EMPLOYEE ENGAGEMENTAND JOB PERSONAL RESOURCES AMONG NURSES IN THAILAND: THE MEDIATING ROLE OF PSYCHOLOGICAL CONDITIONS

BY

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A dissertation submitted to the College of Business, Universiti Utara Malaysia in fulfillment of the requirement for the degree of Doctor of Business Administration

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ABSTRAK

Kadar pusing ganti pekerja yang tinggi telah mengakibatkan berlakunya kekurangan tenaga kerja dalam bidang kejururawatan. Hal ini menjadi isu sejagat dalam kebanyakan negara termasuklah Thailand. Kajian ini bertujuan untuk mengkaji hubungan di antara sumber pekerjaan-peribadi dan penglibatan kerja serta peranan pengantara keadaan psikologi dalam hubungan di antara sumber pekerjaan-peribadi dan penglibatan kerja. Kajian ini telah dijalankan di hospital-hospital swasta yang bertaraf pelancongan kesihatan di Bangkok, Thailand. Sampel kajian terdiri daripada 361orang jururawat berdaftar. Borang soal selidik telah digunakan untuk mengumpul data mengenai sumber pekerjaan-peribadi, penglibatan kerja, dan keadaan psikologi. Dapatan kajian menunjukkan bahawa tahap penglibatan kerja jururawat berada di atas paras sederhana. Hasil analisis hierarki berganda menunjukkan hubungan langsung antara sumber pekerjaan-peribadi (efikasi kendiri, tanggapan sokongan penyelia, dan ganjaran & pengiktirafan) dan penglibatan kerja adalah signifikan. Keadaan psikologi berperanan sebagai pengantara sebahagian dalam hubungan di antara sumber pekerjaan- peribadi dan penglibatan kerja. Dapatan kajian ini dapat membantu pembuat keputusan, pembuat dasar dan pengamal dalam industri pelancongan perubatan memahami faktor-faktor (sumber pekerjaan- peribadi dan keadaan psikologi) yang mempengaruhi penglibatan kerja dalam kalangan jururawat di hospital swasta. Seterusnya bentuk pengukuran yang bersesuaian boleh direka bagi meningkatkan penglibatan kerja jururawat dan mengurangkan hasrat mereka untuk berhenti kerja. Dapatan kajian ini boleh menyumbang kepada penambahbaikan kepada literatur sedia ada dalam bidang penglibatan kerja. Batasan kajian, cadangan dan kajian akan datang juga disediakan.

Kata kunci: Sumber pekerjaan-peribadi, penglibatan kerja, jururawat, pelancongan kesihatan, hospital swasta

ABSTRACT

High employee turnover has accounted for the shortage of manpower in nursing. It has become a worldwide issue in many countries including Thailand. This study aims to examine the relationships between job-personal resources and work engagement and the mediating role of psychological conditions in the relationship between job-personal resources and work engagement. The study was conducted in private hospitals of health tourism in Bangkok, Thailand. The sample consisted of 361 registered nurses. Questionnaires were used to collect the data on job-personal resources, work engagement, and psychological conditions. The findings reveal that the level of nurses' work engagement is above moderate. The result of hierarchical multiple regressions analysis shows significant direct relationship between job-personal resources (self-efficacy, perceived supervisor support, and reward & recognition) and work engagement. Psychological conditions are found partially mediate the relationship between job-personal resources and work engagement. The results of this study provide decision makers, policy makers, and practitioners in the medical tourism industry with an understanding of the factors (job - personal resources and psychological conditions) that influence work engagement among nurses in private hospitals. Subsequently appropriate measures could be designed to enhance nurses' work engagement and reduce their intention to quit. The findings of the study could contribute to the enhancement of the existing literature in the area of work engagement. Limitations of the study, recommendations and future research are also provided.

Keywords: Job-personal resources, work engagement, nurses, health tourism, private hospitals

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CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter presents the detailed background and the problem of the study. It also provides the justification for the research, research questions, research objectives, definition of key terms and organization of the remaining chapters.

1.1 Background of the Study

Empirical evidence indicates that an employee's attitudes and behaviors directly or indirectly influence organizational performance (Jaramillo, Mulki, & Marshall, 2005; Mohankia, 2004). To identify the actions that have the greatest impact, researchers and organizations have been trying to study the cause-and-effect relationship between organizational practices and business outcomes (Mills, 2005). In the early stage, most of them focused on job satisfaction (Janssen & Van 2004, Judge, Thoresen, Bono, & Patton, 2001; Shore & Martin, 1989, Iaffaldano & Muchinsky, 1985, Bateman & Organ, 1983), followed by employee commitment (Lipinskiene, 2008). In the current years, their attention has shifted to a new concept called work engagement (Bakker, Schaufeli, Leiter, & Taris, 2008; Bakker & Demerouti, 2008; Crawford, Lepine, & Rich&, 2010; Macey & Scheneider, 2008; Schaufeli & Salanove, 2007; Sacks, 2006; Salanova, Agut, & Peiro, 2005; Schaufeli & Bakker, 2004). Many have claimed that work engagement is the key that predict employee outcomes, organizational success, and financial performance (e.g., Bates, 2004; Baumruk, 2004; Harter et al., 2002). Although work engagement may play a central

role in desirable outcomes, it is important to understand what factors influence work engagement and how it works.

1.1.1 Overview of Thai Private Hospitals

In Thailand, private hospitals complement public hospitals to provide adequate medical care (Sowjareansuk, 2013). The number of private hospitals was initially small and they were family owned (Sowjareansuk, 2013). However during the economic boom of the 1990s, as the economic condition improved and personal income level increased, the public demand for good quality health care also increased accordingly (Harryono, Huang, Miyazawa, & Sethaput, 2006). As a result, they were increasingly professionally managed (Sowjareansuk, 2013).

The medical tourism industry in Thailand began by a private hospital named Bamrungrad Hospital when the country was facing the economic crisis in 1997. The hospital switched its target market from the local market to foreign markets to recover from the financial problem. As it became successful operation, other private hospitals followed suit and soon the medical tourism industry was born primarily driven by private hospitals (Harryono et al., 2006; Natthawan, 2007; Cohen, 2008; Supakankunti & Herberholz, 2012). As a result, the Thai government recognized the readiness and the potential of its medical professional and in 2004 set out a strategic policy to promote Thailand as the "Medical Hub of Asia". Since then, the medical tourism in Thailand has become the world leader in medical services (The Board of Thai Investment, 2012; Chokdhamroungsuk, 2010; Harryono et al., 2006). Currently, Thailand has at least 321 private hospitals of which 52.1 percent or 167 of private

hospitals are located in the Bangkok area and 154 in the urban area (National Statistical Office Ministry of Information and Communication Technology, 2012).

The success of the medical industry in Thailand invited competition from the neighboring countries of Singapore, Malaysia, and India, which have also realized the opportunity to create profit from the rising demand for medical facilities and healthcare services from foreign patients (Harryono et al., 2006). As the medical tourism industry is continuing to expand and becoming much more competitive (Sowjareansuk, 2013; Supakankunti & Herberholz, 2012; Combs, Laohasirichaikul, & Chaipoopirutana, 2011), the private hospitals have consider various measures available to improve their competitive advantages, such as by re-examining their pricing, using advanced technology, merging businesses, and providing a comprehensive treatment package (The Board of Investment of Thailand, 2012). In addition, the key strategy most emphasized is the medical and non-medical service quality to maintain customer satisfaction and loyalty (Yotawut, 2014; Chunlaka, 2010; Teh, 2007; Teh & Chu, 2005). This strategy requires high involvement from all levels of employees, particularly registered nurses as they are the heart of medical service that work closely with patients and relatives. Without the nurses' engagement, the hospital performance and its reputation in the long term is likely to be affected (Youwikai, 2013). However, since 2005, the Thai private hospitals have been facing a shortage of professional nurses due to employment turnover (Thirapatsakun, Kuntonbutr, & Mechida, 2015; Wongprasit, 2014).

1.1.2 Overview of Thailand Service Industry

The service sector has been playing a major role in the Thai economic development since 1997 and is increasingly becoming more significant. It is the key sector that contributes to the country's development and stabilization of the economic growth other than the manufacturing and agricultural sectors. It accounts for almost half of the national income and has a major stake in the national employment (Koonnathamdee, 2013). In 2011, the service sector contributed 58.7% of the Thai GDP and employed 38.5% of the labor force (Office of the National Economic and Social Development Board, 2013). The service sector consists of hotels and restaurants (11.3%), healthcare (6.1%), financial intermediation (4.9%), real estate, renting and business activities (4.9%), electricity, gas and water supply (1.2%), transport, storage and communication (3.1%), construction (-4.3%), wholesale and retail trade (0.2%), and education (4.8%). Tourism is one of the industries within the service sector. It is a vital industry to the country in many ways: economically, socially, and culturally (Office of Small and Medium Enterprises Promotion, 2011). In terms of economy, it contributed to an increased income from 547,781.81 million baht in 2009 to 776,217 million baht in 2011, representing about 7.4% of GDP, or about 22.1% of GDP under the service sector and employed 69% of the labor workforce (Office of Small and Medium Enterprises Promotion, 2011).

Table 1.1

Number of Tourists and Income Generated by Tourism Industry in Thailand

Years	Number of tourists	Income (Million Baht)
2010	15,936400	592,794.09
2011	19,230,470	734,591.46
2012	22,353,903	983,928.36
2013	26,546,725	1,207,145.82
2014	24,779,768	1,147,653.49

Source: Ministry of Tourism and Sport (2015)

As shown in Table 1.1, the number of tourists keeps on increasing every year from 15.9 million in 2010 to over 24.7 million in 2014 (Ministry of Tourism & Sport, 2015). As illustrated in Table 1.1, in 2014, the tourism industry generated Baht 1,147 billion income to Thailand Ministry of Tourism & Sport, 2014), suggesting that the Thai economy depends heavily on the performance of its tourism industry. The industry accounts for many jobs and a substantial fraction of a wide range of other direct and indirect industries (Wattanakuljarus & Coxhead, 2008). For example, in 2014 the tourism industry directly supported 2,210,000 jobs or 5.8% of the total employment and the visitor export earnings generated Bhat 1,309 billion or 14.4% of the total exports (World Travel & Tourism Council, 2015).

Medical tourism is one of the burgeoning tourism industries in Thailand. It is expected to be continually growth driven by the growing costs of healthcare and insurance coverage scope in developed countries, increasing waiting time, lower cost

of treatments, and improved quality of care in destinations (Harryono et al., 2006). Within this industry, there are two types of service provided, that is, the medical service providing medical treatment for patients including the treatment of heart disease, knee, and dental surgery. The other is called the wellness service which includes spas, traditional massages, and long-stay healthcare products and services with the aim of preventing health before illness (Institute for small and Medium Enterprises Development, 2012).

Having a well-known reputation in providing high quality standard of healthcare services and the first country Asia to achieve the Joint Commission International (JCI), which is the international accreditation arm of the U.S. Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in 2002 together with being a popular tourist destination, the Thai government decided to set a strategic plan to promote the country as the Medical Hub of Asia (MHA) within five years from 2004 – 2008 (Buathong, 2007; Cohen, 2008; Ricafort, 2011). As a result, the medical tourism industry had since contributed increasingly to the national income. With the success of the first strategic plan, the Thai government decided to elevate the medical industry to another step by setting a new goal of turning Thailand as Asia's world class healthcare destination in its second strategic plan from 2012–2016 (The Board of Investment of Thailand, 2012).

Table 1.2

Number of Tourists and Income Generated by Medical Tourism in Thailand

Year	Number of foreign patients	Income (Million Baht)
2008	1,380,000	50,963
2009	1,390,000	63,347
2010	1,980,000	78,740
2011	2,240,000	97,874
2012	2,530,000	121,658

Source: Suwinitjit (2013)

Table 1.2 shows that the medical tourism records an increase in the number of foreign patients and income every year. In 2008, it generated 50 million baht, which increased to 121 million in 2012 from the medical services. In terms of employment, the medical tourism industry employed 137,598 (in private hospitals only) people with 69.04 percent or 95,001 are medical staff, 24.5 percent or 3,712 people are hospital staff, and 8,887 people or 6.5 percent administration officers in 2012 (National Statistical Office Ministry of Information and Communication Technology, 2012). This figure did not include 62,489 employees working in spa businesses. (Institute for small and Medium Enterprises Development, 2012).

Spa and hospital services require different types of abilities and skills of the employees since they are completely different in the nature of the services offered. Spas, which is a form of health promotion treatment services, usually need employees with physical knowledge and massage skills (Baray, 2012). Medical

services, on the other hand, require more complicated technical knowledge, skills, and competence in physical sciences, and medicine. Notwithstanding the differences, the rapid growth rates in the industry have a direct impact on Thai employment in terms of demands for medical professional skills as it is one of the factors that lead medical tourists to select Thailand hospitals as the medical tourism destination (Ricafort, 2011).

1.2 Problem Statement

Although Thailand does seem to have a clear way in becoming the Medical Hub of Asia (MHoA) and Asia's world class healthcare destination, its problem lies in the lack of medical personnel, especially registered nurses (Patradul, 2009). The shortage of registered nurses is considered a Thai crisis in the medical personnel management (Chirawatkul et al., 2012; Gaesawahong, 2014; Thirapatsakun et al., 2015). In developed countries, such Japan and America, the proportion of population to a nurse is 1:200, but in Thailand, the population to a nurse is 1:700 while in Singapore and Malaysia, which are Thailand's major competitors in the medical tourism industry, have a proportion of 1:250 and 1:300, respectively (Thairath, 2009). One of the main reasons for a nursing shortage in Thailand is nurse turnover (Legislative Institutional Repository of Thailand, 2011; Sawaengdee, 2009). Sawaengdee et al.'s (2009) study found that the rates of nurses leaving their nursing career to pursue other jobs not related to nursing from both public and private hospitals are 4.44 percent each year. Chirawatkul et al. (2012) also reported that 55 percent of the registered nurses working in private hospitals had the intention to quit because they were unhappy.

As the continuous providers of patient care, nurses are crucial to foreign and local patient satisfaction and dissatisfaction (Chunlaka, 2010; Combs et al, 2011). Combs et al. (2011) found that nurses' concern was the second most important factor after the doctors' concern that affected customer satisfaction and customer loyalty. Chunlaka (2010) also supported this finding and reported that the nursing service provided by nurses was important to foreign patient's satisfaction. Nurses who are unhappy are also likely to be disengaged from their work, which has an impact on patient satisfaction and potentially increases the risk of serious errors (Wannapin & Wisetrit, 2012). In addition, the quality of care for hospital patients is strongly related to the performance of nurse (Hassmiller & Cozine, 2006).

Providing a quality of care and accomplishing patient satisfaction are the core strategies of developing competitive advantages of private hospitals that cater for both local and global markets. As competition is heightened among internal and external service providers (Teh, 2007), maintaining client satisfactions by increasing the quality of care is key in differentiating the services from other providers (Dawn & Pal, 2011). However, this target cannot be reached if the issue of a nurse shortage continues to increase over time. This is because nurses are considered important resources in providing the medical care services. Therefore, ensuring that the existing nurses stay in their job is crucial (Chirawatkul et al, 2012).

Recently, there has been a call for more studies on positive organizational behavior, which is described as the study and application of positive orientation of human resource strengths and psychological capacities that can be measured,

developed, and effectively managed for performance improvement in today's workplace (Luthans, 2002a, 2002b). Traditionally, employee job satisfaction used to be the main focus of organizations to predict organizational outcomes (Kittredge, 2010). Job satisfaction has been the key variable and frequently used in organizational research and has long been treated as the independent and dependent variable in predicting employee happiness at work (Fisher, 2010). However, recently there have been arguments on the need to introduce a more powerful construct in organizational research, such as work engagement.

