014	.973	2.033	32.000	8682.718	<.001
5	.087	.008	.986	1.576	21.000	6762.839	.045
6	.063	.004	.994	1.259	12.000	4712.000	.236
7	.049	.002	.998	1.156	5.000	2357.000	.329

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
SS1	-.076	-.114	.257	-.298	-.113	.121	.537
SS2	-.018	.034	.335	-.663	-.405	-.779	-1.051
SS3	-.326	-.511	-.423	.250	-.637	-.203	1.102
SS4	.013	-.226	.516	.392	.914	.923	-.802
CS1	-.235	-.303	-.246	.990	.017	-.344	-.092
CS2	-.002	.750	.088	.140	.010	-.177	-.366
CS3	-.108	.003	-.383	-.317	.085	1.069	.220
CS4	.008	-.130	-.568	-.371	-.197	-.471	-.221
JA1	-.176	.464	.285	.172	-.938	.461	-.107
JA2	-.009	-.149	-.073	-.029	.009	-.569	.419
JA3	-.490	.324	.007	-.292	.990	-.018	.112

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.325	.993	-.040	-.494	.046	.271	.144
WE3	-.161	-.423	1.200	-.163	-.126	-.176	.376
WE4	-.162	-.011	.018	.281	.122	-.037	-1.703
WE5	-.352	-.282	-.733	-.047	1.105	-.671	.946
WE6	-.035	.122	.263	.858	-.026	1.163	.228
WE7	-.175	-.637	-.526	-.912	-.708	.460	-.078
WE8	-.049	.372	-.035	.591	-.723	-.925	.191

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
SS1	-.093	-.140	.314	-.365	-.138	.147	.656
SS2	-.019	.036	.356	-.705	-.431	-.828	-1.117
SS3	-.345	-.542	-.448	.265	-.676	-.215	1.169
SS4	.014	-.241	.552	.419	.978	.987	-.857
CS1	-.346	-.446	-.362	1.455	.025	-.505	-.135
CS2	-.002	.988	.115	.184	.013	-.233	-.483

CS3	-.150	.005	-.532	-.440	.118	1.485	.305
CS4	.009	-.160	-.697	-.455	-.241	-.578	-.270
JA1	-.176	.466	.287	.173	-.942	.463	-.108
JA2	-.008	-.138	-.068	-.027	.008	-.528	.389
JA3	-.474	.314	.007	-.283	.959	-.018	.109

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.327	.999	-.040	-.497	.046	.273	.145
WE3	-.146	-.384	1.089	-.148	-.114	-.160	.341
WE4	-.168	-.012	.019	.290	.126	-.038	-1.757
WE5	-.369	-.295	-.768	-.050	1.157	-.702	.991
WE6	-.046	.161	.347	1.130	-.035	1.533	.301
WE7	-.180	-.656	-.542	-.940	-.729	.474	-.080
WE8	-.057	.436	-.040	.692	-.846	-1.082	.223

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7
SS1	-.618	-.328	.267	-.146	-.160	.093	.018
SS2	-.651	-.380	.211	-.272	-.186	-.123	-.467
SS3	-.725	-.473	.154	-.043	-.167	.025	-.093
SS4	-.662	-.430	.300	-.004	.074	.211	-.357
CS1	-.594	-.145	-.381	.555	-.057	-.077	-.235
CS2	-.444	.439	-.208	.178	-.031	-.022	-.389
CS3	-.506	-.018	-.623	-.170	-.079	.417	-.218
CS4	-.447	-.082	-.697	-.271	-.127	-.005	-.304
JA1	-.642	.424	.232	.024	-.410	.138	.132
JA2	-.632	.242	.088	-.110	.058	-.280	.303
JA3	-.826	.283	.082	-.179	.334	-.120	.170

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7
WE2	-.738	.600	.083	-.280	.004	.099	.019
WE3	-.750	-.240	.600	-.071	-.021	-.095	.068
WE4	-.852	-.112	.018	.176	.088	-.054	-.469
WE5	-.886	-.217	-.202	.170	.264	-.104	.133
WE6	-.696	-.104	-.047	.526	-.105	.443	.136
WE7	-.757	-.352	-.270	-.135	-.431	.162	.015
WE8	-.648	.078	-.138	.396	-.536	-.319	.094

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7
SS1	-.335	-.059	.045	-.017	-.014	.006	.001
SS2	-.352	-.069	.035	-.031	-.016	-.008	-.023
SS3	-.393	-.086	.026	-.005	-.015	.002	-.005
SS4	-.359	-.078	.050	.000	.006	.013	-.018
CS1	-.322	-.026	-.064	.064	-.005	-.005	-.012
CS2	-.241	.079	-.035	.021	-.003	-.001	-.019
CS3	-.274	-.003	-.104	-.020	-.007	.026	-.011
CS4	-.242	-.015	-.117	-.031	-.011	.000	-.015

JA1	-.348	.077	.039	.003	-.036	.009	.007
JA2	-.342	.044	.015	-.013	.005	-.018	.015
JA3	-.447	.051	.014	-.021	.029	-.008	.008

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7
WE2	-.400	.108	.014	-.032	.000	.006	.001
WE3	-.406	-.043	.100	-.008	-.002	-.006	.003
WE4	-.461	-.020	.003	.020	.008	-.003	-.023
WE5	-.480	-.039	-.034	.020	.023	-.007	.007
WE6	-.377	-.019	-.008	.061	-.009	.028	.007
WE7	-.410	-.064	-.045	-.016	-.038	.010	.001
WE8	-.351	.014	-.023	.046	-.047	-.020	.005

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.388	.114	.585	.172
2	.109	.004	.088	.003
3	.124	.003	.072	.002
4	.053	.001	.085	.001
5	.037	.000	.080	.001
6	.033	.000	.051	.000
7	.076	.000	.039	.000

○ Perceived Overall Justice

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.570	.480	.645	16.318	66.000	12590.651	.000
2	.145	.021	.954	2.228	50.000	10734.695	<.001
3	.107	.012	.974	1.697	36.000	8823.265	.006
4	.082	.007	.986	1.405	24.000	6830.818	.090
5	.069	.005	.993	1.262	14.000	4712.000	.223
6	.052	.003	.997	1.079	6.000	2357.000	.372

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
SS1	-.213	-.281	-.021	1.083	.699	-.160
SS2	.075	-.519	-.695	-.547	-.339	1.024
SS3	-.341	.669	.870	.470	-.465	.621
SS4	-.322	.480	-.580	-.440	.166	-1.068
CS1	-.142	.053	-.273	-.732	.432	-.180
CS2	.051	-.441	-.353	.246	-.599	-.341
CS3	-.026	-.192	1.069	-.020	-.552	.136
CS4	-.103	-.338	-.348	.201	.394	-.347
JA1	-.041	-.017	.480	-.320	.546	-.212
JA2	-.074	-.619	-.167	-.097	.236	.784
JA3	-.219	.511	.155	-.052	-.476	-.406

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.230	-1.466	-.245	-.183	-.855	-1.161
POJ2	-.158	.086	2.039	.904	.340	.645
POJ3	-.281	-.438	-1.331	.203	1.848	.631
POJ4	-.033	1.703	-.324	.726	-.389	-1.656
POJ5	-.187	.151	.517	-2.375	.145	.468
POJ6	-.194	-.026	-.667	.767	-1.194	1.077