Work engagement is suggested to have a positive valence different from job satisfaction in many ways. For one, engagement brings in energized experiences and enthusiasm to employees who are willing to go the extra mile from their job description where employee job satisfaction reflects a low to an average level of activation (Warr & Inceoglu, 2012; Bakker & Oerlemans, 2010). Besides, work engagement has been shown to have a negative relationship with employee intention to quit (; Hallberg & Schaufeli, 2006; Saks, 2006; Schaufeli & Bakker, 2004). Therefore, promoting nurses' work engagement should be an important issue to consider when managing the nursing personnel. An international research by the Gallup Organization indicated that work engagement is the foundation upon which organization success and failure are built now and in the future (Macleod & Clark, 2009; Gopal, 2006).

Though there have been studies on work engagement, most of them examine this it together with burnout by utilizing Job Demands-Resources Model (JD-R)

(Bakker & Demerouti, 2007; Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli, & Ahola, 2008; Llorens, Bakker, Schaufeli, & Salanova, 2007; Schaufeli & Bakker, 2004). The results of the previous research showed that job demands led to burnout and job resources contributed to work engagement. In this study, the aim was to investigate the relationship between job resources and work engagement only to show that job resources alone would affect work engagement as suggested by Bakker and Demerouti (2008). Since the nature of different jobs is different (Van den Broeck, 2008), it is important to understand the extent of job resources in contributing to work engagement without the present of job demands.

Besides, this study also includes personal resource (general self-efficacy) as one of the resources, following Kahn's (1990) suggestion to identify whether there are individual differences in work engagement. Saks (2006) also proposed in his study that future research should consider individual difference variables that might predict work engagement. Personal resources are one of the elements that could explain individual differences. They are defined as people's mental characteristics that are able to reduce the negative impact of demands on psychological well-being (Perrewé & Ganster, 2011).

Moreover, to understand how engagement develops it is important to identify and explain the underlying mechanisms of work engagement (Meyer & Gagne, 2008). According to self-determination theory, the key for individuals to feel engaged is the satisfaction of basic psychological needs as lack of satisfaction leads to poorer performance and reduced physical and psychological well-being (Ryan &

Deci, 2000). This assumption agrees with Kahn's (1990) theorization that employees become engaged when three psychological conditions or needs are met (Schaufeli, 2013). According to Kahn (1990), the three psychological needs can be simultaneously influenced by individual, interpersonal, group, intergroup, and organizational factors. These environments can create the conditions that facilitate employees to personally engage through people's perceptions. So, it can be said that the three psychological conditions are the key underlying mechanisms of how work engagement develops within individuals.

However, Kahn's (1990) conceptual framework was theorized from a qualitative interview and a very few of empirical research is available to date (Schaufeli, 2013). The lack of empirical studies on the psychological conditions leads to inadequate information of whether psychological conditions mediate the relationship between individual, work environment, and work engagement. In addition, without measuring the effect of psychological conditions our understanding of how these psychological experiences affect employee behavior and work outcomes, as suggested by Kahn (1990), is questionable.

Additionally, no unique theoretical framework of work engagement exists (Schaufeli, 2013). However, there are a number of theoretical perspectives proposed. For example, in the JD-R model introduced by Schaufeli and Bakker (2002), job and personal resources are called the motivational process. Another theoretical framework is introduced by Kahn (1990), who proposes that individuals become engages when three psychological conditions or needs are satisfied (Schaufeli, 2013).

Job and personal resources have been recognized by Kahn (1990) as the positive aspect of job characteristics of a work situation that nurture the so-called critical psychological states (e.g., meaningfulness), which in turn form the degree to which employees employ and express themselves physically, cognitively, and emotionally during role performance.

Drawing from self-determination theory of psychological needs, the two models are integrated since job and personal resources have the intrinsic and extrinsic functions that facilitate psychological needs. Hence, combining the two models would help enhance the understanding of how work engagement is developed. Thus, to fill this gap, this study applied the psychological conditions as the mechanism that mediates the relationship between job-personal resources and work engagement.

1.3 Research Questions

This study intends to answer the following questions:

1. What is the level of engagement among nurses in Thailand?
2. Do job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) influence work engagement?
3. Do the three psychological conditions (psychological meaningfulness, psychological safety, psychological availability) correlate with work engagement?

4. Do job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) correlate with the three psychological conditions (psychological meaningfulness, psychological safety, psychological availability)?
5. Do the three psychological conditions (psychological meaningfulness, psychological safety, psychological availability) mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) and work engagement?

1.4 Research Objectives

The objectives of this study are as follows:

1. To explore the level of engagement among nurses.
2. To examine the influence of job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) on work engagement.
3. To determine whether the three psychological conditions (psychological meaningfulness, psychological safety, psychological availability) correlate with work engagement.
4. To investigate whether job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) correlate with the three psychological conditions (psychological meaningfulness, psychological safety, and psychological availability).
5. To examine whether the three psychological conditions (psychological meaningfulness, psychological safety, psychological availability) mediate the

relationship between job-personal resources (reward and recognition, perceived supervisor support, and self-efficacy) and work engagement.

1.5 Significance of the Study

The findings of this study, if valid, will have significant theoretical and practical contributions to work engagement. From the theoretical point of view, this study intends to provide some insights into the relationship between job and personal resources and work engagement, by incorporating psychological conditions as a mediator. Hence, the findings of the study could enhance the existing body of knowledge in the area of work engagement.

This study combines two models of work engagement developing from two different perspectives. Job Demand-Resource Model (JD-R) introduced by Schaufeli and Bakker (2004) postulates that work engagement results from the inherently motivating nature of resources both from work and individuals (personal resources). The second framework was proposed by Kahn (1990), who views that personal engagement is the result of satisfying basic psychological conditions. By combining these two frameworks, a better understanding of work engagement among nurses can be offered. This research also adds to the existing body of knowledge by identifying which particular job and personal resources significantly influence nurses' work engagement.

From the practical perspective, the results of this study will help decision makers, policy makers, and practitioners in the medical tourism industry understand the factors that influence work engagement of private health care providers and

subsequently design appropriate measures to enhance nurses' work engagement and reduce their intention to quit, which will address the issue of the nursing shortage in Thailand.

1.6 Definition of Key Terms

Work engagement

Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior (Schaufeli & Bakker, 2002).

Job-personal resources

Job resources refer to those physical, psychological, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; and (c) stimulate personal growth and development (Bakker & Demerouti, 2007).

Personal resources are the aspects of the self that are generally linked to resiliency. They refer to individuals' sense of their ability to control and impact upon their environment successfully (Xanthopoulou et. al, 2007).

Psychological conditions

Psychological conditions are defined as the momentary rather than static circumstances of people's experiences that shape behaviors and encompasses meaningfulness, safety, and availability (Kahn, 1990).

Meaningfulness is defined as a value of a work goal or purpose, judged in relationship to an individual's own ideals or standards (May, 2003).

Safety refers to a condition when an employee feels that he or she is able to reveal and employ one's self without fear of negative outcomes to self-image, status, or career.

Availability is a sense of having the physical, emotional, or psychological resources to personally engage, at a particular moment (Kahn, 1990).

Private hospital

According to the Sanatorium Act B.E. 2541, a private hospital means a hospital that provides medical services for patients who can stay overnight and has more than 30 beds. The size of a private hospital can be categorized by the number of beds (Chyenark, 2009). In this study the size of a private hospital is defined following Cheynark (2009) as follows:

- A small-sized hospital refers to a hospital with 1-99 beds
- A medium-sized hospital refers to a hospital with 100-249 beds
- A large-sized hospital refers to a hospital with 250 and more beds

Registered Nurse

Registered nurses (RNs) are those who obtain the first class licensure after completing a baccalaureate or diploma nursing program and passing a licensing examination approved by the Board of the Thailand Nursing and Midwifery Council to legally use the title registered nurse and practice as such (Sawaengdee, 2009).

1.7 Organization of the Remaining Chapter

This research is divided into five chapters. Chapter 2 reviews past research on work engagement, as well as job-personal resources, and psychological conditions. Chapter 3 provides a detailed discussion on the research methods, including information about the target population, participant selection, and the method of statistical analysis. Chapter 4 presents the results of the data analysis. Chapter 5 discusses the results in relation to the research objectives. It also talks about the limitations and implications of the research, recommendations for future studies, and conclusion of the study.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature relevant to the research topic. Based on the literature, the hypotheses and framework for understanding the relationship between job-personal resources and work engagement, and the mediating role of psychological conditions are presented. The chapter concludes with a summary and a brief preview of the following chapter.

2.1 Definition of Engagement

Although employee engagement has become a hot topic nowadays, there is no consistency in the definition (Kular, Gatenby, Rees, Soane, & Truss, 2008). Most of the definitions of employee engagement can be found in practitioner journals where its basis is available from practice rather than theory and empirical research (Saks, 2006). However, employee engagement has been primarily defined as emotional and intellectual commitment to the organization (Baumruk, 2004; Richman, 2006) or the amount of discretionary effort displayed by employees in their jobs (Frank, Finnegan, & Taylor, 2004).

In the academic literature, Kahn (1990) defined employee engagement as the harnessing of organization member' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. According to Kahn (1990, 1992), engagement refers to being psychologically present when occupying and performing an organizational

role. Similarly, Rothbard (2001) described engagement as psychological presence, but he further add that engagement also involves two critical components: attention and absorption. Attention refers to cognitive availability and the amount of time one spends thinking about a role, while absorption means being engrossed in a role and refers to the intensity of one's focus on a role.

Macey and Schneider (2008) argued that engagement is an inclusive multidimensional construct which encompasses three distinct dimensions, namely, trait, state, and behavioral engagement. According to Macey and Scheider, trait engagement refers to a propensity to experience the world in a positively engaged manner. State engagement plays a mediating role between engaged traits and behaviors. This state of engagement is promoted by both personal traits and organizational conditions. Behavioral engagement involves taking significant initiative, being proactive, adapting to changing circumstances, and role expansion.

Schaufeli and Bakker (2004) argued that engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Vigor refers to high levels of energy and mental resilience while working, willingness to invest effort in one's work, and persistence in the face of difficulties. Dedication involves a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is related to being fully concentrated and happily engrossed in one's work whereby time passes quickly. When one is absorbed in one's work, one has difficulties in detaching oneself from work. They further argued that engagement is not a temporary and specific state, but it is a more persistent and pervasive

affective-cognitive state that is not focused on any particular object, event, individual, or behavior. For the purpose of this study Schaufeli and Bakker's (2002) engagement definition is used because it is the most recent and widely used definition of engagement.

2.2 Work Engagement

The term engagement can be traced back to Kahn (1990), who sought to explain the psychological experiences that people have, physically, cognitively, and emotionally, during work performances. Kahn (1990) emphasized how individuals could vary their degree of engagement in their job, involving themselves with only certain task behaviors and role performance. Despite Kahn being attributed to publishing the first scholarly work on engagement, it was the Gallup Organization that successfully linked the high levels of employee engagement to the organization's return on investment. A decade after Kahn's work, the term engagement began to be noticed by scholars. For instance, Schaufeli and Bakker (2004) were credited to popularize the concept by providing the measurement scale of work engagement.

Work engagement is not easy to define. However, scholars have tried to characterize engaged employee in many ways. Richman (2006) stated that engaged employees are passionate about their work, have a sense of personal commitment to what they do, and feel an intense connection to their company. They are also completely absorbed by their work, according to Rothbard (2001). Engaged individuals are able to ignore competing distractors and intensely focus in the task at hand, have both energetic connection and a sense of being effective in their work

activities, as well as perceive that they can deal with the demand of their work (Schaufeli & Salanova, 2007).

Work engagement is the foundation upon which the organization's success and failure are built now and in the future (Gopal, 2006; Khan, 2013). Because engaged employees are highly energetic with a positive attitude, they generate their own positive feedback that increases self-confidence in controlling over incidents that affect their lives (Schaufeli et al., 2001 in Bakker & Overlemans, 2010). Saks (2006) affirmed that engaged employees are enthusiastic about their job and wake up in the morning wanting to go to work. When the employees are at work, they will often be so engrossed in their work that they will lose track of time. On the other hand, employees who are not engaged will be distracted by non-work related issues and not wanting to be at work. Therefore, work engagement is perceived as a form of positive psychology (Schaufeli & Bakker, 2004).

Work engagement has been shown to have beneficial impacts on both organization and individual. On organizational consequences, it was found to have a relationship with improvements in customer satisfaction, productivity, profits, employee retention, and reduction in turnover intention (Sakes, 2006; Schaufeli & Bekker, 004; Harter, 2002). In terms of its positive effect on individual, the empirical evidence shows that employees with high levels of engagement are less often on sick-leave, have healthier habits, have positive emotion, and have increased life satisfaction and well-being (Gallup, 2013; Shimazu, Schaufeli, Kubota, & Kawakami, 2012; Llorens, Schaufeli, Bakker, & Salanova, 2007). In addition,

engaged employees also transfer their engagement to others by encouraging feelings of energy and enthusiasm between individual members with their optimism, positive attitudes, and pro-active behaviors (Bakker, van Emmerik, & Euwema, 2006).

2.3 Job Resources and Work Engagement

Demerouti et al. (2001) defined job resources as those physical, psychological, social, or organizational aspects of the job that may do any of the following: (a) functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; and (c) stimulate personal growth and development. They may be located at the level of the organization at large (e.g., pay, career opportunities, job security), the interpersonal and social relations (e.g., supervisor and co-worker support, team climate), the organization of work (e.g., role clarity, participation in decision making), and at the level of the task (e.g., skill variety, task identity, task significance, autonomy, performance feedback) (Bakker & Demerouti, 2007). In line with Hackman and Oldham (1976), job resources are job characteristics with motivational potential that foster critical psychological state, which in turn drives people's attitude and behavior (Bakker & Bal, 2010). These positive types of job characteristics were mostly found in predicting job attitudes, such as job satisfaction (Kassabgy, Boraie, & Schmidt, 2001; Ololube, (2006); Tourangeau, Hall, Doran, & Petch, 2006; Ali & Ahmed, 2009; Galanou, Georgakopoulos, Loannis, & Vasilopoulos, 2010; Lumley, Coetzee, Tladinyane, & Ferreira, 2011; Rizwan, Khan, Aqeel Tariq, Ghaffar, Anjum, & Bajwa,, 2012; Andreassi, Lawter, Brockerhoff, & Rutiglian, 2012; Griffin, Patterson, & West, 2001; Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002, 2002;

Soulen, 2003; Steinhardt, Dolbier, Gottlieb, & McCalister, 2003; Mansell, Brough, & Cole, 2006; Shahzad, Hussain, Bashir, Chishti, & Nasir, 2011; Mahdian, Kouhdasht, & Fallahi, 2013; Amma & Thaliyan, 2014; Baloyi, van Waveren, & Chan, 2014; Iden, 2014; Neog & Barua, 2014).

Job resources are assumed to play either an intrinsic motivational role because they foster employees' growth, learning and development, or they may play an extrinsic motivational role because they are instrumental in achieving work goals (Schaufeli & Bekker, 2004). In the former case, job resources may fulfill basic human needs, such as the needs for autonomy, relatedness, and competence (Deci & Ryan, 2000). According to self-determination theory, work contexts that support psychological autonomy, competence, and relatedness enhance well-being (Deci & Ryan 2000). For instance, effective training and development strategies increase job competence, whereas job control satisfies the need for autonomy and the need to belong (Chughtai & Buckley, 2008). In terms of extrinsic motivational role, resourceful environments foster the willingness to dedicate one's efforts and abilities to the work task (Maslach & Leiter, 2008). In this case, it is possible that the task will be completed successfully and that the work goal will be attained. For example, supportive and performance feedback from supervisor increases the likelihood of being successful in achieving one's work goals (Schaufeli & Bakker, 2004).

Research on work engagement to date has primarily expressed this construct as a function of job resources because it has the motivational potential to make employees' work meaningful, hold them responsible for the work processes and

outcomes, and provide them with information about the actual results of their work activities (cf. Bakker, Demerouti, De Boer, & Schaufeli, 2003). Work engagement has been mostly analyzed within the framework of the job demands-resources model. The basic premise of this model is that employees may work in different work environments, but the characteristics of these work environments can be classified into two broad categories: (1) job demands; and (2) job resources (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). It was found that job demands are negatively associated with engagement but positively linked to burnout, and job resources are positively related to engagement (Burney & Burney 2011; Bakker et al., 2006; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Crawford et al., 2010; De La Rosa, 2008; Deese, 209; den Broeck, Vansteenkiste, Witte, & Lens, 2008; Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli & Ahola, 2008; Janse van Rensburg, Boonzaier, & Boonzaier, 2013; Llorens et al., 2006; Mauno, Kinnunen, & Ruokolainen, 2007; Nahrgang, Morqeson, & Hofman, 2011; Prieto, Rothmann & Joubert, 2007; Roslan, Ho, & Sambasivan, 2015; Salanova, Martínez, & Schaufeli, 2008; Sawang, Brough, & Barbour, 2009; Schaufeli, Bakker, & van Rhenen, 2009; Schaufeli & Bakker, 2004; Schwartz, 2007; Trépanier, Fernet, Austin, Forest, & Vallerand, 2014; Verbruggen, 2009; Yanchus, Fishman, Teclaw, & Osatuke, 2013). Hence, job resources are not only necessary to deal with job demands, but they also are important in their own right.

The following discusses job resources that could theoretically enhance work engagement.

2.3.1 Rewards and Recognition and Work Engagement

Several researchers have explored the effect of motivation to work on performance and employee retention (Luthan, 2000; Wiley, 1997; Ramlall, 2004; Brun & Dugas, 2008, Peterson & Luthans, 2006). To obtain employee desirable behaviors, a number of motivational mechanisms have long been discussed and applied to the organizational context, such as training, interesting work, good wage, and recognition (Wiley, 1997). Even though there are several tools of employee motivation, most commonly used by many organizations is reward and recognition (Saunderson, 2004). Reward and recognition are believed to increase employee productivity and performance, generally over a short time period as a mechanism to evoke desirable employee behavior. In general, incentive programs deal with rewards aim to increase specific behaviors (Stajkovic & Luthans 2003; Peterson & Luthans 2006).

Employee's job performance is not completely induced by pay or incentives (Wilches-Alzate, 2009) because employees also have social exchange needs and often base their commitment to the organization on their perception of how committed the organization is to them (Eisenberger et al. 1986; Eisenberger et al. 1997; Stajkovic & Luthans 1997). Therefore, reward and recognition can be used as a tool by the organizations to express how valuable their employees. When the employees receive a tangible incentive for their good performance, they are likely to feel appreciated and valuable, motivating them to respond favorably to the organization in the future (Wilches-Alzate, 2009).

Recognition and rewards are believed to transform attitude and behavior. However, an individual's perceptions and values may vary depending on the efficacy of the tangible reward or the social recognition, the appearance of the reward or recognition, and the source and manner from whom it is delivered (Luthan & Stajkovic, 2009). Besides, successful rewards and recognition also are based on behavior that must be instrumental and must be close in time to the desired response (Stajkovic and Luthans 1997).

Recently Hansen, Smith, and Hansen (2002) argued that there are differences between reward and recognition. They distinguished the distinction among the two factors of human motivation based on three theories developed by three motivational experts: Maslow, Herzberg, and Deci. In conclusion, according to Hansen, Smith, and Hansen (2002), a reward is required for a specific behavior determined by extrinsic motivation. Rewards attempt to alter behavior through the use of an external tangible incentive. This translates into the expectation of obtaining something in exchange for an action; it is related to the expectation of valuable material exchange that is a consequence of instrumental behavior (Vroom, 1964). As the behavioral control depends on the external variables, the effect of reward is diminished or even extinguished if the reinforcement is absent. That is when incentives are not instrumental to behavior and usually undermine intrinsic motivation (Deci, Koestner, & Ryan, 1999).

Rewards are externally controlling variables of behavior due to their property to announce anticipated future benefits to individuals expecting them (Bandura,

1977). These terms all share the characteristic of generating and maintaining certain behaviors through individual's expectation of the attainment of something valuable (Hansen et al., 2002). Rewards can increase the likelihood of a behavior to occur over time if the reward is delivered contingent upon the specific behavior (Luthans, 2002). Regarding the expectation and outcomes of reward, what an organization should expect from preparing a rewards program is that the behaviors of its employee will meet the minimal requirement for the reward, but not the expectation of increasing loyalty and commitment (Hansen et al, 2002). On the other hand, it is possible for an organization to expect a greater aspiration for fineness and continuous improvement in its employees by providing them with recognition. This is because recognition is an important motivator of behavior beyond any rewards associated with it (Hansen et al, 2002). Recognition refers to the day-to-day, low-cost, high-touch pats on the back, handwritten notes, team lunches, on-the-spot awards certificates, gifts of thanks, and other ways one regularly praises and expresses gratitude to employees (Gotstick & Elton, 2007).

There is empirical evidence for the use of verbal recognition to enhance intrinsic motivation (Deci et al., 1999). It is important that employees feel valued by the organization since it leads to lower turnover, improved task behavior, and increased incidence of citizenship behaviors (Rhoades et al., 2001). Based on cognitive evaluation theory (Deci, 1975 quoted in Ryan and Deci, 2000), social reinforcement or recognition would lead to the prediction of enhanced feelings of competence. Recognition provides organizations with behaviors that are a source of differentiation and uniqueness, such as innovation and creativity, service above and

beyond the call of duty, and eagerness to change and move forward because recognition involves personal attention, mostly conveyed verbally, through expressions of interest, approval, and appreciation for a job well done (Luthans & Stajkovic, 2009). These positive reactions from others, especially those in a higher position, allow employees to predict desirable outcomes, such as promotion or raises and thus become incentives for future action (Stajkovic & Luthans, 2001). Although recognition is vital in organizations, it may not be sufficient in and of itself and must come together with rewards (Wilches-Alzate, 2009). If organizations provide rewards without recognition, it can cause employees to lose their significance and become drenched with physical reward and will reduce the reward's ability to generate a specific behavior (Wilches-Alzate, 2009). Past research has shown that the combination of verbal feedback and financial incentives can have a great impact on performance in service settings (Cook & Dixon 2005).

According to Bandura (1986), recognition serves as a powerful signal that physical rewards are to follow which gives an individual the power to predict upcoming events, such as promotions or pay raises. It also plays as a future behavior regulatory mechanism by forethought (Bandura, 1986). When employees received recognition, they may prepare courses of action for the future and anticipate the possibility of their future behaviors, and create performance goal for themselves (Stajkovic & Luthans, 1998b). Recognition connotes that the employee has an opportunity to grow within the organization (Wayne et al., 1997). Consequently, the employee will engage in behaviors that receive recognition and avoid behaviors that lead to the disapproval of others (Bandura, 1986; Luthans & Stajkovic, 2009).

Saunderson (2004) emphasized the importance of employee recognition as a factor of retaining employees. Consistent recognition made by the immediate supervisor or manager contributes to personal experiences by building credibility and trust that the manager or supervisor is sincere in his/her efforts to show praise and appreciation, which in turn increase employee morale and create a connection to the organization (Saunderson, 2004). Recognition can be assumed as a communicator of the organization to the employees that their organization cares and values their contribution. Thus, when the employees perceive that the organization is committed to them, they are willing to go beyond the routine task and become attached to the organization (Eisenberger, 1986). Allen, Shore, and Griffeth (2002) developed a model to examine the antecedents of perceived organizational support (POS) and its role in predicting voluntary turnover. They found that reward and recognition was one of the organizational human resources practices significantly related to POS, resulting in increased organizational commitment and job satisfaction and reduced employee voluntary turnover. A similar result was discovered in the study of Wayne and colleagues (2002), who found that recognition from upper management contributed to employee commitment and organizational citizenship behavior.

Reward and recognition are recognized as a key factor in motivating employees to behave in the way the organization desires, but most research on this variable is often used to find the influence it has on employee job attitudes, such as job satisfaction (Abdullah & Wan, 2013; Ali & Ahmed, 2009; Andreassi et al., 2012; Aqel Tarig et al., 2012; Dzuranin & Stuart, 2012; Galanou et al., 2010; Hina, Zamir, & Nudrat, 2014; Imran, Ahmad, Nisar & Ahmad, 2014; Kassabgy, Boraie, &

Schmidt, 2001; Lumley et al., 2011; Ololube, 2006; Shah, Rehman, Akhtar, Zafar, & Riaz, 2012; Tourangeau et al., 2006; Tessema, Ready, & Embaye, 2013; Vijayakumar & Subha, 2013) but not on other work behaviors, particularly work engagement. Even the few studies that examined the relationship between the two reported conflicting results. For example, Ram and Prabhakar (2011) found that intrinsic and extrinsic rewards were related to work engagement. Similarly, Koyuncu, Burke, and Fiksenbaum (2006) discovered that reward and recognition predicted work engagement of women managers and professionals. Similar results were reported elsewhere (Bakker et al., 2007; Bakker et al., 2006; Khan & Iqbal, 2013; Moussa, 2013; Schwartz, 2007). However, contrary to the positive findings, Saks (2006) did not find any support for reward and recognition and work engagement. The inconsistent findings and the limited number of research justify more research to be done on the relationship between reward and recognition and work engagement.

2.3.2 Perceived Supervisor Support and Work Engagement

Perceived supervisor support refers to the general perception that employees form concerning the degree to which supervisors value the employees' contributions and care about their well-being (Eisenberger et al., 2002). Supervisors pay a vital role in structuring the work environment and providing feedback to employees (Griffin, Patterson, & West, 2001). They not only motivate subordinates to work but also control and manage the immediate resources of the work group (Bhanthumnavin, 2003). Supervisors are also the closest organizational link to the employee and have

the ability to communicate the organization's intentions to their subordinates (Pati & Kumar, 2010).

The path-goal theory of leadership developed by House (1971) is one theory of leadership that has attempted to recognize leadership behavior and its consequence on subordinate actions and attitudes. The theory postulates that the major functions of a leader are to enhance the psychological states of the subordinates, which result in increased subordinate motivation to perform and increased subordinate satisfaction with the job. House's path-goal theory of leadership effectiveness posits that the motivational functions of a supervisor are to: (a) assure the subordinates' personal rewards for accomplishing work goals by clarifying the paths to their desired rewards and removing roadblocks to successful work performance, and (b) improve the opportunities for work satisfaction en route by showing consideration and support for the subordinate. A large number of research has shown that a supervisor's behavior that is supportive affects employee job performance (Gagnon & Michael, 2004), satisfaction (Griffin et al., 2001), commitment (Dawley, Andrews, & Bucklew, 2007), and employee retention (Eisenberger et al., 2002; Smith, 2004). Shanock and Eisenberger (2006) conducted a study examining followers' perceptions of support from the supervisor and their findings showed that perceived supervisor support was related to the employees' both in-role and extra-role performance. Besides, perceived supervisor support was also found as a source of employee work enjoyment (Johnston & Johnston, 2005). It is also postulated to be a basic component of the psychological climate within an organization (Jahmes & James, 1989).

However, it is acknowledged that the relationship between a supervisor and a subordinate is one of the most common sources of stress in an organization (Landeweerd & Boumans, 1994; Tepper, 2004). Subordinates who perceived a lack of support from supervisor reported a high level of emotional exhaustion (Leiter & Maslach, 1988). According to Repetti (1987), workers feel more emotionally vulnerable in role relationships with supervisors because they are unable to control and amend those interactions. In contrast, receiving support from a supervisor makes the employees feel better about themselves (van Dierendonck, Haynes, Borril, & Stride, 2004). Therefore, the employee's immediate supervisor can play a critical role in inducing engagement and may be one of the primary cultivators of employee engagement (Baumruk, 2006).

Job resources also include supervisor support because this variable can be both internal and external motivations positively associated with work engagement (Bakker & Leiter, 2010). Supervisor support may satisfy employees' needs to belong and enable them to identify with their work, which in turn foster the willingness to dedicate efforts and abilities to the work task, thus facilitating successful work performance. For example, Bakker et al. (2008) noted that supportive and proper feedback from one's superior increased the likelihood of employees successfully achieving their work goals.

Although research works on the relationship between perceived supervisor support and work engagement are available, to date, the number is still small compared to studies on perceived supervisor support and other employee job

attitudes, such as job satisfaction and commitment. Besides, the few studies available have reported mixed findings. For example, Bakker et al. (2006) found that supervisor support was one of the most important job resources that predicted work engagement. Nahrgang et al. (2010) also demonstrated that perceived supervisor support was positively related to work engagement, which led to employee safety at work. Similarly, Hakanen et al. (2005) found the influence of supervisor support among Finnish teachers' work engagement. The same finding was revealed in the meta-analysis study of Crawford et al. (2010). However, Moussa (2013) found no relationship between perceived supervisor support and employee job and organizational engagement. Wu, Chen, Huang, and Cheng (2013) also observed that supervisor support did not exert any significant effects on vigor, dedication, and absorption among Taiwanese tour guides. In sum, since the empirical evidence on the influence of perceived supervisor support on work engagement is mixed and the studies available to date are still limited, more research works are required.

2.4 Personal Resources and Work Engagement

As a result of the shortage of nurses in Thailand, those who remain in the profession have increased workloads (Chirawatkul et al., 2012). In addition, nurses often work in an environment where role ambiguity and work overload are among the common occupational problems for them (Parikh, Taukari & Bhattacharya 2004). Nurses also work in irregular hours/shifts, are on their feet most of the time, and are almost always in a rush (Bejruswan, Suwannapong, Howteerakul, & Booshuya, 2012). Furthermore, they are often subjected to display the required emotions, such as smiling when dealing with unpleasant patients and/or families (Yavas et al., 2014).

As they serve sick people, they have, at times, deliver bad news to the patients and their families (Bejruswan et al., 2012). Additionally, the pressures of achieving work–life balance add more of daily stress to the already stressful work environments (Chirawatkul et al., 2012). They are also experiencing fatigue every day in their working life derived from dealing with the expectation of the patients and their families and live and death situations. Such work environment requires high physical and psychologically energy (Bakker, Killmer, Siegrist, & Schaufel 2000). However, nurses who possess a positive self-evaluation believe in themselves and are motivated to be engaged in their work.

According to Judge, Locke, and Durham (1997), people do not behave according to the situations or environment but they chose to act based on the assessment of their own worthiness, competence, and ability to control. Personal resources are considered a positive belief of self-evaluation which is a higher order trait and indicates the fundamental evaluation that people create about themselves (Judge, Bono, Erez, & Locke, 2005). They are aspects of the self generally linked to resiliency and refer to individuals' sense of their ability to control and impact upon their environment successfully (Hobfoll, Johnson, Ennis, & Jackson, 2003). People who have a positive belief view themselves positively across a variety of situations and enter into the world with a confident, self-assured manner (Judge & Kammeyer-Mueller, 2011). They believe that they have the ability to control and resolve problems in the face of difficulties (Judge, Erez, Bono, & Thorsen, 2002). This positive belief enables individuals to cope with external constraints and feel advantageous emotions and attitudes because this belief helps them to obtain self-

regulatory functioning (Johnson, Rosen, & Levy, 2008). Personal resources have been shown to be significant positive predictors of goal setting, motivation, job performance, and life satisfaction (Judge, Erez, & Bono, 1998; Judge et al., 2005; Jugde & Bono, 2001; Erez & Judge, 2001). This is because the higher the individual's personal resources, the more positive the person's self-regard (Bakker & Demerouti, 2008). People with positive self-regard tend to reach for their self-concordant goals to a greater degree than people with a negative self-perception (Judge et al., 2005).