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
SS1	-.260	-.344	-.026	1.325	.855	-.196
SS2	.080	-.552	-.739	-.582	-.361	1.089
SS3	-.362	.710	.923	.498	-.493	.659
SS4	-.345	.513	-.621	-.471	.178	-1.142
CS1	-.209	.078	-.401	-1.076	.635	-.265
CS2	.067	-.581	-.465	.324	-.789	-.449
CS3	-.037	-.267	1.485	-.028	-.767	.189
CS4	-.126	-.414	-.426	.247	.483	-.425
JA1	-.041	-.017	.483	-.322	.548	-.213
JA2	-.069	-.574	-.155	-.090	.219	.728
JA3	-.212	.495	.150	-.051	-.461	-.394

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.233	-1.483	-.248	-.186	-.865	-1.175
POJ2	-.164	.089	2.117	.939	.353	.670
POJ3	-.295	-.460	-1.396	.213	1.939	.662
POJ4	-.035	1.805	-.343	.769	-.412	-1.754
POJ5	-.195	.158	.540	-2.482	.151	.489
POJ6	-.203	-.027	-.695	.800	-1.245	1.123

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6
SS1	-.777	-.104	-.112	.462	.239	.020
SS2	-.782	-.075	-.280	-.024	-.184	.328
SS3	-.885	.206	-.030	.123	-.181	.196
SS4	-.873	.195	-.235	.001	-.104	-.061
CS1	-.543	-.286	-.081	-.397	.087	-.284
CS2	-.394	-.536	-.144	.023	-.446	-.374
CS3	-.477	-.517	.421	-.073	-.308	-.206
CS4	-.464	-.546	.088	-.022	-.109	-.239
JA1	-.461	-.159	.402	-.310	.362	.007
JA2	-.494	-.322	.148	-.250	.187	.318
JA3	-.627	-.013	.208	-.226	-.064	.003

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6
POJ1	-.917	-.286	.036	.005	-.094	-.258
POJ2	-.927	.013	.332	.154	.079	.016
POJ3	-.946	-.003	-.149	.060	.281	.006

POJ4	-.917	.327	-.031	.042	-.013	-.221
POJ5	-.930	.165	.055	-.319	-.044	.048
POJ6	-.885	.118	-.145	.081	-.314	.276

Set 1 Cross Loadings

Variable	1	2	3	4	5	6
SS1	-.442	-.015	-.012	.038	.016	.001
SS2	-.445	-.011	-.030	-.002	-.013	.017
SS3	-.504	.030	-.003	.010	-.012	.010
SS4	-.497	.028	-.025	.000	-.007	-.003
CS1	-.310	-.042	-.009	-.033	.006	-.015
CS2	-.225	-.078	-.015	.002	-.031	-.020
CS3	-.272	-.075	.045	-.006	-.021	-.011
CS4	-.264	-.079	.009	-.002	-.007	-.012
JA1	-.262	-.023	.043	-.026	.025	.000
JA2	-.282	-.047	.016	-.021	.013	.017
JA3	-.357	-.002	.022	-.019	-.004	.000

Set 2 Cross Loadings

Variable	1	2	3	4	5	6
POJ1	-.523	-.041	.004	.000	-.006	-.014
POJ2	-.528	.002	.036	.013	.005	.001
POJ3	-.539	.000	-.016	.005	.019	.000
POJ4	-.522	.047	-.003	.003	-.001	-.012
POJ5	-.529	.024	.006	-.026	-.003	.003
POJ6	-.504	.017	-.016	.007	-.022	.014

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.409	.133	.848	.275
2	.106	.002	.038	.001
3	.053	.001	.026	.000
4	.055	.000	.023	.000
5	.056	.000	.032	.000
6	.052	.000	.032	.000

○ In-role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.342	.133	.849	7.107	55.000	10895.088	.000
2	.140	.020	.962	2.273	40.000	8927.948	<.001
3	.106	.011	.982	1.628	27.000	6878.457	.021
4	.073	.005	.993	1.073	16.000	4712.000	.376
5	.044	.002	.998	.639	7.000	2357.000	.724

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
SS1	-.492	-.385	.529	.086	-.393
SS2	-.002	-.159	-.165	-1.103	.411

SS3	.165	.765	-.115	-.520	-.617
SS4	.068	-.257	.318	.760	.453
CS1	-.299	.817	.047	.348	.230
CS2	-.071	-.115	-.452	-.010	.696
CS3	-.294	-.738	-.837	.189	-.522
CS4	.054	-.234	.795	-.087	.041
JA1	-.425	.425	-.402	-.053	-.692
JA2	.033	-.213	.723	.640	.149
JA3	-.154	.006	-.203	-.365	.553

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.544	.606	-.421	.907	.964
IRP2	-.183	.339	1.492	.023	-.840
IRP3	.075	-.938	-1.091	.522	-.909
IRP4	-.194	.595	-.314	-1.461	.166
IRP5	-.384	-.850	.313	-.074	.528

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
SS1	-.602	-.471	.647	.105	-.481
SS2	-.003	-.169	-.175	-1.173	.437
SS3	.175	.811	-.122	-.552	-.655
SS4	.073	-.275	.340	.813	.485
CS1	-.440	1.202	.069	.512	.338
CS2	-.094	-.151	-.596	-.013	.917
CS3	-.408	-1.025	-1.163	.263	-.726
CS4	.066	-.288	.975	-.107	.050
JA1	-.427	.426	-.403	-.053	-.695
JA2	.030	-.198	.671	.594	.138
JA3	-.149	.006	-.196	-.353	.536

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.904	1.006	-.700	1.507	1.601
IRP2	-.294	.546	2.399	.036	-1.351
IRP3	.129	-1.628	-1.894	.906	-1.578
IRP4	-.322	.986	-.521	-2.421	.274
IRP5	-.462	-1.022	.376	-.089	.635

Set 1 Canonical Loadings

Variable	1	2	3	4	5
SS1	-.698	-.101	.386	-.307	-.074
SS2	-.502	-.052	.220	-.690	.186
SS3	-.479	.160	.241	-.533	.034
SS4	-.478	.013	.289	-.326	.191
CS1	-.681	.294	-.045	.132	.276
CS2	-.526	-.138	-.326	.005	.561
CS3	-.630	-.502	-.279	.004	-.025
CS4	-.477	-.424	.159	-.100	.102

JA1	-.683	.268	-.033	.042	-.230
JA2	-.506	.030	.387	.232	.170
JA3	-.598	.071	.152	-.094	.313

Set 2 Canonical Loadings

Variable	1	2	3	4	5
IRP1	-.890	.307	-.186	.283	-.004
IRP2	-.814	.149	.256	.058	-.496
IRP3	-.741	-.142	-.365	.058	-.543
IRP4	-.794	.173	-.252	-.479	-.217
IRP5	-.697	-.620	.197	-.174	.246

Set 1 Cross Loadings

Variable	1	2	3	4	5
SS1	-.239	-.014	.041	-.022	-.003
SS2	-.172	-.007	.023	-.051	.008
SS3	-.164	.022	.026	-.039	.001
SS4	-.164	.002	.031	-.024	.008
CS1	-.233	.041	-.005	.010	.012
CS2	-.180	-.019	-.035	.000	.024
CS3	-.216	-.070	-.030	.000	-.001
CS4	-.163	-.059	.017	-.007	.004
JA1	-.234	.038	-.004	.003	-.010
JA2	-.173	.004	.041	.017	.007
JA3	-.205	.010	.016	-.007	.014