Personal resources have been recognized as the most key essential determinants of work engagement because they protect individuals from the demanding situations and related costs, serve as means for achieving goals, and stimulate growth and development (Xanthopoulou et al., 2009). Individuals who believe that they are worthy, competent, and capable are willing to pursue work goals with the expectation that the goals will lead them to a positive outcome or state (Judge et al., 2005). Those with goal self-concordance are intrinsically motivated to pursue their goals for their intrinsic value (Luthans & Youssef, 2007). When the value is congruent with the goals, higher intrinsic motivation is created which activates higher performance and satisfaction (Judge et al., 2005).

Work engagement cannot solely occur from a working context but from it is also influenced by how the individuals perceive of themselves (Kahn, 1990); thus, it would be worth to incorporate both job and personal resources to understand their contribution to work engagement as they may play both intrinsic and extrinsic

motivational roles that satisfy basic human needs or through the achievement of work goals (Bakker & Demerouti, 2008; Schaufeli & Bakker, 2004).

2.4.1 General Self-Efficacy

Banduara (1997) defined self-efficacy as beliefs in one's capabilities to organize and execute the course of action that lead to desirable outcomes. Self-efficacy has its root in social cognitive theory which provides a framework for understanding human motivation in varying contexts, including work environment. Niu (2010) stated that self-efficacy is an outcome of reaction between external conditions, other adjustment mechanisms, individuals' capabilities, experience, and accomplishment. He further asserted that self-efficacy is also a significant factor in changing a behavior, is a part of self-control, and a type of motive recognition as well. A strong sense of self-efficacy heightens individuals' success and well-being in various ways (Bandura & Cervone, 1986). Individuals who believe in their capabilities look at the difficult task as a challenge to learn rather than to avoid (Bandura, 1999). This view of self-efficacy belief promotes individuals' intrinsic desire to accomplish challenging goals (Bandura, 1999). Bandura (1977) asserted that individuals' perceived self-efficacy influences the option of activities to be attended. It also impacts how they might become engaged and how long they might persevere. Self-efficacy increases and maintains their energy in the face of failure and lets them to quickly regain their sense of efficacy after a failure or setback (Bandura, 1999).

Self-efficacy has been examined in several conditions, for example, in predicting learning achievement, which the findings showed that it had a strong

positive effect on freshman grades and credits (Zajacova, Lynch, & Espenshade, 2005; Zimmerman, 2000). Self-efficacy beliefs also play a crucial role in psychological and physical health outcomes (Nielsen, Yarker, Randall, & Munir, 2009). Lubbers, Loughlin, and Zweig (2005) conducted a longitudinal study of 195 young workers and found that job self-efficacy related directly to psychological and physical health. Clark and Dogde (1999) explored the role of self-efficacy in disease management in a sample of older women with heart disease. They also found self-efficacy consistently predicted subsequent disease management behavior.

Self-efficacy was also found to be related to other concepts in organizational behavior, such as goal-setting and intrinsic motivation (Bandura, & Martinez-Pons, 1992; Niehaus, Rudasill, & Adelson, 2011; Schunk, 1990; Zimmerman, Locke, Frederick, Lee, & Bobko, 1984). Self-efficacy is connected to goal-setting theory in which self-efficacy is postulated to mediate the relationship between personal goal choice and performance (Latham & Locke, 1991). This is because self-efficacy includes all factors, such as adaptability, creativity, resourcefulness, and perceived capacity to orchestrate complex action sequences that could lead to performance well at a task (Latham & Locke, 1991). People with high self-efficacy tend to choose difficult goals than those with low self-efficacy (Locke et al., 1984).

Self-efficacy was also found to be positively related to intrinsic interest (Bandura & Schunk, 1981). Ryan and Deci (2000) conceptualized intrinsic motivation as the doing of an activity for its inherent satisfaction rather than for some separable consequence. An intrinsically motivated person is moved to act for the fun

or challenge entailed rather than because of external prods, pressures, or rewards. Intrinsically motivated activities are said to be ones that provide the satisfaction of innate psychological needs, namely, the innate needs for competence, autonomy, and relatedness. According to Ryan and Deci (2000), to maintain or enhance intrinsic motivation, perceived competence or self-efficacy is required.

Self-efficacy was found to mitigate stress (Bandura, 1999, 2001). It was also found to prevent negative effects of job demands which lead to burnout (Salanova et al., 2002). People with a strongly developed self-efficacy are, therefore, less susceptible to stress and consequently to burnout (Eden & Zuk, 1995). Similarly, Schaufeli and Salanova (2007) suggested that a lack of efficacy or inefficacy could be one of burnout dimensions. Schwarzer and Hallum (2008) examined the connection among self-efficacy and burnout with job stress as a moderator. They observed that self-efficacy was negatively related to burnout.

Based on data collected from 140 workers, Grau and colleagues (2001) found that a high level of self-efficacy had a positive effect on employee well-being. Recently, burnout researchers have combined self-efficacy as one of the personal resources into Job Demands-Resources Model of work engagement (Bakker & Demerouti, 2008) because work engagement is determined by both environment and individual factors (Hobfoll, 1989). Kahn (1990) also argued that individual differences form people's disposition toward employee engagement or disengagement by shaping people's abilities and willingness to be involved or committed at work.

There is considerable research evidence on the positive impact of self-efficacy on performance and employee well-being at work (Bandura, 1999, 2001). For instance, research showed that affirmative feelings of self-efficacy were associated with readiness for organizational changes (Cunningham et al., 2002) and the ability to be flexible within the organizational function (van den Broeck and vander Velde, 2005). Self-efficacy also was found to have a relationship with another job performance, i.e. adaptability to new technology (Thompson, Compeau, & Higgins, 2006; Wang, Ertmer & Newby, 2004). According to social cognitive theory, self-efficacy influences performance because it determines the persistence and effort of individuals when undertaking tasks (Bandura, 1986).

Most research works on self-efficacy in the work context relates to job satisfaction and organizational commitment (e.g., Adika, Adestina, & Oriyomi, 2013; Akhter, Ghayas, & Adil, 2012; Caprara, Barbaranelli, Steca, & Malone, 2006; Cohrs, Abele, & Dette, 2006; Esmaeili & Hashim, 2014; Judge, Bono, & Locke, 2000; Judge & Bono, 2001; Judge et al., 2005; Mohd Shahril & Sulaiman, 2007; Owen, 2012; Lai & Chen, 2012; Rathi & Rastogi, 2009; Reilly, Dhingra, & Bodszek, 2013; Tojjari, Esmaeili, & Bavandpour, 2013). But, the exploration of the impact of self-efficacy on work engagement to date is limited (e.g., Deese, 2009; Murthy, 2014; Salanova, Lorente, Chambel, & Martinez, 2011; Simbula, Guglielmi, & Schaufeli, 2011; Xanthopoulo et al., 2009). Hence, this gap justifies more studies on self-efficacy and work engagement.

2.5 Psychological Conditions and Work Engagement

According to Hackman and Oldham (1980), there are critical psychological states that influence an individual's internal work motivation. Kahn (1990) derived psychological conditions by using an in-depth method designed to produce a grounded theoretical framework. He demonstrated how people experiences of work and work contexts form the processes of how people presenting and detaching themselves during work performances. From the interview with counselors and architectures, Kahn scrutinized each moment as a contract between a person and his/her role and found that the contract generated three psychological conditions which reflect the rationale of the contracts.

According to Kahn (1990), people are willing to agree to the contracts when they perceive themselves that they have all necessary resources or availability to fulfill the obligations and when they realize that the contracts have the desired benefits or meaningfulness, are protective, and are safe. These three psychological conditions refer to the momentary rather than the static circumstances of people's experiences that shape behaviors, which encompass meaningfulness, safety, and availability (Kahn, 1990). When these psychological conditions are met, people will be fully engaged in their work task. Empirical evidence points out that the three psychological conditions are a psychological climate that fosters individual work engagement (Walker Jr., 2011).

2.5.1 Psychological Meaningfulness and Work Engagement

Psychological meaningfulness refers to the feeling that they have when they expect to receive a return on various investments made in the form of physical, cognitive,

and emotional rewards. It can be experienced when employees feel that their work is valuable and they are contributing without being taken advantage of (Kahn, 1990). Baumeister and Vohs (2002) stated that the essence of meaning is 'connection' and is linked to positive outcomes for both the individual and the organization including improvements in organizational performance (Neck & Milliman, 1994), retention of key employees, effective management of change, and greater organizational commitment and employee engagement (Holbeche & Springett, 2004; Milliman et al., 2003). Lack of meaningfulness can lead to a feeling of alienation or disengagement (May et al., 2004).

Psychological meaningfulness is considered to have an effect on work engagement via the idea that individuals have an innate drive to search for meaning in their work (Frankl, 1992). Where individuals recognize their work to be personally meaningful, they are likely to be motivated to invest more of themselves and, hereafter, become more engaged in it (Jacob, 2013). Psychological meaningfulness was found to be the best predictor of work engagement (Phale, 2008). May et al. (2004) found that psychological meaningfulness was highly associated with engagement. Because meaningfulness is considered the basic human need (Martela, 2010), when this needs is fulfilled it enhances the feeling of values that contribute to a sense of personal growth and whose attainment derives directly from the nature of the work experience (Ros, Schwartz, & Surkiss, 1999).

Olivier and Rothman (2007) validated that meaningfulness displayed the strongest relationship with work engagement of all psychological conditions. Jacob

(2013) also found that psychological meaningfulness was the strongest predictor of work engagement. Rothmann and Hamukang'andu (2013) and Rothmann and Baumann (2014) also indicated that psychological meaningfulness was positively related to work engagement.

2.5.2 Psychological Safety and Work Engagement

Psychological safety is described as the feeling of being able to show and employ one's self without fear of any negative social or work-related consequences (Kahn, 1990). Individuals experience safe when they realize that they will not suffer for revealing their true selves at work (May et al., 2004). In a safe context, employees understand the boundaries between what is allowed and disallowed and the potential consequences of their behaviors (Kahn, 1990). As personal engagement is considered to be risky when circumstances are unclear, inconsistent, unpredictable, or threatening (Kahn, 1990), psychological safety, therefore, is thought to guide to engagement because it reflects one's belief that a person can employ him/herself without fear of negative consequences (Olivier & Rothmann, 2007).

Psychological safety is developed when employees perceive the interpersonal relationships involve mutual support, openness, trust, genuineness, and flexibility. This inherently generates a facilitator environment that encourages learning and growth (Phale, 2008). Similarly, Rousseau (1995) reported that subjects who experienced supportive and trusting relationships, without perceptions of negative consequences, tended to feel more psychologically safe. In these cases, individuals experienced higher levels of personal engagement. It was shown that psychological

safety was a predictor of work engagement (Olivier & Rothmann, 2007; May et al., 2004). However, the relationship between psychological safety and work engagement is unclear because in some studies, during the validation stage, the psychological safety factor was excluded from further analysis because no items loaded on this factor (See Rothmann & Welsh, 2013; Phale, 2008, Oliver & Rothman, 2007). Besides Rothmann and Rothmann Jr. (2010) found no significant relationship between psychological safety and work engagement.

2.5.3 Psychological Availability and Work Engagement

The third and final antecedent of personal engagement as discussed in Kahn's research (1990) is psychological availability, which refers to "having the physical, emotional or psychological resources to personally engage at a particular moment" (Kahn, 1990, p. 714). Basically, it involves an individual's assessment of the readiness or confidence to engage in his/her work task where other activities are also being concerned (May et al., 2004). Schaufeli and Bakker (2004) enlarged on the definition to encompass the elements of job demands and job resources by which the presence of the demands (work activities, work volume, time) are influenced by the degree and availability of the resources (autonomy, involvement in decisions, social supports, feedback, time). The resources are shaped by the individual's self-competence, the individual's consolation in self-expression in work activities, and the influence of other roles and external activities on the individual's energies (May et al., 2004; Schaufeli & Bakker, 2004).

In Kahn's (1990) study, personal engagement was more highly correlated with psychological availability than with personal disengagement. He found that when someone feels physically, emotionally or psychologically resourceful in a given context, he or she will be more apt to be engaged in the task. May et al.'s (2004) empirical study also found that psychological availability was strongly related to employee work engagement compared to both psychological meaningfulness and safety. Also, Oliver and Rothman's (2007) results showed a significant statistical relation between psychological availability and work engagement.

Overall, the three psychological conditions of meaningfulness, safety, and availability seemed to be positively related to engagement. However, from the review of the literature, more studies are required since the research works on psychological conditions and work engagement are scarce and the results are somewhat vague.

2.6 Job-Personal Resources and Psychological Conditions

2.6.1 Reward and Recognition and Psychological Conditions

Khan (1990) stated that people differ in their engagement due to the advantages in playing their role in job performance. Saks (2006) mentioned that a sense of return on investments of employees' effort can come from external rewards and recognition in addition to meaningful work. According to Kahn (1990), when employees experience a sense of being valued, valuable, and needed, they expect that their contributions will be appropriately rewarded and recognized, resulting in job identification and involvement. When they come to identify with their jobs and be

more involved, they are likely to experience more perceived meaningfulness of their work. In this case, individuals may perceive a reward as a return on their investment effort where recognition is the belief that the organization appreciates and recognizes one's efforts and contributions (Brown & Leigh, 1996).

Based on Kahn's (1990) ethnographic experiences, employees experience meaningfulness when their relatedness are met which allows them to feel known and appreciated and share their existential journeys with others. Relatedness is one of the basic psychological needs and occurs when people feel valued by significant others to whom they feel connected (Ryan & Deci, 2000). This sense of relatedness provides a sense of belongingness and connectedness to the persons, group, or culture (Ryan & Deci, 2000). Perceived recognition from those who may have considerable respect/credibility (e.g., an admired peer, mentor) may also be powerful in leading to desirable outcomes, such as being included in the "in-group" which creates a sense of belongingness (Luthans & Stajkovic, 2009). This acceptance and belongingness of being one of the group further create a root in developing trust and respect among individuals and organization (Armstrong, 2007; Eisenberger et al., 1990; Reychav & Sharkie, 2010; Wong & Pang, 2002). Both trust and respect are the two components that allow employees to be confident in their workplace (Edmondson, 1999). When it occurs, confidence contributes to the feeling of psychological safety, which allows employees to express themselves at work without fear of embarrassment, rejection, or punishment from speaking what on their minds (Edmondson, 1999; Kahn, 1990)

Psychological availability also refers to individuals' readiness or confidence to engage in their work role. Reward and recognition have been shown to induce employees' self-confidence (Pratheepkanth, 2011) because they enhance individuals' beliefs in their own capacity that is already available (Luthan & Stajkovic, 2006). This self-confidence is the belief in one's judgment, ability, and power to commence a particular behavior (Dixon, 2008: Hassan, 2010; Bénabou & Tirole, 2002). It is an internal state made up of what people think and feel about themselves (The University of Queensland website, 2014). The concept of self-confidence can be found in several different theories such as planned behavioral theory, social cognitive theory, and health belief model (usually known as self-efficacy) (Dixon, 2008). Self-confidence is an essential personal resource since it enhances individuals' motivation to undertake project and persistence until the goals are achieved (Bénabou & Tirole, 2002). People with self-confidence are able to confront difficult circumstance, whereas individuals who lack self-confidence are likely to avoid taking the risk because they are afraid of failure and do not presume they could be successful (Goel & Aggrawal, 2012). This personal resource, in turns, transforms into readiness to cope with the various demands of both work and other life activities.

Although reward and recognition seem to be important intrinsic and extrinsic motivations that might positively satisfy all the three psychological conditions required by employees in the work environment, to date, there are still limited empirical studies that attempt to link them with psychological conditions.

2.6.2 Perceived Supervisor Support and Psychological Conditions

Edmondson (1999) suggested that supervisors who are supportive and not controlling foster the perceptions of safety. Supervisors, who display concern for the subordinates' needs and feelings, prepare positive feedback and encourage their employees to express their concern, create new skills and resolve work-related problems, are perceived to be supportive (Deci & Ryan, 1987). As suggested by Deci and Ryan (2000), autonomy is a basic psychological need and can be satisfied by a supportive environment. Such environment facilitates the employees to be self-determined and interested in their work because they experience a sense of choice in initiating and regulating their own actions (Deci et al., 1989).

In agreement to the self-determination theory, Kahn (1990) explained that people experience psychological meaningfulness when they are in a meaningful relationship that meets their relatedness need because such relation allows them to feel known and appreciated. The feeling of being known and appreciated boosts individual dignity, self-appreciation, and a sense of worthwhileness and value (Kahn, 1990). Self-determination theory describes relatedness need as a need to be connected or belong with others and is fostered when others treat one in warm and caring ways (Chirkov, Ryan, Kim, & Kaplan, 2003). The need of relatedness can be reinforced when employees perceive that their supervisor cares and values their desires (Rhoades, Eisenberger, & Armel, 2001). This perception then influences employees' sense of psychological meaningfulness. When employees are in a supportive environment, they are likely to feel free to try out new methods in doing their works, are fearless of losing their image to talk about their mistake, and are willing to learn from these behaviors (Edmondson, 1999).

The importance of trust in organizations has long been noted by researchers (Edmondson, 1999). Supervisors who provide a context that promotes self-determination will be trusted by their subordinates (Deci et al., 1989). Robinson (1996) defined trust as the expectation that others' future actions will be favorable to one's interests, such that one is willing to be vulnerable to those actions. Employees who trust their supervisor experience a sense of confidence that their supervisors will not embarrass, reject, or punish them from speaking up because they are comfortable being themselves (Edmondson, 1999). Bakker et al. (2007) reported in their study among Finnish teachers working in elementary, secondary, and vocational schools, that job resources acted as buffers and diminish the negative relationship between pupil misbehavior and work engagement. A series of moderated structural equation modeling analyses result revealed that supervisor support was particularly an important job resource for teachers that helped them cope with the demanding interactions with the students.

May, Gilson, and Harter (2004) built on Kahn's conceptualization of engagement by investigating the cognitive, emotional, and physical components of engagement. They found that supportive supervisor relations were the greatest predictors of high engagement. A supportive supervisor offers help to problem solving and skill development, encourages subordinates to participate in decision making, fosters confidence in employees to voice their concern without fear of punishment, and exhibits fairness, integrity, and trust (Reynolds, 2008). The concept of perceived supervisor support has been introduced by the theory of perceived organization support (Arakeri, 2013). Perceived organizational theory suggests that

employees view their supervisor as an agent of the organization who has the responsibility for guiding and evaluating their performance. Supervisors also play a vital role in employee's individualized aspects, such as providing job feedback about performance and career guidance, mentoring, and social support (Arakeri, 2013; Maurer et al., 2002;). Frontline supervisors can provide a supportive environment for their subordinates by helping them improve their work skills and develop career plans, motivate and facilitate learning, and offer belief that they are capable of accomplishing their work goals (Maurer & Lippstreu, 2006). Aiding employees to learn and obtain new skills may contribute to employees' experience of psychological availability since the development support can increase the subordinates' confidence in their ability to perform the assigned task.

Furthermore, perceived supervisor support was shown to be a job resource that can buffer and reduce emotional exhaustion, resulting in employees losing confidence in their ability to perform their job activities (Karatepe, 2011; Yeun, Bang, & Jeon, 2013). Kiani and Khodabakhsh (2012) also asserted that supervisor support provides a psychological resource that influences the mental state of the subordinate. They also found that supervisor support can cushion the impact of psychological distress, leading employees to feel that they have available energy and enhanced emotional and psychological well-being.

Based on the discussion of the literature above, it can be expected that perceived supervisor support may relate to employees' sense of psychological conditions.

2.6.3 Self-efficacy and Psychological Conditions

Rosso, Dekas, and Wrzeniewski, (2010) suggested that self-efficacy is a mechanism that drives how individuals perceive meaningfulness in their work. According to Rosso et al.'s (2010) theoretical review, self-efficacy is utilized as a mechanism of meaning because individuals' belief in personal capability impacts their behavior, the decisions they make, and the course of action they pursue, allowing them the feeling of personal control or autonomy in the work area. This is consistent with self-determination theory which proposes that people need to feel that they are freely in control over their choices and organize their own activities or the environment because such need, when satisfied, grants them a sense of meaningfulness (Rosso et al., 2010). In their work, Rosso et al. also found that belief in one's own capability provides a sense of meaningfulness because the competence resulted from overcoming difficult work tasks enables them to learn, grow, and be ready in responding to challenges. Baumeister and Vohs (2002) also argued that individuals need a sense of efficacy to believe that they have the power and ability to make a difference.

In addition, individuals who believe in their own capability to control and organize the course of action toward a positive outcome can be expected to experience a high level of psychological safety. In examining the relationship between psychological conditions and engagement, Jacobs (2013) found that individuals with high self-efficacy possessed a high degree of confidence in their competencies, making them be certain that the way they respond to the job demands is sufficient. He explained that employees with a high level of self-efficacy are

willing to take risks in their role because they believe that they are able to manage their work in a desirable way. Besides, psychological safety is a consequence of how threatening people see the work context (Zang et al., 2010). Thus, it is anticipated that employees with a high level of self-efficacy would perceive less threat in their work environment because of the confidence they have to manage and feel safe in performing a challenging task without fear of losing their image (Jacobs, 2013).

According to Kahn (1990), psychological availability is influenced by individual resources (physical, emotional, or cognitive). For Kahn (1990), whether people put their selves fully into a role performance or not depends on how they cope with the various demands both from work and non-work situations. Self-efficacy is one of the personal resources that people bring to work. Based on social cognitive theory, individuals who have self-efficacy are more likely to cope with negative results and more resilient in recovering from these instances (Bandura, 1977). They will be more confident in their abilities to accomplish optimal task performances, which, in turn, allow them to retain the emotional resilience necessary to complete the task. In this context, self-efficacy is able to buffer job burnout (Bekker & Demorouti, 2008). Kahn (1990) argued that when people feel insecure about their work or status, it impacted their willingness to employ their efforts toward personal engagement. Individuals bring their physical, emotional and cognitive resources for their role-related tasks (May et al., 2004). Although self-efficacy beliefs are domain-specific in that a person's self-efficacy belief is very likely to be different depending on the activity to which it is related to (Bandura, 1999), it also can be generally viewed as a stable condition (trait) that individuals hold and carry with them (Phale,

2008). This trait reflects the expectation that they possess the ability to perform tasks successfully in a variety of achievement situation (Eden & Zuk, 1995). May et al. (2004) studied individual resources (physical, emotional, and cognitive) and their links with psychological availability. The results showed that personal resources were associated with psychological availability.

2.7 Mediating Role of Psychological Conditions

2.7.1 Mediating Role of Psychological Meaningfulness

Psychological meaningfulness is introduced as one of the psychological conditions that mediate the relationship between working situations and personal engagement or disengagement (Kahn, 1990). In Kahn's (1990) ethnographic study on a summer camp and architectural firm, he found that psychological meaningfulness mediated the relationship between work conditions and employee engagement. Similarly, May et al. (2004) found the mediating effect of psychological meaningfulness on the relationship between job enrichment, work-role fit, coworker and employee engagement. Rothman (2010) also reported that psychological meaningfulness mediated the relationship between work-role fit and employee engagement. Employees who experienced psychological meaningfulness in their work were likely to be motivated to invest themselves more fully into the work, whereas lack of meaningfulness in one's work can lead to alienation or disengagement (May et al., 2004).

In the present study, reward and recognition, perceived supervisor support, and self-efficacy are hypothesized to be positively related to psychological

meaningfulness because employees who receive reward and recognition and perceived supervisor support feel that they are being valued and appreciated (Freedman, 1978). Phale's (2008) findings indicated that organizational support was a positive predictor of psychological meaningfulness. Rosso et al. (2010) also found self-efficacy acted as a mechanism in perceived meaningfulness in a work environment. Since psychological meaningfulness was found to be associated with reward and recognition, perceived supervisor support, and self-efficacy and since it was observed to mediate the relation between work environment and work engagement (Jacob, 2013; May et al., 2004; Oliver & Rothman, 2007; Phale, 2008; Rothman & Rothmann Jr., 2008), hence, it is possible to predict that psychological meaningfulness will mediate the relationship between job-personal resources and work engagement.

2.7.2 Mediating Role of Psychological Safety

Another psychological condition postulated to mediate the relationship between working circumstances and employee engagement in Kahn's (1990) framework is psychological safety. Kahn (1990) asserted that individuals distinguish their personal engagement according to their perceptions of the guarantees or the safety they perceive in a work environment. People face small risks every day at work when interacting with others and confronting change, uncertainty, or ambiguity (Edmondson, 2002). What action to take in those situations involves learning behaviors, including questions, seeking help, experimenting with unproven actions, or seeking feedback (Edmondson, 2002). These activities are connected with desirable consequences, such as innovation and performance, but engaging in these

activities contains a risk in losing one's image of the individuals being seen as ignorant, incompetent, or disruptive (Edmondson, 2002). To prevent themselves from losing their image, employees simply avoid engaging in interpersonal behavior in which the outcomes are unclear and become disengaged (Edmondson, 2002). However, this fear of losing one's image could be managed by a condition that facilitates psychological safety (Edmondson, 1999, 2002). Kahn (1990) suggested a work context, such as support in promoting psychological safety, which, in turn, leads to employee engagement because employees feel safe when they perceive interpersonal relationships characterized by mutual support, openness, trust, genuineness, and flexibility.

Even though Oliver and Rothman (2007), Phale (2008), Rothmann and Rothmann Jr. (2008), and Rothman and Welsh (2013) could not further continue analyzing the mediating effect of psychological safety on work engagement because no items loaded on the factor, May et al.'s (2004) empirical study, on the other hand, observed that psychological safety displayed a strong relation with work engagement and partially mediated the effect of supervisor support on work engagement. As studies on the mediating effect of psychological safety are rather limited and findings somewhat vague, more studies are needed. And based on May et al.'s (2004) study, it is reasonable to predict that psychological safety will mediate the relationship between job-personal resources and work engagement.

2.7.3 Mediating Role of Psychological Availability

Psychological availability is the final psychological condition that Kahn (1990) proposed to be a mediator of work engagement. It was found that psychological availability was positively associated with work engagement (Phale, 2008). May et al.'s (2004) study also found that psychological availability mediated the link between personal resources (physical, emotional, and cognitive) and work engagement. Therefore, based on the previous studies, it is reasonable to link the two.

2.8 Literature Gaps

From the review of the literature, a number of gaps are identified. Firstly, work engagement has been examined simultaneously with another construct of job burnout by applying the Job Demands-Resources Model in which the results tended to show that job demands predicted job burnout and job resources determined work engagement (Schaufeli & Bakker, 2004; Mauno, Kinnunen, & Ruokolainen, 2006; Bakker, Emmerik, & Euwema, 2006; Demerouti, Hakanen, Demerouti, & Xanthopoulou, 2007; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli, Bakker, & van Rhenen, 2009; Crawford, LePine, & Rich, 2010). Since different job characteristics are postulated to predict job burnout and work engagement, it is reasonable to separately examine the antecedents of work engagement. Hence, in the present study, the effect of job resources (reward and recognition, perceived supervisor support) and personal resources (self-efficacy) on nurses' work engagement are considered since they have been shown to be important intrinsic and extrinsic motivations for nurses (Takase, Maude, & Manias, 2005, Global Health Workforce Alliance, 2008; Ayyash & Aljeesh, 2011).

Reward and recognition are selected because several studies have found that they are an important factor of work happiness, quality of life, intention to quit, job satisfaction, and commitment among registered nurses in Thailand (Chirawatkul, 2012; Chamroonsawasdi, Rodtiang, Suparp, & Tachaboonsermsuk, 2014; Gaesawahong, 2014; Thirapatsakun et al., 2014). Based on these studies, it is expected that reward and recognition will determine work engagement as well. In addition, reward and recognition can be viewed as a form of organizational support (Eisenberger et al., 1986), which has been considered widely in studies that examined its influence on work attitudes, such as job satisfaction and organizational commitment (Abdullah & Wan, 2013; Ali & Ahmed, 2009; Aqel et al., 2012; Andreassi et al., 2012; Dzuranin & Stuart, 2012; Galanou et al., 2010; Hina et al., 2014; Imran et al., 2014; Kassabgy et al., 2001; Lumley et al., 2011; Ololube, 2006; Tessema et al., 2013; Tourangeau et al., 2006; Shah et al., 2012; Vijayakumar & Subha, 2013; Ziman et al., 2013). However, were very few studies (Koyuncu et al., 2006; Sakes, 2006) investigated the influence of reward and recognition on other employee desired behavior, particularly on work engagement. In addition, the few studies on the link reported mixed results.

Perceived supervisor support may influence nurse work engagement because Thai culture is characterized as having high power distance, which is defined as the degree of inequality in power between superiors and subordinates and the extent to which members in the society accept that power is distributed unequally (Hofstede, 1991). The concept of power distance can be applied to the organizational setting (Yukongdi, 2010) as a gap between supervisors and subordinates. In this context,

support from the supervisor may help to reduce the gap. Moreover, in Thailand, a 'bunkhun relationship' exists, which refers to the psychological bond between two persons: one who renders the needy help and favors out of kindness and the other who remembers the goodness done and his/her ever-readiness to reciprocate the kindness (Komin, 1991). In Thailand, the bunkhun relationship can exist among friends, employers and employees, superiors and subordinates, or between people who might not know each other but received help from another. It is speculated that a bunkhun relationship in a work context that exists between people of different positions, such as employers and employees or superiors and subordinates, is likely to lead to work engagement. In addition, the present study considers perceived supervisor support because previous findings on its effect on work engagement are mixed (Bakker et al.,2006; Crawford et al., 2010; Hakanen et al., 2005; Moussa, 2013; Wu et al., 2013; Nahrgang et al., 2010). Also, because studies available to date are still limited, more research works are required.

Personal resources have been found to have relationship with work engagement because individual differences are perceived as the sources of motivation to adapt to the environment (Bakker et al., 2009; Deese, 2009; Xanthopoulou et al., 2007; Xanthopoulou et al., 2008). Therefore, self-efficacy is selected to predict nurses' work engagement since it refers to the ability of an individual to control, cope, perform, and achieve success in any given situation, especially in a nursing job that frequency deals with life and death. In fact, self-efficacy was shown to be the strongest personal resource in human functioning (Prieto, 2009). Furthermore, it was found that the level of self-efficacy could be

impacted by culture (Oettingen, 1995). In Thailand, the culture is characterized by high power distance and high uncertainty avoidance. In this culture, it would be interesting to understand whether self-efficacy of nurses has an impact on their work engagement.

Secondly, the number of empirical research on the mediating effect of psychological conditions on work engagement is limited. Also, the results of the available studies are mixed and unclear in terms of the omission of psychological safety. Therefore, more empirical research on psychological conditions is needed since they might be the key underlying mechanism to nurse work engagement. Thirdly, the use of self-determination theory in explaining work engagement is still limited.