Set 2 Cross Loadings

Variable	1	2	3	4	5
IRP1	-.305	.043	-.020	.021	.000
IRP2	-.279	.021	.027	.004	-.022
IRP3	-.254	-.020	-.039	.004	-.024
IRP4	-.272	.024	-.027	-.035	-.009
IRP5	-.239	-.087	.021	-.013	.011

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.331	.039	.624	.073
2	.059	.001	.110	.002
3	.066	.001	.067	.001
4	.096	.001	.069	.000
5	.060	.000	.130	.000

○ Extra Role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.384	.172	.779	13.815	44.000	9007.770	.000
2	.226	.054	.913	7.233	30.000	6913.066	.000
3	.169	.029	.962	5.056	18.000	4712.000	<.001
4	.097	.009	.991	2.785	8.000	2357.000	.005

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
SS1	-.062	-.332	.567	.067
SS2	-.403	.323	-.694	-.289
SS3	-.057	-.450	.007	-.160
SS4	.286	-.076	-.388	-.303
CS1	-.208	-.161	.649	-.464
CS2	.002	-.247	-.637	.798
CS3	-.208	-.359	.462	.419
CS4	-.512	.924	-.163	-.049
JA1	-.103	-.339	.000	.213
JA2	-.008	-.354	.002	.182
JA3	-.035	.403	-.010	-.392

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	-.106	-.274	-.216	1.205
ERP2	-.082	-.621	.982	-.498
ERP3	-.083	-.589	-.752	-.603
ERP4	-.870	.802	-.112	-.076

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
SS1	-.076	-.406	.693	.082
SS2	-.429	.343	-.738	-.308
SS3	-.060	-.477	.007	-.169
SS4	.306	-.081	-.415	-.324
CS1	-.305	-.237	.953	-.682
CS2	.003	-.326	-.840	1.052
CS3	-.288	-.498	.642	.582
CS4	-.627	1.133	-.199	-.060
JA1	-.103	-.341	.000	.214
JA2	-.007	-.328	.002	.169
JA3	-.034	.390	-.010	-.379

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	-.159	-.411	-.324	1.807
ERP2	-.143	-1.080	1.709	-.867
ERP3	-.098	-.689	-.880	-.705
ERP4	-1.246	1.149	-.160	-.108

Set 1 Canonical Loadings

Variable	1	2	3	4
SS1	-.492	-.525	.003	-.280
SS2	-.640	-.275	-.473	-.438
SS3	-.526	-.470	-.366	-.451

SS4	-.449	-.438	-.425	-.458
CS1	-.670	-.273	.333	-.139
CS2	-.517	-.308	-.330	.524
CS3	-.819	-.055	.169	.266
CS4	-.884	.337	-.010	.125
JA1	-.326	-.488	-.048	.061
JA2	-.307	-.384	-.095	-.007
JA3	-.395	-.205	-.128	-.209

Set 2 Canonical Loadings

Variable	1	2	3	4
ERP1	-.539	-.530	-.048	.653
ERP2	-.589	-.566	.571	-.078
ERP3	-.468	-.613	-.570	-.283
ERP4	-.983	.177	.007	-.045

Set 1 Cross Loadings

Variable	1	2	3	4
SS1	-.189	-.119	.001	-.027
SS2	-.245	-.062	-.080	-.042
SS3	-.202	-.106	-.062	-.044
SS4	-.172	-.099	-.072	-.044
CS1	-.257	-.062	.056	-.013
CS2	-.198	-.070	-.056	.051
CS3	-.314	-.012	.028	.026
CS4	-.339	.076	-.002	.012
JA1	-.125	-.110	-.008	.006
JA2	-.118	-.087	-.016	-.001
JA3	-.152	-.046	-.022	-.020

Set 2 Cross Loadings

Variable	1	2	3	4
ERP1	-.207	-.120	-.008	.063
ERP2	-.226	-.128	.096	-.008
ERP3	-.179	-.139	-.096	-.027
ERP4	-.377	.040	.001	-.004

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.332	.049	.456	.067
2	.134	.007	.252	.013
3	.074	.002	.164	.005
4	.101	.001	.129	.001

○ Job Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.408	.199	.707	8.455	99.000	16576.634	.000
2	.276	.082	.847	4.933	80.000	14913.278	.000
3	.179	.033	.917	3.254	63.000	13247.061	<.001

4	.139	.020	.948	2.650	48.000	11576.889	<.001
5	.117	.014	.966	2.312	35.000	9900.607	<.001
6	.111	.013	.980	2.009	24.000	8213.335	.002
7	.074	.005	.992	1.257	15.000	6501.519	.221
8	.042	.002	.997	.756	8.000	4712.000	.641
9	.028	.001	.999	.615	3.000	2357.000	.605

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7	8
SS1	-.220	-.441	-.610	-.139	.184	.783	-.182	-.486
SS2	-.297	.469	.682	-.030	.262	-.209	-.610	-.013
SS3	.047	-.109	.467	.677	-1.038	-.422	-.111	-.808
SS4	.208	-.185	.170	-.248	.446	.570	.362	1.176
CS1	-.232	-.222	-.366	.874	-.148	-.444	.252	.446
CS2	-.033	-.182	.506	-.723	-.004	-.351	.464	-.009
CS3	-.241	-.161	-.495	-.727	-.772	-.007	-.805	.384
CS4	-.364	.893	.010	.303	.536	.246	.668	-.548
JA1	-.206	-.477	.020	-.062	.300	-.548	-.044	-.712
JA2	-.001	-.102	.086	.017	-.680	.801	.824	.110
JA3	-.088	.091	-.166	.016	.993	-.274	-.522	.533

Set 1 Standardized Canonical Correlation Coefficients

Variable	9
SS1	.617
SS2	.454
SS3	.123
SS4	-1.124
CS1	.178
CS2	.521
CS3	-.390
CS4	-.179
JA1	-.728
JA2	.038
JA3	.393

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7	8
IRP1	-.268	-.481	-.174	.049	.341	-.712	.782	1.035
IRP2	-.063	-.196	.091	.721	.373	.945	.571	-1.028
IRP3	.088	.150	-.417	-1.026	-.332	-.199	-.639	.126
IRP4	-.041	-.201	.380	.334	.364	-.640	-.838	-.579
IRP5	-.256	-.027	-.249	-.499	.236	.709	-.101	.356
ERP1	-.083	-.119	.183	-.643	-.381	-.260	.685	-.600
ERP2	-.011	-.239	-.582	.564	-.879	.285	-.433	.281
ERP3	-.067	-.310	.905	.132	-.119	.254	-.241	.354
ERP4	-.668	.928	.028	.157	.223	-.206	.083	.019

Set 2 Standardized
Canonical
Correlation
Coefficients
Variable 9

IRP1	.110
IRP2	-.370
IRP3	-1.169
IRP4	.907
IRP5	.469
ERP1	.317
ERP2	.116
ERP3	-.319
ERP4	-.117

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7	8
SS1	-.269	-.539	-.745	-.170	.225	.957	-.222	-.594
SS2	-.316	.499	.725	-.032	.278	-.222	-.649	-.013
SS3	.050	-.116	.496	.718	-1.101	-.448	-.118	-.857
SS4	.223	-.198	.182	-.266	.477	.610	.387	1.258
CS1	-.342	-.326	-.538	1.284	-.218	-.652	.371	.656
CS2	-.043	-.240	.666	-.953	-.005	-.462	.611	-.012
CS3	-.335	-.224	-.688	-1.010	-1.072	-.009	-1.118	.534
CS4	-.446	1.096	.012	.371	.657	.302	.819	-.672
JA1	-.207	-.479	.020	-.062	.301	-.550	-.044	-.715
JA2	-.001	-.094	.079	.016	-.630	.744	.765	.102
JA3	-.085	.088	-.161	.015	.961	-.266	-.505	.516

Set 1 Unstandardized
Canonical
Correlation
Coefficients
Variable 9

SS1	.754
SS2	.483
SS3	.130
SS4	-1.202
CS1	.261
CS2	.687
CS3	-.541
CS4	-.220
JA1	-.731
JA2	.036
JA3	.380

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7	8
IRP1	-.446	-.800	-.289	.081	.567	-1.182	1.300	1.719

IRP2	-.102	-.315	.146	1.159	.599	1.519	.918	-1.653
IRP3	.153	.260	-.723	-1.781	-.576	-.345	-1.108	.218
IRP4	-.068	-.333	.629	.553	.603	-1.060	-1.388	-.960
IRP5	-.307	-.033	-.300	-.599	.284	.852	-.122	.428
ERP1	-.125	-.179	.275	-.964	-.571	-.390	1.027	-.900
ERP2	-.019	-.416	-1.014	.982	-1.530	.496	-.754	.489
ERP3	-.079	-.363	1.059	.154	-.139	.298	-.282	.414
ERP4	-.957	1.330	.040	.224	.320	-.295	.118	.027

Set 2 Unstandardized

Canonical

Correlation

Coefficients

Variable 9

IRP1	.183
IRP2	-.595
IRP3	-2.028
IRP4	1.503
IRP5	.563
ERP1	.475
ERP2	.201
ERP3	-.373
ERP4	-.167

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7	8
SS1	-.594	-.402	.110	.092	.021	.492	-.249	-.110
SS2	-.634	-.029	.603	.158	-.003	.216	-.344	.078
SS3	-.538	-.210	.583	.293	-.195	.194	-.232	.008
SS4	-.490	-.241	.542	.143	-.002	.339	-.160	.312
CS1	-.705	-.174	-.153	.363	-.186	-.274	.169	.340
CS2	-.556	-.160	.295	-.448	-.103	-.275	.335	.153
CS3	-.803	.158	-.186	-.309	-.320	-.054	-.150	.185
CS4	-.804	.505	-.046	-.046	-.003	.046	.193	-.055
JA1	-.464	-.556	.076	-.028	.323	-.139	.127	-.297
JA2	-.400	-.348	.115	.016	.125	.322	.418	.055
JA3	-.495	-.276	.100	.040	.514	.056	.020	.220

Set 1 Canonical

Loadings

Variable 9

SS1	.241
SS2	.064
SS3	-.046
SS4	-.231
CS1	.147
CS2	.310
CS3	-.163
CS4	-.125
JA1	-.402

JA2	-.094
JA3	.015

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7	8
IRP1	-.622	-.603	-.226	.060	.217	-.288	.138	.128
IRP2	-.586	-.502	-.200	.154	.238	.146	.032	-.395
IRP3	-.542	-.417	-.254	-.276	.085	-.150	-.309	-.213
IRP4	-.582	-.476	-.058	.012	.218	-.277	-.439	-.324
IRP5	-.566	-.227	-.154	-.410	.231	.497	-.179	.110
ERP1	-.544	-.236	.156	-.348	-.519	-.112	.281	-.343
ERP2	-.603	-.302	-.294	.270	-.599	.029	-.154	-.028
ERP3	-.473	-.280	.724	-.008	-.248	.158	-.139	.185
ERP4	-.885	.414	.051	.121	-.101	-.094	-.022	-.039

Set 2 Canonical Loadings

Variable	9
IRP1	-.171
IRP2	-.326
IRP3	-.470
IRP4	.096
IRP5	.302
ERP1	.155
ERP2	.030
ERP3	-.183
ERP4	-.085

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7	8
SS1	-.242	-.111	.020	.013	.002	.055	-.018	-.005
SS2	-.259	-.008	.108	.022	.000	.024	-.025	.003
SS3	-.219	-.058	.104	.041	-.023	.022	-.017	.000
SS4	-.200	-.067	.097	.020	.000	.038	-.012	.013
CS1	-.287	-.048	-.027	.050	-.022	-.030	.012	.014
CS2	-.227	-.044	.053	-.062	-.012	-.031	.025	.006
CS3	-.327	.044	-.033	-.043	-.038	-.006	-.011	.008
CS4	-.328	.139	-.008	-.006	.000	.005	.014	-.002
JA1	-.189	-.153	.014	-.004	.038	-.015	.009	-.013
JA2	-.163	-.096	.021	.002	.015	.036	.031	.002
JA3	-.202	-.076	.018	.006	.060	.006	.001	.009

Set 1 Cross Loadings

Variable	9
SS1	.007
SS2	.002
SS3	-.001
SS4	-.006
CS1	.004
CS2	.009

CS3	-.005
CS4	-.003
JA1	-.011
JA2	-.003
JA3	.000

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7	8
IRP1	-.253	-.166	-.041	.008	.025	-.032	.010	.005
IRP2	-.239	-.139	-.036	.021	.028	.016	.002	-.017
IRP3	-.221	-.115	-.046	-.038	.010	-.017	-.023	-.009
IRP4	-.237	-.131	-.010	.002	.026	-.031	-.032	-.014
IRP5	-.231	-.063	-.028	-.057	.027	.055	-.013	.005
ERP1	-.222	-.065	.028	-.048	-.061	-.012	.021	-.014
ERP2	-.246	-.083	-.053	.038	-.070	.003	-.011	-.001
ERP3	-.193	-.077	.130	-.001	-.029	.018	-.010	.008
ERP4	-.361	.114	.009	.017	-.012	-.010	-.002	-.002

Set 2 Cross Loadings

Variable	9
IRP1	-.005
IRP2	-.009
IRP3	-.013
IRP4	.003
IRP5	.008
ERP1	.004
ERP2	.001
ERP3	-.005
ERP4	-.002

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.364	.060	.372	.062
2	.101	.008	.163	.012
3	.108	.003	.091	.003
4	.052	.001	.053	.001
5	.052	.001	.101	.001
6	.066	.001	.055	.001
7	.059	.000	.051	.000
8	.039	.000	.054	.000
9	.041	.000	.058	.000

- Work Engagement with Other Scales
 - o Perceived Overall Justice

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.496	.327	.734	17.899	42.000	11054.072	.000
2	.107	.012	.975	2.034	30.000	9430.000	<.001
3	.088	.008	.986	1.686	20.000	7821.551	.028
4	.057	.003	.994	1.276	12.000	6241.619	.225

5	.049	.002	.997	1.268	6.000	4720.000	.269
6	.029	.001	.999	.	.	.	.