2.9 Hypothesis Development

2.9.1 Job-personal Resources and Work Engagement

Empirical evidence shows a positive relationship between job-personal resources (i.e. reward and recognition, perceived supervisor support, and self-efficacy) and work engagement (Bakker et al., 200; Bakker et al., 2006; Bakker et al., 2006; Crawford et al., 2010; Deese, 2009; Hakanen et al., 2005; Khan & Iqbal, 2013; Koyuncu et al., 2006; Moussa, 2013; Murthy, 2014; Nahrgang et al., 2010; Ram & Prabhakar, 2011; Salanova, Lorente, Chambel, & Martinez, 2011; Schwartz, 2007; Simbula, Guglielmi, & Schaufeli, 2011; Xanthopoulo et al., 2009). Hence, the following hypotheses are formulated:

Hypothesis1: There is a positive relationship between job-personal resources and work engagement.

H1a: Reward and recognition are positively related to work engagement.

H1b: Perceived supervisor support is positively related to work engagement.

H1c: Self-efficacy is positively related to work engagement.

2.9.2 Psychological Conditions and Work Engagement

Empirical evidence indicates a positive relationship between psychological conditions (meaningfulness, safety, and availability) and work engagement (Jacob, 2013; May et al., 2004; Olivier & Rothman, 2007; Phale, 2008; Rothman & Hamukang'andu**,** 2013; Rothman & Baumann, 2014), implying that when psychological conditions are met, employees are likely to be personally engaged. Hence, the following hypotheses are proposed:

Hypothesis2: Psychological conditions are positively related to work engagement.

H2a: Psychological meaningfulness is positively related to work engagement.

H2b: Psychological safety is positively related to work engagement.

H2c: Psychological availability is positively related to work engagement.

2.9.3 Job-personal Resources and Psychological Conditions

Based on the literature, it is possible to theorize a positive link between job-personal resources and psychological conditions. Hence, the following is hypothesized:

Hypothesis3: Job-personal resources are positively related to psychological conditions.

H3a: Reward and recognition are positively related to psychological conditions (meaningfulness, safety, and availability.

H3b: Perceived supervisor support is positively related to psychological conditions (meaningfulness, safety, and availability.

H3c: Self-efficacy is positively related to psychological conditions (meaningfulness, safety, and availability)

2.9.4 Mediating Effects of Psychological Conditions on Job-personal Resources and Work Engagement

Empirical evidence exists on the mediating effects of psychological conditions (meaningfulness, safety, and availability) on the relationship between job-personal resources and work engagement (Phale, 2008; May et al., 2004; Olivier & Rothman, 2007; Jacob, 2013; Rothman & Hamukang'andu**,** 2013; Rothman & Baumann, 2014), indicating that psychological conditions mediated the association between job-personal resources and work engagement. Hence, the following hypotheses are offered:

Hypothesis4: Psychological conditions mediate the relationship between job-personal resources and employee engagement.

H4a: Psychological meaningfulness mediates the relationship between job personal resources and work engagement.

H4b: Psychological safety mediates the relationship between mediates the relationship between job-personal resources and work engagement.

H4c: Psychological availability mediates the relationship between mediates the relationship between job-personal resources and work engagement**.**

2.10 Theories Related to Engagement

To explain the motivational process between job-personal resources and engagement, various theories have been used in the literature. Goal theory postulates that job resources lead to engagement indirectly through, for example, stimulating goal accomplishment (Lock & Lutham, 2002). Conservation of resources theory proposes that task resources foster efficacy beliefs and work engagement, which in turn would have a positive impact on efficacy beliefs and task resources (Llorens, Schaufeli, Bakker, & Salanova, 2004). Social exchange theory provides a theoretical foundation to explain why employees choose to become more or less engaged in their work organization. This theory argues that employees feel obliged to bring themselves more deeply into their role performance as repayment for the resources they receive from their organization and when the organization fails to provide these resources, individuals are more likely to withdraw and disengage themselves from their roles (Kular, Gatenby, Rees, Soane, & Truss, 2008). Finally, self-determination theory describes how employees decide to be engaged in their work task by underlying the satisfaction of three basic psychological needs in that when the needs are met, they lead to work engagement (Van den Broeck, Vansteenkiste, Witte, & Lens, 2008).

2.11 Underpinning Theory Used to Describe the Framework

In this study, self-determination theory (SDT) is applied to explain the relationship between job-personal resources and employee engagement and the mediating role of

psychological conditions. Self-determination theory is a theory of human motivation, personality, and optimal functioning and proposes that individuals decide to be engaged in an activity by their own choice (Decy & Ryan, 2000). The theory postulates that individuals are inherently motivated to grow and achieve and will fully commit to and engage in even uninteresting tasks when their meaning and value are understood (Stone, Deci & Ryan, 2008).

Self-determination theory assumes that individuals have three core psychological needs: competence (the belief that one has the ability to influence important outcomes), relatedness (the experience of having satisfying and supportive social relationships), and autonomy (the experience of acting with a sense of choice, volition, and self-determination) (Deci & Ryan, 2000; Stone et al., 2008).

2.12 Research Framework

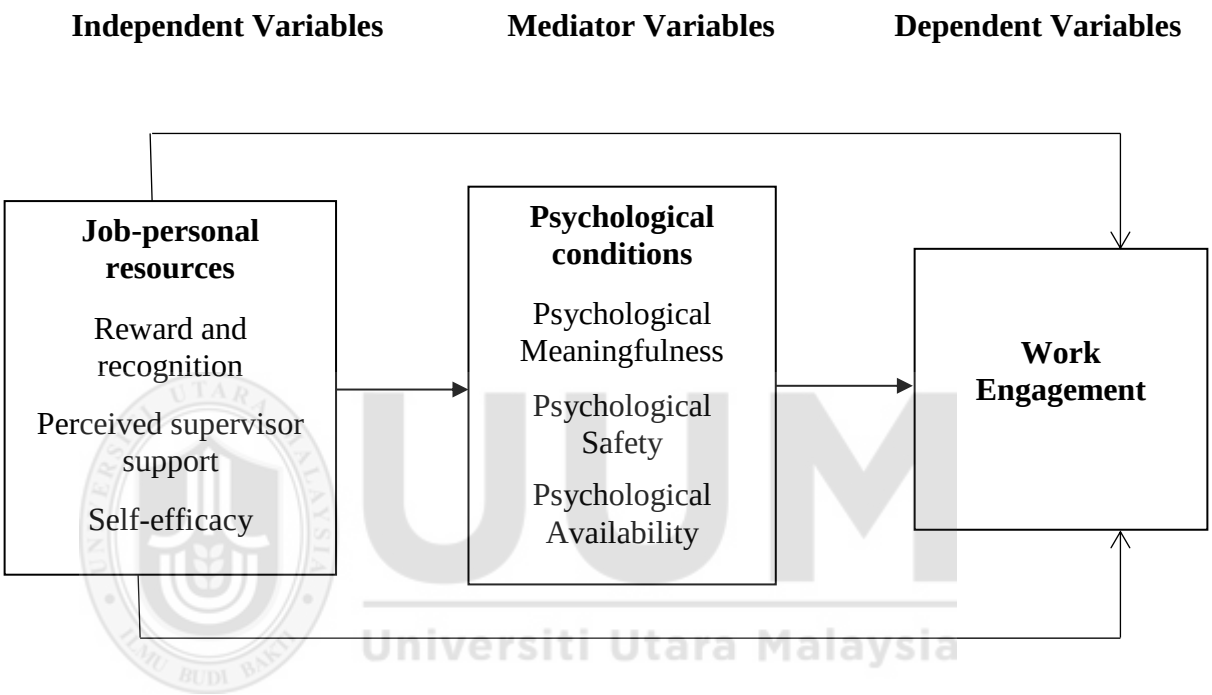
The research model to be tested in the current study is illustrated in Figure 2.1. There are nine direct relationships and three indirect relationships between job-personal resources (reward and recognition, supervisor support, and self-efficacy), psychological conditions (meaningfulness, safety, and availability), and work engagement. This study proposes that job-personal resources, the independent variables, will have a direct relationship with psychological conditions. It also theorizes that job-personal resources will directly influence work engagement. Further, the framework proposes that psychological conditions (meaningfulness, safety, and availability) mediate the relationship between job-personal resources and work engagement, the dependent variable.

This research utilizes the self-determination theory to explain the network of relationships. Intrinsic and extrinsic motivation (reward and recognition, perceived supervisor support, and general self-efficacy) play a vital role in creating autonomous motivation. Work engagement is the form of an autonomous behavior said to be enacted with a sense of volition (Meyer & Gangé, 2008; de Broeck, Vansteenkiste, & Witte, 2008). Work engagement or an autonomous behavior is elicited when the three basic psychological needs are met. These basic psychological needs are the psychological conditions are satisfied by the intrinsic and extrinsic motivational process, which is a function of the job and personal resources (Schaufeli & Bakker, 2004; Xanthopoulo et al., 2009). Job and personal resources (reward and recognition, perceived supervisor support, and self-efficacy) may play both intrinsic

and extrinsic motivational roles that could satisfy the psychological needs and the subsequent behavioral outcome, i.e. work engagement (Schaufeli & Baker, 2004).

Figure 2.1

Research model of the present study



2.13 Summary

This chapter reviewed the relevant literature on job-personal resources, work engagement, and psychological conditions. Based on the literature, the research model was developed and the hypotheses proposed. The following chapter explains the methodology used to conduct the present study.

CHAPTER 3

METHODOLOGY

3.0 Introduction

This chapter presents the research design and methodologies used in this study. It contains an overview of the research methodology used for collecting and analyzing data. This quantitative study analyzed nurses' engagement in the workplace by studying the relationships between job-personal resources, psychological conditions, and employee engagement.

3.1 Research Design

A quantitative, descriptive correlational study was applied in this study. Creswell (2005) elucidated that a quantitative research employs the collection and analysis of numerical information which measures diverse attributes to relate factors demonstrating groups of people or organizations. A quantitative research aims to explain specific phenomena using measurable data. Using statistics to analyze data collected through instruments provides a close understanding of the descriptions, comparisons, cause-and-effect predictions, and relationships. Its result helps to illustrate a relationship between variables to determine how one variable might influence another. The quantitative approach is able to quantify behaviors and characteristics of the participants which was suitable for this study because it serves to explain the relationships between specific variables (Creswell, 2005).

A descriptive study attempts to describe the characteristics of a population and ascertain association among the variables (Sekaran & Bougie, 2010). A

correlational design is a subset of a descriptive research (Creswell, 2008). It is designed to measure the level of relationship between two or more factors using the statistical procedure of correlational analysis (Creswell, 2008). This study gathered data to describe the relationship between job-personal resources and employee engagement, and the mediating role of psychological conditions on engagement.

3.2 Population, Unit of Analysis, Sample Size and Sampling Technique

Data were collected by the means of a questionnaire from registered nurses working full-time in large and medium-sized private hospitals located in Bangkok, Thailand. The reason for choosing the nurses working in private hospitals was because private hospitals play an important role in the medical industry and nurses in this private sector are one of the key players to affect hospital performance (Combs et al., 2011, Chunlaka, 2010).

Secondly, Bangkok was selected to be the place of collecting data because most of the private hospitals (52.1%) or 167 of private hospitals are operating there (National Statistical Office Ministry of Information and Communication Technology, 2012) and among them there are the private hospitals that have received the Joint Commission International Accreditation (Joint Commission International Official Website, 2012). The Joint Commission International Accreditation is the achievement of the goal standards in the global healthcare by the Joint Commission International on Accreditation of Healthcare Organization, which is an independent, non-profit organization that concerns the standards and the improvement of the safety and the quality of care in the international community through the provision of

education, publications, consultation, and evaluation services (Joint Commission International Official Website, 2012).

The collection data was conducted in 2012 in 13 private hospitals that have received the Joint Commission International Accreditation. The list of the hospitals was obtained from the Joint Commission International Official Website. This study examines the relationship between job-personal resources and employee engagement, and the mediating role of psychological conditions among registered nurses working full time in private hospitals. Therefore, the unit of analysis was individual where the data were collected from each nurse as an individual source of information.

In this study, Krejcie and Morgan's (1970) table was used to determine the sample size. Based on the formula, the total number of registered nurses working in private hospitals located in Bangkok is 5,803 (Ministry of Public Health, 2008). Thus, 361 registered nurses were selected as a sample. However, a complete list of registered nurses working in the private hospitals in Bangkok was not available for confidentiality reason, limiting the use of a random sampling. Hence, a purposive sampling was used. The data were collected from the registered nurses who could provide data on the variables of the study, i.e. work engagement, job-personal resources, and psychological conditions.

3.3 Data Collection Technique and Method

The data collection was conducted between September 2012 and February 2013. Questionnaires were distributed through the nurses' personnel managers. Prior to that, letters requesting co-operation were sent out in September to the accredited

private hospitals, which were only 12 during the data collection period. The letters were repeatedly sent every two week until all the 12 hospitals responded. Finally, three hospitals (Chaophya, Samitivej Srinakarin, & Yanhee) agreed to participate in the early of October. An appointment was arranged to meet with the nurses' personnel managers from these hospitals to ask for permission to distribute the questionnaires. As the researcher was not allowed to distribute the questionnaires herself, the nurse managers carried out the task instead. The researcher was asked for one month to complete the distribution and collection, after which she received a call to collect back the questionnaires.

The remaining hospitals (i.e. 9 hospitals) refused to be participate in the study. Because the number of the questionnaires returned from the three hospitals was very low (i.e. 168), the researcher consulted again the Joint Commission International Organization official website and found that one hospital had just been accredited by the organization in November. A letter was sent to this hospital, which, fortunately, agreed and willing to participate (i.e. Sikarin). The same process of data collection was repeated again in this hospital.

3.4 Instruments

A close-ended questionnaire was used to gather information about the demographic background of the participants, job-personal resources, work engagement, and psychological conditions. The questionnaire was translated from English to Thai and again back translated to English to ensure the accuracy in translation using the back-translation method.

The back-translation process was provided by a team of experts in both Thai and English languages. The appointment took place after the researcher received a recommendation from a trustable source who suggested that there are experts fluent in writing and speaking both Thai and English. Their profiles were requested to check whether or not they are qualified (see Appendix 1). After their qualification was confirmed, the original questionnaire was sent to them to be translated into Thai. Later, the Thai questionnaire version was translated back into English by another expert to check whether the Thai version contained the same meaning as the original version.

Responses to each item were measured on a 5-point Likert scale because they provide higher quality data compared to 7- or 11-point Likert scale (Revilla, Saris, & Krosnick, 2014; Daws, 2008). The scale ranged from (1) strongly disagree to (5) strongly agree.

3.4.1 Job-Personal Resources

The 10-item reward and recognition measurement was adapted from Saks (2006). Sample items were "The organization provides me with a pay raise" and "The organization values my contributions to its well-being"

Perceived supervisor support was measured by six items developed by Eisenberger et al. (2002). Sample items were "The supervisor strongly considers my goals and values" and "My supervisor cares about my well-being"

Self-efficacy was assessed by 12 items. The instrument was developed by Sherer, Mercandante, Prentice-Dunn, Jacobs, and Rogers (1982) and had originally 17 items that measured general self-efficacy. The original version was modified by Bosscher and Smit (1998), who reduced the number of items from 17 to 12 items. The shortened measurement was used in the current study to measure one's perceived personal ability to affect outcomes in various situations. Items included "I avoid trying to learn new things when they look too difficult (r)" and "When trying to learn something new, I soon give up if I am not initially successful (r)". This instrument was selected because it has been applied in various sample contexts and settings compared to a newly general self-efficacy measurement developed by Chen, Gully, Eden (2001), which is still at the early stage and requires further research to determine whether the initial findings obtained by the developers of this instrument hold true and can be generalized to other sample settings. (Ellis, 2013).