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
WE2	-.072	.238	.673	-.205	-.164	.052
WE3	-.244	.288	-.138	.841	.994	-.062
WE4	-.226	.072	.134	-.989	.064	-1.241
WE5	-.418	-1.354	.287	.731	-.618	.550
WE6	.030	-.029	-1.089	-.546	.335	.060
WE7	-.243	1.022	-.255	.408	-.943	-.032
WE8	-.020	.043	.456	-.462	.539	.925

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.093	1.370	1.523	-.343	.003	-.222
POJ2	-.409	-1.519	-.032	-.305	1.501	-.847
POJ3	-.110	-.641	-.148	1.139	-1.883	-.782
POJ4	-.386	1.486	-1.784	-.832	.309	-.322
POJ5	.078	-1.044	.585	-1.138	-.760	1.703
POJ6	-.147	.402	-.011	1.574	.796	.604

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
WE2	-.073	.240	.678	-.206	-.165	.052
WE3	-.221	.261	-.126	.763	.902	-.056
WE4	-.233	.075	.139	-1.020	.066	-1.281
WE5	-.437	-1.418	.301	.766	-.647	.576
WE6	.040	-.038	-1.434	-.719	.441	.079
WE7	-.250	1.053	-.263	.421	-.971	-.033
WE8	-.024	.051	.533	-.541	.631	1.083

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.094	1.387	1.542	-.347	.003	-.225
POJ2	-.424	-1.578	-.033	-.317	1.558	-.880
POJ3	-.116	-.673	-.155	1.195	-1.976	-.820
POJ4	-.409	1.574	-1.890	-.881	.327	-.341
POJ5	.081	-1.090	.611	-1.189	-.794	1.779
POJ6	-.153	.419	-.011	1.640	.829	.630

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6
WE2	-.578	.188	.501	-.177	.016	.003
WE3	-.786	.147	.004	.321	.491	-.112
WE4	-.878	-.050	.044	-.322	.059	-.316
WE5	-.919	-.350	-.042	.012	-.134	.114
WE6	-.688	-.035	-.534	-.347	.070	.204
WE7	-.792	.426	-.195	-.004	-.329	.186

WE8	-.634	.157	.084	-.385	.175	.575
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Set 2 Canonical Loadings

Variable	1	2	3	4	5	6
POJ1	-.888	.204	.394	-.076	-.072	-.053
POJ2	-.957	-.209	.101	-.060	.126	-.103
POJ3	-.924	-.074	.030	.134	-.341	-.076
POJ4	-.952	.149	-.206	-.118	-.087	.088
POJ5	-.891	-.105	.068	-.126	-.155	.387
POJ6	-.859	.061	.024	.356	.098	.350

Set 1 Cross Loadings

Variable	1	2	3	4	5	6
WE2	-.287	.020	.044	-.010	.001	.000
WE3	-.390	.016	.000	.018	.024	-.003
WE4	-.436	-.005	.004	-.018	.003	-.009
WE5	-.456	-.037	-.004	.001	-.007	.003
WE6	-.342	-.004	-.047	-.020	.003	.006
WE7	-.393	.046	-.017	.000	-.016	.005
WE8	-.315	.017	.007	-.022	.009	.017

Set 2 Cross Loadings

Variable	1	2	3	4	5	6
POJ1	-.441	.022	.035	-.004	-.004	-.002
POJ2	-.475	-.022	.009	-.003	.006	-.003
POJ3	-.458	-.008	.003	.008	-.017	-.002
POJ4	-.472	.016	-.018	-.007	-.004	.003
POJ5	-.442	-.011	.006	-.007	-.008	.011
POJ6	-.426	.006	.002	.020	.005	.010

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.582	.143	.833	.205
2	.056	.001	.021	.000
3	.084	.001	.036	.000
4	.073	.000	.031	.000
5	.058	.000	.030	.000
6	.076	.000	.050	.000

○ In-role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.432	.229	.798	15.608	35.000	9917.433	.000
2	.096	.009	.981	1.889	24.000	8227.289	.005
3	.077	.006	.990	1.548	15.000	6512.562	.080
4	.055	.003	.996	1.138	8.000	4720.000	.334
5	.029	.001	.999	.646	3.000	2361.000	.585

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
WE2	-.394	-.102	.172	-.593	.000
WE3	.029	.087	-.421	.556	-.736
WE4	-.378	-.846	.005	1.075	.541
WE5	.120	.010	.634	-.780	.799
WE6	-.371	1.137	.551	.442	-.332
WE7	.122	-.667	.243	-.534	-1.011
WE8	-.373	.300	-1.175	-.274	.398

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.422	-.241	-.897	.579	1.103
IRP2	-.170	-.999	1.162	.549	-.636
IRP3	-.298	.763	.587	-1.289	.707
IRP4	-.187	.853	-.531	.572	-1.132
IRP5	-.086	-.640	-.552	-.682	-.260

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
WE2	-.397	-.102	.173	-.597	.000
WE3	.026	.079	-.382	.505	-.668
WE4	-.390	-.873	.005	1.110	.558
WE5	.126	.011	.664	-.817	.837
WE6	-.489	1.498	.726	.582	-.438
WE7	.125	-.687	.251	-.551	-1.042
WE8	-.436	.352	-1.375	-.321	.466

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.701	-.400	-1.490	.962	1.832
IRP2	-.274	-1.606	1.868	.882	-1.022
IRP3	-.517	1.324	1.019	-2.237	1.227
IRP4	-.309	1.414	-.879	.948	-1.875
IRP5	-.103	-.769	-.663	-.819	-.312

Set 1 Canonical Loadings

Variable	1	2	3	4	5
WE2	-.736	-.226	.111	-.297	-.063
WE3	-.583	-.189	-.065	.318	-.404
WE4	-.813	-.393	.158	.326	.096
WE5	-.715	-.128	.344	-.085	.115
WE6	-.781	.400	.320	.106	-.192
WE7	-.627	-.267	.121	-.239	-.487
WE8	-.784	.096	-.450	-.202	.007

Set 2 Canonical Loadings

Variable	1	2	3	4	5
IRP1	-.912	-.092	-.170	.232	.278
IRP2	-.871	-.262	.362	.123	-.161
IRP3	-.896	.222	.231	-.303	.053

IRP4	-.846	.301	-.132	.088	-.411
IRP5	-.493	-.455	-.401	-.524	-.339

Set 1 Cross Loadings

Variable	1	2	3	4	5
WE2	-.318	-.022	.009	-.016	-.002
WE3	-.252	-.018	-.005	.018	-.012
WE4	-.351	-.038	.012	.018	.003
WE5	-.309	-.012	.027	-.005	.003
WE6	-.337	.039	.025	.006	-.005
WE7	-.271	-.026	.009	-.013	-.014
WE8	-.339	.009	-.035	-.011	.000

Set 2 Cross Loadings

Variable	1	2	3	4	5
IRP1	-.394	-.009	-.013	.013	.008
IRP2	-.376	-.025	.028	.007	-.005
IRP3	-.387	.021	.018	-.017	.002
IRP4	-.365	.029	-.010	.005	-.012
IRP5	-.213	-.044	-.031	-.029	-.010

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.524	.098	.670	.125
2	.071	.001	.085	.001
3	.069	.000	.078	.000
4	.059	.000	.089	.000
5	.066	.000	.078	.000

○ Extra Role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.393	.183	.824	16.720	28.000	8503.312	.000
2	.117	.014	.975	3.360	18.000	6672.745	<.001
3	.090	.008	.988	2.780	10.000	4720.000	.002
4	.060	.004	.996	2.114	4.000	2361.000	.077

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
WE2	-.290	-.391	.655	.436
WE3	.075	-.325	-.264	-1.149
WE4	-.272	.102	-.187	.831
WE5	-.010	.723	-.373	.130
WE6	-.313	.808	.746	-.513
WE7	-.064	-.357	-.963	.327
WE8	-.382	-.707	.310	-.284