Table 3.1 illustrates the operational definition of job-personal resources and the items to measure them.

Table 3.1

Operational Definition and Items of Job-Personal Resources

Variables	Sources	Operational definition	Items
Reward and recognition	Saks (2006)	A sense of return on investments	1. The organization provides me with a pay raise. 2. The organization provides me with Job security. 3. The organization provides me with a promotion. 4. The organization provides me with more freedom and opportunities. 5. The organization provides me with respect from the people you work with. 6. The organization provides me with praise from supervisor. 7. The organization provides me with training and development opportunities. 8. The organization provides me with more challenging work assignments. 9. The organization provides me with some form of public recognition (e.g., employee of the month). 10. The organization provides me with a reward or token of appreciation (e.g., lunch).
Perceived supervisor support	Eisenberger et al. (2002)	Supervisors value employee contributions and care about their well-being	1. The supervisor values my contribution to its well-being 2. The supervisor strongly considers my goals and values. 3. The supervisor really cares about my well-being. 4. The supervisor is willing to help me when I need a special favor. 5. The supervisor shows very little concern for me (r) 6. The supervisor takes pride in my accomplishments at work.

Variables	Sources	Operational definition	Items
Self-efficacy	Bosscher and Smit (1998)	The believe in one's capabilities to organize and execute the course of action that leads to desirable outcomes.	1. If something looks too complicated I will not even brother to try it (r). 2. I avoid trying to learn new things when they look too difficult (r). 3. When trying to learn something new, I soon give up if I am not initially successful (r). 4. When I make plans, I am certain I can make them work. 5. I do not seem capable of dealing with most problems that come up in my life (r). 6. When unexpected problems occur, I don't handle them very well (r). 7. I feel insecure about my ability to do things (r). 8. If I can't do a job the first time, I keep trying until I can. 9. When I have something unplaesant to do, I stick to it until I finish it. 10. When I decide to do something, I go right to work on it. 11. Failure just makes me try harder. 12. When I set important goals for myself, I rarely achieve them (r).

3.4.2 Psychological Conditions

The measurement of psychological conditions was adapted from May et al. (2004). The six-item instrument was used to indicate psychological meaningfulness that individuals discover from their work. Sample items were "My job activities are personally meaningful to me" and "The work I do on this job is worthwhile".

Psychological safety was measured by three items drawn from May et al (2004). Sample items included "I'm not afraid to be myself at work" and "I am afraid to express my opinions at work (r)". These items assessed whether the individuals feel comfortable to be themselves and express their opinions at work or whether there is a threatening environment at work.

Psychological availability was measured by five items developed by May et al. (2004) to measure the individuals' confidence in their ability to be cognitively, physically, and emotionally available for work. Sample items included "I am confident in my ability to deal with problems that come up at work." and "I am confident in my ability to think clearly at work."

Table 3.2 shows the operational definition of psychological conditions and the items to measure them.

Table 3.2

Operational Definition and Items of Psychological Conditions

Dimensions	Sources	Operational definition	Items
Psychological meaningfulness	May et al. (2004)	A feeling that one is receiving a return on investments of one's self in a currecy of physical, cognitive, or emotional energy.	1. The work I do on this job is very important to me. 2. My job activities are personally meaningful to me. 3. The work I do on this job is worthwhile. 4. My job activities are significant to me. 5. The work I do on this job is meaningful to me. 6. I feel that the work I do on my job is valuable.

Dimensions	Sources	Operational definition	Items
Psychological safety		A feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career.	1. I 'm not afraid to be myself at work. 2. I am afraid to express my opinions at work. (r) 3. There is a threatening environment at work. (r)
Psychological availability		The sense of having the physical, emotional, or psychological resources to personally engage at a particual moment.	1. I am confident in my ability to handle competing demands at work. 2. I am confident in my ability to deal with problems that come up at work. 3. I am confident in my ability to think clearly at work. 4. I am confident in my ability to display the appropriate emotions at work. 5. I am confident that I can handle the physical demands at work

3.4.3 Work engagement

To measure employee engagement, the Utrecht Work Engagement Scale (UWES) was used (Schaufeli et al, 2006). Based upon the negative correlational relationship between engagement and burnout dimensions, the UWES was developed, which includes the three dimensions of engagement – vigor (6 items), dedication (5 items), and absorption (6 items) – to create a 17-item measure. Examples included "At my work, I feel bursting with energy (vigor)," and, "I find the work that I do full of meaning and purpose (dedication)," and "Time flies when I am working (absorption)." Table 3.3 summarizes the operational definition of work engagement and the items to measure them.

Table 3.3

Operational Definition and Items of Work Engagement

Dimensions	Sources	Operational definition	Items
Work engagement	Schaufeli and Bakker (2003)	A positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption	1. At my work, I feel bursting with energy. 2. I find the work that I do full of meaning and purpose. 3. Time files when I'm working. 4. At my job, I feel strong and vigorous. 5. I am enthusiasiitic about my job. 6. When I am working, I forget everything else around me. 7. My job inspires me. 8. When I get up in the morning, I feel like going to work. 9. I feel happy when I am working intensely. 10. I am proud on the work that I do. 11. I am immersed in my work. 12. I can continue working for every long periods at a time. 13. To me, my job is challenging. 14. I get carried away when I'm working. 15. At my job, I am very resilient, mentally. 16. It is difficult to detach myself from my job. 17. At my work I always persevere, even when things do not go well.

3.5 Pilot Study

Pre-testing an instrument is required, especially when the back-translation method is used, to ensure that the translated version of the questionnaire contains the same meaning as the original, the questions are understood by the participants, and the measurement is valid and reliable (Hazzi & Maldaon, 2015; Sekaran, 2003). A pilot study is used to pretest a questionnaire (Hyndman, 2008). It is a small-scale research project that collects data from participants similar to those to be used in the full study and its main concern is to refine the survey question and reduce the risk that the full

study might have an error (Zikmund, Barbin, Carr, & Griffin, 2009). It is an essential initial step in a research which is applied to all types of research studies and also used to identify any problems that may occur associated with the form, such as the questionnaire format, length, or wording (Maldaon & Hazzi, 2015). (Zikmunud et al., 2009). In addition, it also provides some assessment of the questions' validity and the likely reliability of the data aimed to be collected (Saunders, Lewis, Thornhill, 2009).

To conduct a pilot test, van Teijlingen and Hundley (2001) suggested that the participants should be similar to the target population to warrant a high degree of the validity of the feedback. According to Cooper and Schindler (2014), the size of the pilot group may range from 25 to 100 subjects. In line with these, 30 registered nurses working in three private hospitals located in Bangkok, Thailand were approached as pilot participants. The nurses' personnel managers were requested to encourage the registered nurses in the hospitals to complete the questionnaires and ask them to provide their comment and feedback on the items. Based on the feedback received, no significant comment on the items required a second pilot test. It was found that the measurement items were satisfactory and comprehensible. These private hospitals and data obtained from the nurses involved in the pilot study were not included in the final data collection to prevent the contamination that might arise in the future (van Teijlingen & Hundley, 2002).

Next, the reliability analysis was conducted to see how reliable were the measurements used. According to Hair, Black, Babin, and Anderson (2010), Cronbach's alpha value should be acceptable at 0.6 or above. Table 3.4 illustrates the

Cronbach's alpha values of the variable used in the pilot study. The reliability result for each instrument ranged from 0.62 to 0.92, which were considered acceptable for the research purpose as suggested by Hair et al. (2010) that the minimum acceptable reliability is 0.60.

Table 3.4

Results of Reliability Analysis (Pilot Study)

Variables and Dimensions	Number of Items	Cronbach's alpha
INDEPENDENT VARIABLES		
Job-personal resources	**28**	**0.65**
Reward and recognition	10	0.90
Perceived supervisor support	6	0.81
Self-efficacy	12	0.69
MEDIATING VARIABLES		
Psychological conditions	**14**	**0.78**
Psychological meaningfulness	6	0.92
Psychological safety	3	0.62
Psychological availability	5	0.85
DEPENDENT VARIABLES		
Work engagement	17	0.62

3.6 Data Analysis

The statistical analysis was carried out with the Statistical Package for Social Sciences (SPSS) program Version 20. The data analysis began with the data screening which involved checking for errors in the data file. It also included data cleansing, and dealing with missing values and outliers (Pallant, 2011). According to Hair et al. (1995), data screening is necessary and essential since ignoring it might damage the accuracy of the assessment of the dimensionality and excessively influence the outcome of any multivariate analysis. Next, factor and reliability

analyses were performed to examine the psychometric properties of the measurement. First, a factor analysis was conducted to determine the underlying structure among the variables in the analysis (Hair et al., 2010). A reliability analysis of coefficient of Cronbach's alpha was next applied to determine the internal consistency between the variables of the components that result from the factor analysis (Pallan, 2011; Field, 2009). Subsequently, several statistical tests were conducted, for example, descriptive statistics, correlations analysis, and multiple regression analysis. These will be explained in more detail in the following sections.

3.6.1 Test of Validity Using Factor Analysis

To validate the accuracy of a measure or the extent to which a score truthfully represents a construct (Zikmund et al., 2009), a validity analysis was employed. Validity refers to whether the measuring instrument taps the concept (Sekaran & Bougie, 2010). There are several types of validity tests, such as face validity, content validity, criterion-related validity, and construct validity (Zikmund et al., 2009). Face validity refers to the subject judgment among professionals that a scale logically reflects the concept that it is supposed to measure (Zikmund et al., 2009). According to Sekaran and Bougie (2010), viewed face validity as a basic and minimum index of content validity, which ensures that the measure includes an adequate and represents the domain or the universe of the concept being measured. In contrast, criterion-related validity is concerned with the ability of the measures to make accurate predictions which are applied for some practical purposes other than testing hypotheses or advancing scientific knowledge (Saunders et al., 2011). Construct validity is concerned that the results obtained from the use of the measure fit the

theories around which the test is designed by attempting to determine if the measurement being used measures the construct or concept aimed to be measured (Sekaran & Bougie, 2010). It also provides the degree of a regular pattern of relationships from an assessment based on the total research rather than appearance (Singleton & Straits, 2005).

In this study, construct validity was selected to evaluate the validity of the instrument used. This type of validity test can be run by conducting factor analysis (Zikmund et al, 2009; Cooper & Shindler, 2014; Sekaran, 2003). According to Hair et al. (2010), the primary purpose of factor analysis is to define the underlying structure among the variables in the analysis. There are two types of factor analysis: exploratory and confirmatory factor analysis (Zikmund et al., 2009). Exploratory factor analysis should be performed when the researcher is uncertain about how many factors may exist among a set of variables whereas confirmatory factor analysis is good for assessing construct validity; however, to perform this type of factor analysis the researcher needs to have strong theoretical expectations about the factor stricter (Zikmund et al., 2009). Since the main aim of conducting factor analysis in the present study was to summarize the variable's structure, determine the underlying dimensions of the variable, and derive the empirical value of each dimension of the representative variables for further analysis, thus exploratory factor analysis was employed.

According to Hair et al. (2010), there are two types of methods within exploratory factor analysis, that is, common factor analysis and component analysis,

also known as principal components analysis. The difference between the two is the explained and unexplained variance (Haire et al., 2010). However, common factor analysis has shown to have several problems (Hair et al., 2010). Therefore, principal component analysis was considered because it explains more variance than would the loadings obtained from any other method of factoring and it is the most frequently used factor extraction method (Kothari, 2004; Cooper & Schindler. 2014).

In terms of rotation, factor analysis has two methods of rotation--orthogonal and oblique factor rotation--but according to Hair et al. (2010), the simplest case is orthogonal factor rotation. Hence, this method was selected. Within orthogonal factor rotation, there are three techniques available; however, varimax rotation method is known to give a clear separation and simplifies the interpretation of factors (Hair et al., 1995; Field, 2009). Hence, in this study principal component analysis with varimax rotation was performed.

3.6.2 Reliability Analysis

The reliability test was used in this study to examine whether the instruments can be interpreted consistently across different situations (Field, 2009). The reliability test is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the "goodness" of a measure (Sekaran and Bougie, 2010). To confirm the reliability of the measurement used, Cronbach's alpha was employed. Cronbach's alpha was developed to facilitate a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1 (Field, 2009). Internal consistency expresses the degree of which all the items in a test

evaluate the same concept or construct, and, hence, it is connected to the inter-relatedness of the items within the test (Tavakol & Dennick, 2011). If the Cronbach's alpha value is closer to 1, it means the internal consistency reliability of the measurement is higher (Nunnally & Bernstein, 1994). In general, the values range between 0.7 and above is considered sufficient' however, the minimum value of reliability to indicate the internal consistency of the scale can be acceptable at 0.60 (Nunnally, & Bernstein, 1994). As recommended by Nunnally and Bernstein (1994), the minimum coefficient alpha of 0.6 was used for reliability in this study.

3.6.3 Descriptive Statistics

Descriptive analysis was employed to describe the main features of the collection of data. It provides summaries about the sample and the measures and simple graphics which enable comparison across or other units (Sekaran & Bougie, 2010). Descriptive statistics, for instance, mean, standard deviation and the targeted population's response on the independent and dependent factors were gathered to detect the level of nurses' work engagement, psychological conditions, and job-personal resources.

3.6.4 Correlation Analysis

Correlation analysis was conducted to test the relationship between variables (such as reward and recognition, supervisor support, self-efficacy, psychological meaningfulness, psychological safety, psychological availability, and work engagement). It is used to determine the strength of the relationship between variables (Sekaran & Bougie, 2010).

3.6.5 Multiple Regression Analysis

To test for the relationship among the variables, regressions analysis was applied. However, there are some assumptions required to be met. These assumptions are linearity, normality, homoscedasticity, independence of residuals, and the absence of multicollinearity (Coakes & Ong, 2011; Pallant; Tabachnick, & Fidell, 2007).

The assumption of the linearity is that the extent to which the change in the dependent variable related to the predictor variable should be constant across the range of value for the independent variable. If the residual rectangular distributes with most of the residual concentrated in the center, this indicates the linearity of the relationship (Hair et al., 1995). As mentioned earlier, a normal distribution is the crucial basic assumption in the multivariate statistical analysis (Hair et al, 2011; Tabachick & Fidell, 2007). It means that an individual variable in the study is normally distributed (Tabachik & Fidell, 2007). Homoscedasticity mean that the spread of the dependent variable value must be equal at each value of the predictor variable (Hair et al., 1995). The independence of residuals assumption involves the independent of the predicted value from any other prediction, or in other words, they are not sequenced by any variable (Hair et al., 2011). These assumptions can be scrutinized through residual scatterplots and the normal probability plot of the regression standardized residuals (Tabachaick & Fidell, 2007; Pallant, 2011).

In addition, the degree of multicollinearity of the study variables was also determined. Multicollinearity refers to the relationship among the independent variables (Pallant, 2011; Field, 2009). It exists when there is a strong correlation

between two or more predictors; if it does, it should be run to assess the individual importance of a predictor (Field, 2009). To identify, multicollinearity correlation matrix among all the study variables should be performed to find out whether there are highly correlated (above 0.70) (Pallant, 2011). Besides, multicollinearity also can be determined by the value of tolerance and variance inflation factor (VIF) (Pallant, 2011). According to Pallant (2011), tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables. If this value is less than 0.10, it indicates that the multiple correlations with another variable are high. On the other hand, VIF whose value above is 10 would be an indicator of multicollinearity (Pallant, 2011).

3.7 Summary

This chapter outlined the methods used in the current study to research the relationship between job-personal resources and work engagement, and the mediating role of psychological conditions among registered nurses. Employee questionnaire surveys provided the quantitative data.