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
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ERP1	-.022	-1.026	.436	.586
ERP2	-.660	.723	.713	-.372
ERP3	-.093	-.345	-.357	-1.014
ERP4	-.432	.138	-.932	.587

Set 1 Unstandardized Canonical Correlation

Coefficients

Variable	1	2	3	4
WE2	-.292	-.393	.659	.439
WE3	.068	-.294	-.239	-1.043
WE4	-.281	.105	-.193	.857
WE5	-.010	.758	-.390	.136
WE6	-.412	1.065	.983	-.676
WE7	-.066	-.368	-.993	.337
WE8	-.448	-.827	.363	-.332

Set 2 Unstandardized Canonical Correlation

Coefficients

Variable	1	2	3	4
ERP1	-.032	-1.538	.654	.878
ERP2	-1.148	1.259	1.241	-.647
ERP3	-.108	-.404	-.417	-1.186
ERP4	-.618	.197	-1.335	.841

Set 1 Canonical Loadings

Variable	1	2	3	4
WE2	-.669	-.282	.278	.209
WE3	-.568	-.110	-.311	-.522
WE4	-.809	.149	-.281	.156
WE5	-.775	.357	-.322	-.013
WE6	-.813	.445	.068	-.256
WE7	-.742	-.072	-.541	.009
WE8	-.834	-.275	-.029	-.164

Set 2 Canonical Loadings

Variable	1	2	3	4
ERP1	-.591	-.725	.292	.198
ERP2	-.911	.128	.381	-.094
ERP3	-.468	-.496	-.282	-.675
ERP4	-.795	-.052	-.537	.279

Set 1 Cross Loadings

Variable	1	2	3	4
WE2	-.263	-.033	.025	.013
WE3	-.223	-.013	-.028	-.031
WE4	-.318	.017	-.025	.009
WE5	-.304	.042	-.029	-.001
WE6	-.319	.052	.006	-.015
WE7	-.291	-.008	-.049	.001
WE8	-.328	-.032	-.003	-.010

Set 2 Cross Loadings

Variable	1	2	3	4
ERP1	-.232	-.085	.026	.012
ERP2	-.358	.015	.034	-.006
ERP3	-.184	-.058	-.025	-.040
ERP4	-.312	-.006	-.048	.017

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.562	.087	.507	.078
2	.074	.001	.198	.003
3	.094	.001	.149	.001
4	.062	.000	.146	.001

○ Job Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.472	.287	.740	11.568	63.000	13258.325	.000
2	.137	.019	.952	2.415	48.000	11586.729	<.001
3	.120	.015	.970	2.038	35.000	9909.020	<.001
4	.090	.008	.985	1.532	24.000	8220.312	.046
5	.072	.005	.993	1.182	15.000	6507.041	.278
6	.043	.002	.998	.679	8.000	4716.000	.711
7	.022	.000	1.000	.374	3.000	2359.000	.771

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.348	-.189	-.420	.562	.642	-.596	-.127
WE3	.054	-.258	-.242	-.414	-1.011	-.613	-.406
WE4	-.341	-.291	.376	1.070	-.613	.808	.711
WE5	.056	.558	.681	-.254	.607	.211	-1.433
WE6	-.350	1.119	-.515	-.104	-.213	-.331	.649
WE7	.044	-.541	.883	-.439	.384	-.588	.709
WE8	-.368	-.528	-.706	-.576	.108	.772	-.232

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
IRP1	-.299	-.422	-.311	.332	-.598	1.191	-.480
IRP2	-.091	-.120	.783	.902	-.343	-1.028	.446
IRP3	-.251	.602	-.239	-.184	1.001	-.329	-.880
IRP4	-.081	.205	-.658	-.421	-.659	-.128	.982
IRP5	-.039	-.458	.080	.097	.290	.083	-.488
ERP1	.028	-.760	-.474	.226	.549	-.067	.551
ERP2	-.295	.727	-.033	-.346	.275	.203	-.102
ERP3	-.025	-.240	-.003	-.640	-.531	-.503	-.459
ERP4	-.270	-.126	.862	-.255	.077	.357	.321

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
WE2	-.350	-.191	-.422	.566	.646	-.600	-.127
WE3	.049	-.234	-.220	-.376	-.917	-.556	-.368
WE4	-.352	-.300	.388	1.104	-.633	.834	.734
WE5	.058	.584	.713	-.266	.636	.221	-1.501
WE6	-.461	1.475	-.678	-.137	-.281	-.436	.855
WE7	.045	-.557	.910	-.452	.395	-.606	.731
WE8	-.431	-.618	-.826	-.674	.127	.904	-.271

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6	7
IRP1	-.497	-.701	-.516	.551	-.993	1.978	-.798
IRP2	-.146	-.194	1.258	1.451	-.551	-1.653	.717
IRP3	-.436	1.045	-.414	-.319	1.738	-.571	-1.527
IRP4	-.134	.340	-1.090	-.698	-1.091	-.213	1.627
IRP5	-.046	-.551	.097	.117	.348	.100	-.587
ERP1	.042	-1.140	-.710	.338	.823	-.101	.826
ERP2	-.513	1.265	-.057	-.602	.479	.353	-.177
ERP3	-.029	-.281	-.003	-.748	-.621	-.588	-.537
ERP4	-.387	-.180	1.235	-.366	.110	.511	.460

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6	7
WE2	-.709	-.216	-.143	.372	.245	-.435	-.205
WE3	-.578	-.176	.125	-.118	-.598	-.382	-.320
WE4	-.819	-.057	.382	.256	-.304	.146	-.025
WE5	-.749	.212	.467	-.098	-.014	.021	-.409
WE6	-.801	.497	.059	-.239	-.097	-.099	.177
WE7	-.679	-.185	.510	-.379	.087	-.214	.216
WE8	-.805	-.232	-.125	-.438	.062	.292	-.034

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6	7
IRP1	-.830	-.098	-.211	.300	-.292	.207	-.160
IRP2	-.795	-.003	.069	.444	-.158	-.372	.029
IRP3	-.818	.154	-.217	.150	.147	-.276	-.200
IRP4	-.770	.065	-.358	-.002	-.224	-.182	.232
IRP5	-.451	-.433	-.007	.072	.167	-.089	-.308
ERP1	-.494	-.539	-.280	-.131	.404	-.098	.326
ERP2	-.758	.165	-.037	-.226	.209	.083	.124
ERP3	-.383	-.412	-.007	-.600	-.262	-.372	-.236
ERP4	-.650	-.191	.534	-.344	.122	.153	.249

Set 1 Cross Loadings

Variable	1	2	3	4	5	6	7
WE2	-.335	-.029	-.017	.033	.018	-.019	-.004
WE3	-.273	-.024	.015	-.011	-.043	-.016	-.007
WE4	-.387	-.008	.046	.023	-.022	.006	-.001
WE5	-.354	.029	.056	-.009	-.001	.001	-.009
WE6	-.378	.068	.007	-.021	-.007	-.004	.004

WE7	-.321	-.025	.061	-.034	.006	-.009	.005
WE8	-.380	-.032	-.015	-.039	.004	.012	-.001

Set 2 Cross Loadings

Variable	1	2	3	4	5	6	7
IRP1	-.392	-.013	-.025	.027	-.021	.009	-.003
IRP2	-.376	.000	.008	.040	-.011	-.016	.001
IRP3	-.386	.021	-.026	.013	.011	-.012	-.004
IRP4	-.364	.009	-.043	.000	-.016	-.008	.005
IRP5	-.213	-.059	-.001	.006	.012	-.004	-.007
ERP1	-.233	-.074	-.034	-.012	.029	-.004	.007
ERP2	-.358	.023	-.004	-.020	.015	.004	.003
ERP3	-.181	-.056	-.001	-.054	-.019	-.016	-.005
ERP4	-.307	-.026	.064	-.031	.009	.007	.005

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.546	.122	.464	.103
2	.066	.001	.083	.002
3	.097	.001	.065	.001
4	.089	.001	.096	.001
5	.076	.000	.056	.000
6	.071	.000	.053	.000
7	.056	.000	.051	.000

- Perceived Overall Justice with Other Scales
 - o In-role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.262	.074	.918	6.787	30.000	9434.000	.000
2	.087	.008	.986	1.688	20.000	7824.868	.028
3	.061	.004	.993	1.304	12.000	6244.265	.208
4	.051	.003	.997	1.131	6.000	4722.000	.341
5	.016	.000	1.000	.	.	.	.

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
POJ1	-.363	-.498	-1.682	.036	.729
POJ2	-.314	-.101	.888	1.601	.672
POJ3	.153	-1.150	-.090	-.913	-1.708
POJ4	-.719	1.750	-.115	.701	-1.061
POJ5	-.040	.662	.249	-1.791	1.316
POJ6	.284	-.987	.957	.219	.101

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.560	1.450	.067	-.411	.037
IRP2	-.306	-.907	1.054	.185	1.010
IRP3	.172	.144	-.351	1.482	-.897
IRP4	-.022	-.719	.001	-1.202	-.832
IRP5	-.499	-.142	-.887	.066	.440

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
POJ1	-.367	-.504	-1.702	.037	.738
POJ2	-.326	-.105	.923	1.663	.698
POJ3	.161	-1.206	-.095	-.958	-1.792
POJ4	-.762	1.854	-.122	.743	-1.124
POJ5	-.042	.692	.261	-1.871	1.375
POJ6	.296	-1.028	.997	.229	.105

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5
IRP1	-.930	2.410	.111	-.682	.061
IRP2	-.492	-1.458	1.694	.298	1.624
IRP3	.298	.251	-.610	2.573	-1.557
IRP4	-.037	-1.191	.002	-1.991	-1.378
IRP5	-.599	-.170	-1.065	.079	.529

Set 1 Canonical Loadings

Variable	1	2	3	4	5
POJ1	-.904	-.330	-.197	-.072	.141
POJ2	-.914	-.239	.227	.122	.095
POJ3	-.858	-.344	.120	-.231	-.260

POJ4	-.952	.056	.190	-.111	-.149
POJ5	-.858	-.068	.267	-.398	.171
POJ6	-.713	-.367	.452	-.171	.072

Set 2 Canonical Loadings

Variable	1	2	3	4	5
IRP1	-.852	.348	.297	-.018	-.252
IRP2	-.802	-.272	.488	.208	-.044
IRP3	-.665	-.118	.153	.465	-.552
IRP4	-.694	-.320	.130	-.217	-.594
IRP5	-.754	-.250	-.586	.062	.147

Set 1 Cross Loadings

Variable	1	2	3	4	5
POJ1	-.237	-.029	-.012	-.004	.002
POJ2	-.240	-.021	.014	.006	.002
POJ3	-.225	-.030	.007	-.012	-.004
POJ4	-.249	.005	.012	-.006	-.002
POJ5	-.225	-.006	.016	-.020	.003
POJ6	-.187	-.032	.028	-.009	.001

Set 2 Cross Loadings

Variable	1	2	3	4	5
IRP1	-.223	.030	.018	-.001	-.004
IRP2	-.210	-.024	.030	.011	-.001
IRP3	-.174	-.010	.009	.024	-.009
IRP4	-.182	-.028	.008	-.011	-.009
IRP5	-.198	-.022	-.036	.003	.002

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.757	.052	.572	.039
2	.071	.001	.075	.001
3	.069	.000	.142	.001
4	.046	.000	.062	.000
5	.025	.000	.149	.000

○ Extra Role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.240	.061	.929	7.345	24.000	8230.778	.000
2	.099	.010	.985	2.323	15.000	6515.322	.003
3	.059	.003	.995	1.465	8.000	4722.000	.164
4	.038	.001	.999	1.157	3.000	2362.000	.325

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
POJ1	.057	1.052	-.536	-1.076
POJ2	-1.005	-1.425	-.196	.943

POJ3	.240	.757	-1.208	1.337
POJ4	-.155	-.618	-.199	-1.981
POJ5	-.119	-.532	1.364	.350
POJ6	-.015	1.170	.815	.350

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	-.013	.305	-.934	-.787
ERP2	-.672	-.962	.464	-.107
ERP3	-.057	.584	.905	-.347
ERP4	-.444	.561	-.348	.886

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
POJ1	.058	1.065	-.543	-1.090
POJ2	-1.043	-1.480	-.203	.980
POJ3	.252	.794	-1.268	1.403
POJ4	-.164	-.655	-.210	-2.098
POJ5	-.125	-.556	1.425	.365
POJ6	-.016	1.219	.849	.365

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	-.020	.458	-1.401	-1.180
ERP2	-1.170	-1.675	.808	-.187
ERP3	-.066	.683	1.059	-.406
ERP4	-.636	.804	-.499	1.269

Set 1 Canonical Loadings

Variable	1	2	3	4
POJ1	-.825	.410	-.188	-.219
POJ2	-.992	.050	-.100	.062
POJ3	-.822	.337	-.219	.092
POJ4	-.868	.150	.008	-.299
POJ5	-.856	.193	.264	-.057
POJ6	-.781	.496	.313	.029

Set 2 Canonical Loadings

Variable	1	2	3	4
ERP1	-.580	.260	-.446	-.630
ERP2	-.913	-.339	.080	-.211
ERP3	-.437	.607	.535	-.393
ERP4	-.797	.428	-.177	.389

Set 1 Cross Loadings

Variable	1	2	3	4
POJ1	-.198	.040	-.011	-.008
POJ2	-.238	.005	-.006	.002

POJ3	-.197	.033	-.013	.004
POJ4	-.208	.015	.000	-.011
POJ5	-.205	.019	.016	-.002
POJ6	-.187	.049	.018	.001

Set 2 Cross Loadings

Variable	1	2	3	4
ERP1	-.139	.026	-.026	-.024
ERP2	-.219	-.033	.005	-.008
ERP3	-.105	.060	.032	-.015
ERP4	-.191	.042	-.010	.015

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.739	.042	.499	.029
2	.098	.001	.184	.002
3	.044	.000	.131	.000
4	.026	.000	.187	.000

○ Job Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.288	.090	.884	5.435	54.000	12007.686	.000
2	.120	.015	.964	2.174	40.000	10268.002	<.001
3	.115	.013	.978	1.872	28.000	8496.101	.003
4	.076	.006	.991	1.165	18.000	6667.088	.281
5	.043	.002	.997	.736	10.000	4716.000	.691
6	.036	.001	.999	.754	4.000	2359.000	.556

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.202	-.779	1.169	.411	.616	1.345
POJ2	-.617	.921	-1.709	1.143	.262	.122
POJ3	.189	-1.099	.291	.622	-1.568	-1.312
POJ4	-.487	1.266	1.276	-.464	1.246	-1.092
POJ5	-.075	.531	-.286	-1.276	-1.609	1.274
POJ6	.175	-1.189	-.776	-.612	1.048	-.374

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
IRP1	-.389	.828	.723	-.795	-.138	-.235
IRP2	-.249	-.585	-.447	-.062	.180	-.397
IRP3	.183	.287	.002	.729	1.104	-.306
IRP4	.070	-.616	.176	-.205	-1.125	-.166
IRP5	-.391	.003	.522	.394	-.045	.773
ERP1	-.003	-.182	.361	.398	.291	-.229
ERP2	-.320	.769	-.828	.068	-.144	.496
ERP3	.016	-.386	-.117	-.800	.508	.403
ERP4	-.279	-.505	-.326	.187	-.280	-.238

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
POJ1	-.204	-.789	1.183	.416	.624	1.361
POJ2	-.640	.956	-1.775	1.187	.272	.127
POJ3	.198	-1.154	.305	.652	-1.646	-1.377
POJ4	-.515	1.341	1.352	-.491	1.320	-1.156
POJ5	-.078	.555	-.299	-1.333	-1.681	1.331
POJ6	.183	-1.240	-.808	-.638	1.092	-.390

Set 2 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4	5	6
IRP1	-.646	1.375	1.201	-1.321	-.230	-.390
IRP2	-.400	-.940	-.719	-.100	.290	-.638
IRP3	.318	.499	.003	1.266	1.915	-.531
IRP4	.116	-1.021	.292	-.340	-1.864	-.276
IRP5	-.469	.004	.628	.474	-.054	.929
ERP1	-.004	-.272	.541	.597	.436	-.343
ERP2	-.556	1.338	-1.441	.118	-.250	.864
ERP3	.019	-.451	-.137	-.936	.594	.472
ERP4	-.400	-.723	-.467	.268	-.402	-.341

Set 1 Canonical Loadings

Variable	1	2	3	4	5	6
POJ1	-.891	-.345	.195	.062	.015	.215
POJ2	-.965	-.085	-.219	.106	-.041	-.017
POJ3	-.859	-.338	.066	-.002	-.282	-.252
POJ4	-.932	-.023	.151	-.240	.023	-.222
POJ5	-.872	-.128	-.051	-.396	-.242	.072
POJ6	-.751	-.450	-.220	-.389	.135	-.125

Set 2 Canonical Loadings

Variable	1	2	3	4	5	6
IRP1	-.765	.243	.285	-.306	.055	-.406
IRP2	-.739	-.122	.012	-.043	.168	-.443
IRP3	-.605	-.013	.130	.159	.352	-.438
IRP4	-.628	-.223	.184	-.045	-.224	-.324
IRP5	-.670	-.165	.446	.275	.016	.447
ERP1	-.497	-.165	.020	.187	.305	-.039
ERP2	-.738	.267	-.482	.040	.015	.078
ERP3	-.364	-.418	-.106	-.532	.456	.306
ERP4	-.647	-.392	-.354	.095	-.067	-.104

Set 1 Cross Loadings

Variable	1	2	3	4	5	6
POJ1	-.256	-.041	.022	.005	.001	.008
POJ2	-.278	-.010	-.025	.008	-.002	-.001
POJ3	-.247	-.041	.008	.000	-.012	-.009
POJ4	-.268	-.003	.017	-.018	.001	-.008
POJ5	-.251	-.015	-.006	-.030	-.010	.003

POJ6	-.216	-.054	-.025	-.029	.006	-.004
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Set 2 Cross Loadings

Variable	1	2	3	4	5	6
IRP1	-.220	.029	.033	-.023	.002	-.015
IRP2	-.213	-.015	.001	-.003	.007	-.016
IRP3	-.174	-.002	.015	.012	.015	-.016
IRP4	-.181	-.027	.021	-.003	-.010	-.012
IRP5	-.193	-.020	.051	.021	.001	.016
ERP1	-.143	-.020	.002	.014	.013	-.001
ERP2	-.212	.032	-.055	.003	.001	.003
ERP3	-.105	-.050	-.012	-.040	.020	.011
ERP4	-.186	-.047	-.041	.007	-.003	-.004

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.776	.064	.409	.034
2	.077	.001	.064	.001
3	.027	.000	.078	.001
4	.063	.000	.058	.000
5	.026	.000	.057	.000
6	.030	.000	.108	.000

- In-Role Performance with Other Scales

o Extra Role Performance

Canonical Correlations

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	.548	.430	.677	48.916	20.000	7828.184	.000
2	.170	.030	.968	6.496	12.000	6246.910	<.001
3	.047	.002	.996	1.436	6.000	4724.000	.197
4	.038	.001	.999	.	.	.	.

H0 for Wilks test is that the correlations in the current and following rows are zero

Set 1 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
IRP1	-.348	-.437	-1.412	-.387
IRP2	-.229	-.720	.885	1.191
IRP3	-.119	.555	.758	-1.447
IRP4	-.334	.015	-.022	.346
IRP5	-.169	.932	-.267	.400

Set 2 Standardized Canonical Correlation Coefficients

Variable	1	2	3	4
ERP1	-.152	.672	.396	-.977
ERP2	-.706	-.997	-.329	-.061
ERP3	-.147	.465	-.958	.357
ERP4	-.224	.352	.783	.794

Set 1 Unstandardized Canonical Correlation Coefficients

Variable	1	2	3	4
IRP1	-.579	-.726	-2.346	-.643
IRP2	-.368	-1.157	1.423	1.916
IRP3	-.206	.962	1.315	-2.511
IRP4	-.553	.025	-.036	.574
IRP5	-.203	1.120	-.321	.481

Set 2 Unstandardized Canonical Correlation

Coefficients

Variable	1	2	3	4
ERP1	-.229	1.008	.594	-1.464
ERP2	-1.228	-1.736	-.573	-.105
ERP3	-.172	.544	-1.121	.418
ERP4	-.321	.504	1.122	1.138

Set 1 Canonical Loadings

Variable	1	2	3	4
IRP1	-.883	-.251	-.331	-.149
IRP2	-.873	-.245	.295	.200
IRP3	-.852	.074	.320	-.398
IRP4	-.886	.038	.089	-.002
IRP5	-.567	.721	-.119	.321

Set 2 Canonical Loadings

Variable	1	2	3	4
ERP1	-.686	.473	.135	-.536
ERP2	-.944	-.316	-.041	-.087
ERP3	-.517	.556	-.615	.214
ERP4	-.683	.308	.439	.496

Set 1 Cross Loadings

Variable	1	2	3	4
IRP1	-.485	-.042	-.016	-.006
IRP2	-.479	-.041	.014	.008
IRP3	-.467	.013	.015	-.015
IRP4	-.486	.006	.004	.000
IRP5	-.311	.122	-.006	.012

Set 2 Cross Loadings

Variable	1	2	3	4
ERP1	-.376	.080	.006	-.020
ERP2	-.518	-.054	-.002	-.003
ERP3	-.284	.094	-.029	.008
ERP4	-.374	.052	.021	.019

Proportion of Variance Explained

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.675	.203	.524	.157
2	.130	.004	.182	.005
3	.064	.000	.148	.000

4	.065	.000	.147	.000
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