CHAPTER 4

FINDINGS

4.0 Introduction

This chapter presents the results of the data analysis. First, the chapter describes an overview of the data collected. Secondly, it presents the results of the testing of the outliers and non-response bias followed by the sample profile. Next, the result on normality is presented, followed by the results of the instruments' validity and reliability tests. Then, the result of the correlation analysis is offered, followed by the results of hypotheses testing using hierarchical multiple regression analyses.

4.1 Overview of the Data Collected

4.1.1 Rate of Response

A total of 368 questionnaires were mailed to the nurses' managers in four private hospitals with JIC accreditation. Of 368 questionnaires, 260 were returned and usable, which comprised 65% of the response rate. These questionnaires were coded and used for further analysis. Table 4.1 demonstrates the response of each participating private hospital in this study.

Table 4.1

Response Rate of Four Private Hospitals

Private hospitals	No. of questionnaires distributed	No. of questionnaires received	Response rate (%)
Chaophya	100	64	64
Smitivej Srinakharin	100	84	84
Yanhee	100	20	20
Sikarin	100	92	92
Total	400	260	65

4.2 Test of Non-Response Bias

As mentioned in the previous chapter, the process of data collection was split into two. This may raise the issue concerning nonresponse bias between the early and the late responses. In this study, early responders are those who were approached first and the late responders were registered nurses in the last hospital from which data were collected. To check for the nonresponse bias, a t-test was conducted following the suggestion by Armstrong and Overton (1977) on all the variables--the independent, mediating, and dependent. The result of a Levene's test for equality of variances is provided in Table 4.2. As shown, no significant differences between the two groups were found, suggesting that non-response bias was not a threat in this study.

Table 4.2

Test of Nonresponse Bias

Demographic Variable	Groups	M	SD	t-value
Reward & recognition	1	4.08	.537	0.371
	2	4.06	.498	
Perceived supervisor support	1	3.77	.595	1.090
	2	3.69	.376	
Self-efficacy	1	3.77	.538	1.375
	2	3.68	.423	
Psychological meaningfulness	1	4.06	.545	0.915
	2	4.00	.528	
Psychological safety	1	3.29	.468	-1.178
	2	3.37	.453	
Psychological availability	1	3.79	.478	1.000
	2	3.74	.424	
Work engagement	1	3.89	.408	-0.398
	2	3.91	.421	

Note. 1=Early response group, 2=Late response group, $p < 0.05$

4.3 Data Preparation and Data Screening

Before data were analyzed, data screening was performed to help gain a basic understanding of the data and the relationships between the variables (Hair et al., 2010). In addition, it was run to enhance the data analysis (Tabachnick & Fidell, 2007). According to Tabachnik and Fidell (2007) and Hair et al. (2010), this process involves dealing with a set of issues: first, checking for the accuracy of data entered into the data file; second, dealing with missing data, detecting and treating univariate and multivariate outliers, and, finally, checking for the fit between data set and the assumption of multivariate analysis, such as normality, linearity, and homoscedasticity.

4.3.1 Data Transformation

Prior to the data screening, reverse-coding of some of the items was conducted. This is to prevent response bias (Pallant, 2011). The negatively worded items were in the perceived supervisor support (#6), self-efficacy (#1-#7), and psychological safety scales (#2 & #3) (See Appendix 2). Afterwards, a full data screening was carried out.

4.3.2 Accuracy of Data Input

To check for the accuracy of the data entry, descriptive analysis was run and the mean and standard deviation values were inspected. No out of range values based on the responses was detected. All responses were within the range of 5-point scale. Also, the demographic factors were all within the specified range.

4.3.3 Detection of Missing Data

Missing data refers to unavailable of valid values on one or more variables (Hair et al., 2010). Its impacts are that the statistical result based on the data available could be biased (Hair et al., 2010). Several methods are available to handle missing data values but the most widely used is the mean substitution in which the missing data are replaced by the average of the data from the cases where complete data are available (Hair et al., 1995, Meyer, Gamst, & Gaurino, 2006). According to Tabachnick and Fidell (2007), the mean substitute method can be applied when the missing data values are less than 5%. Table 4.3 demonstrates the total missing values and their percentages.

Table 4.3

Missing Values and Percentage (N = 260)

Variables	No. of missing data	No. of items	Total data points (N x No. of items)	Percentage of missing data points (missing data / total points
Reward & recognition	6	10	2,600	0.23
Perceived supervisor support	2	6	1,560	0.13
Self-efficacy	8	12	3,120	0.26
Psychological meaningfulness	1	6	1,560	0.06
Psychological safety	1	3	780	0.13
Psychological availability	1	5	1,300	0.08
Work engagement	7	17	4,420	0.16
Total	26	59	15340	1.04

Table 4.3 shows that the percentage of missing data was less than 5%; hence, the mean substitute imputation method was employed in this study.

4.3.4 Detecting of Outliers

Prior to data analysis, outliers were checked for. Tabachnick and Fidell (2007) defined an outlier as a case with an extreme value on a variable, which refers to univariate outliers. Cases with an unusual composition of scores on two or more variables are called multivariate outliers. If, exist, the outliers could distort the statistical analysis (Hair et al., 2010; Tabachnick & Fidell, 2007).

There are different methods to determine univariate and multivariate outliers (Tabachnick & Fidell, 2007). To detect a univariate outlier, Z score was conducted. Cases that exceeded ±3.29 ($p < 0.001$ two-tailed test) was considered outliers (Tabachnick & Fidell, 2007). However, no such univariate outliers were detected in the data set. Then, the data were screened further to identify multivariate outliers.

Mahalanobis distance was next taken into account to search whether more multivariate outliers existed. According to Tabachnick and Fidell (2007), cases with Mahalanobis distance value that are greater than the critical chi-square value of six degrees of freedom at $p < 0.001$ will be removed. The inspection of Mahalanobis distance disclosed the highest score of 34.09 (see Appendix 3). The result showed that the Mahalanobis distance value came out to be greater than the critical value of 22.46. The cases were searched for extreme values and five cases were found. They were cases 5, 193, 169, 1, and 207, which had a higher value than the critical chi-square value. These cases were later removed from further analysis. Mahalanobis distance was re-run and it found that the highest score was 21.65 (see Appendix 3) which was lower than the critical value of 22.46. Two-hundred and fifty-five cases remained after outliers were removed; these cases were used for further analysis.

4.3.5 Profile of the Participants

Table 4.4 provides a summary of the distribution of samples on demographic characteristics (N=255). The majority (95.7%) of the participants were female and single (68.2%). In terms of age category, 41.6 percent of them fell under the age

category between 26 and 30. The second group of age was between 21 and 25 (25.5%) while 14.9 percent of the participants were between the ages of 31 to 35 and the remaining made up the rest. As for academic achievement, 94.1 percent held a bachelor's degree while only 8 or 3.1 percent had a master's degree.

In terms of length of service, 39.6 percent had 6 to 10 years of work experience in the nursing career while 35.3 percent had working experience of 1 to 5 years. Participants who had working experience for 11 to 15 years made up 13.3 percent whereas those who had been working as a nurse between 16 and 20 years consisted of 10.9 percent. In terms of experience working with the current hospital, 48.2 percent or 123 of the participants reported that they had been in the current hospital for 1-5 years, and 88 of the participants or 34.5 percent informed that they had been serving in the present organization for 6 to 10 years. The participants who had been working at the recent hospital for 11 to 15 and 16 to 20 years constituted 9.3 and 7.4 percent or 24 and 19 of the participants, respectively. Only 1 or 0.4 percent of the participants had been working at the current hospital for 21 to 25 years.

Regarding current department, 65 of the participants or 25.5 percent served in the internal medicine, and 30 and 28 of the participants or 11.8 and 11 percent were working in pediatrics and surgery departments. A small number (9.4%) worked in the emergency room department and those who worked in the obstetric and gynecological department made up 8.2 percent. Only 17 and 15 or 6.7 and 5.9 percent of the participants worked in intensive care unit and orthopedics

departments. For job position, the majority (83.1%) of the participants were a duty nurse, 13.3 percent were heads of department, and 3.5 percent inspector of nursing.

Table 4.4

Profile of the Participants (N=255)

Item	Descriptive	Frequency	Percentage (%)
Gender	Females	242	94.9
	Males	13	5.1
	Total	**255**	**100**
Marital Status	Single	174	68.2
	Married	79	31.0
	Divorce	1	.4
	Separated	1	.4
	Total	**255**	**100**
Age	21-25	65	25.5
	26-30	106	41.6
	31-35	38	14.9
	36-40	28	11
	41-45	14	5.5
	46-50	4	1.6
	Total	**255**	**100**
Education	Lower than bachelor's degree	7	2.7
	Bachelor's degree	240	94.1
	Master's degree	8	3.1
	Total	**255**	**100**
Work Experience	1-5 year	90	35.3
	6-10 year	101	39.6
	11-15 year	34	13.3
	16-20 year	28	11
	21-25 year	2	.8
	Total	**255**	**100**
Work at current hospital	1-5 year	123	48.2
	6-10 year	88	34.5

11-15 year	24	9.4
16-20 year	19	7.5
21-25 year	1	.4
Total	**255**	**100**

Item	Descriptive	Frequency	Percentage (%)
Department	Surgery	28	11
	Internal Medicine	65	25.5
	Obtetric & Gynaecological	21	8.2
	Paediatrics	30	11.8
	Orthopedics	15	5.9
	Intenive care unit	17	6.7
	Emergency room	24	9.4
	Others	55	21.6
	Total	**255**	**100**
Position	Head of department	34	13.3
	Inspector of nursing	9	3.5
	Duty nurse	212	83.1
	Total	**255**	**100**

4.3.6 Normality Test

Normality test of the data is required before conducting statistical tests because the normality of the data is the most basic assumption in multivariate analysis (Hair et al, 2010). It is the assumption that an individual variable in the study is normally distributed (Tabachnik & Fidell, 2007). The examination of normality test can be assessed by both graphical and numerical methods (Hair et al., 2010; Tabachnick & Fidell, 2007; Park, 2008). Graphical methods are an approach that pictures the distribution of actual data values and compare them with the theory of a normal distribution (Hair et al., 2010). The graphical methods used in comparing the actual shape and the theoretical normality of distribution are available in the form of a histogram, detrended normal Q-Q plots, and normal probability plots (Pallant, 2011). Although graphical methods provide a more reliable procedure, it does not indicate the criteria to determine the normality of the variables (Park, 2008). This can

be resolved by applying the normality statistical tests (Hair et al., 2010), i.e. skewness and kurtosis (Hair et al., 2010).

Skewness and kurtosis are exploited to examine the shape of the distribution (Hair et al., 2010; Field, 2009). The skewness provides a suggestion of symmetry of the distribution where kurtosis, on the other hand, is used to describe the peakness or flatness of the distribution. If the value of skewness and kurtosis for a factor exceeds the range of -1 and 1, then the data is presumed to be non-normality distribution (Hair et al., 1998). In addition, a comparison also can be made regarding the level of skewness in the normal distribution by converting the skewness value to z scores. If the value is equal or greater than ±1.96 ($p < 0.05$), then the distribution is considered to be non-normal distribution. Table 4.2 illustrates the value of skewness and kurtosis for each variable.

Table 4.5

Skewness and Kurtosis for Study Variables (N=255)

Variables	Skewness	Std. error	Skewness/ SE Skewness	Kurtosis	Std. error
Reward and Recognition	-.211	.153	-1	.627	.304
Perceived Supervisor Support	.033	.153	0	.446	.304
Self-efficacy	.011	.153	0	-.570	.304
Psychological Meaningfulness	-.047	.153	0	.214	.304
Psychological Safety	-.013	.153	0	.969	.304
Psychological Availability	.036	.153	0	.322	.304
Employee Engagement	-.028	.153	0	-.069	.304

Table 4.3 shows that the values of skewness and kurtosis of the variables did not fall outside the range of -1 and 1. Besides, the histograms also showed that the actual shape of the distribution for each group appeared to be normally distributed (See Appendix 4). This can be supported by normal Q-Q plot where the observed value was plotted against the expected value from the normal distribution (See Appendix 4). In addition, the actual deviation of each observed value was clustered along a horizontal line with a value of zero as can be seen in the detrended normal Q-Q plot (See Appendix 4). In conclusion, the data of this study was qualified to be normally distributed.

4.4 Goodness of Measures

The goodness of measure is important to certify that the developed measurement is accurately measuring the concept of the variable that the researcher intended to measure (Sekaran & Bougie, 2010). An instrument is considered to be a good measurement when valid and reliable (Sekaran, 2003). To establish the validity and reliability of the measures used in any empirical investigation, normal tests used are factor and reliability analysis in which Cronbach's alpha coefficients are employed.

4.4.1 Factor Analysis

Factor analysis is an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis (Hair et al., 2010). Similarly, Dess, Lumpkin, and Covin (1998) noted that factor analysis enables

researchers to produce descriptive summaries of data matrices to aid in detecting meaningful patterns among the set of variables.

A principal component analysis with varimax rotation was carried out to establish whether the items of variables in the measured instrument of the study capture the concept of job-personal resources, psychological conditions, and work engagement.

There are certain statistical assumptions required to be fulfilled and determined whether the items of the variable are appropriate for factor analysis. The first requirement is the sample size. Hair et al. (2010) suggested that a sample less than 50 is not suitable for factor analysis and preferably the sample size should be 100 or larger. In the current study, a sample size of 255 was consistent with Hair et al.'s (2010) recommendation. The second assumption is that the values of Measure of Sampling Adequacy (MSA) for each item should be above 0.50 (Hair et al., 2006). Third, the Kaiser-Meyer-Olkin (KMO) values must be above 0.60 (Blaikie, 2003). Finally, the Barlett's Test of Sphericity should be significant at $p < 0.50$ to ensure the efficiency of the correlations among the variables (Hair et al., 2010).

Hair et al. (2010) and Tabachnik and Fidell (2007) also suggested that the number of factors to be extracted should be taken into account, which is equivalent to or greater than 1.0. Hair et al. (2010) recommended that factor loadings greater than ±.30, ± .40, ± .50 or greater are considered meeting the minimal level, more important, and practically significant. The larger the factor loading, the more

important the item of the factor (Tabachnick & Fidell, 2007). Thus, only the items with loadings of ± .30 or above and not cross loaded will be interpreted as significant factor loadings in this study. Items with a value less than ± .30 and cross loaded were eliminated to confirm that the individual item was an absolute measure of the factor.

4.4.2 Factor Analysis of Job-Personal Resources

The principal component analysis on 28 items used to measure job-personal resources extracted four factors. Table 4.6 shows the results of the principal component analysis with varimax rotation and the SPSS output is available in Appendix 5.

Table 4.6

Results of Factor Analysis on Job-Personal Resources

	Items	Factors			
		1	2	3	4
Self5	I do not seem capable of dealing with most problems that come up in my life (r)	.828			
Self6	When unexpected problems occur, I don't handle them very well (r)	.812			
Self4	When I set important goals for myself, I rarely achieve them. (r)	.806			
Self7	I feel insecure about my ability to do things. (r)	.801			
Self2	I avoid trying to learn new things when they look too difficult. (r)	.788			
Self3	When trying to learn something new, I soon give up if I am not initially successful (r)	.762			
SeIf1	If something looks too complicated I will not even brother to try it. (r)	.664			
RR4	The organization provides me with more freedom and opportunities.		.758		
RR1	The organization provides me with a pay raise.		.737		
RR3	The organization provides me with a promotion.		.702		
RR10	The organization provides me with a reward or token of appreciation		.667		
RR8	The organization provides me with more challenging work assignments.		.639		
RR2	The organization provides me with job security.		.612		
RR5	The organization provides me with respect from the people you work with.		.577		

RR7	The organization provides me with training and development opportunities.	.566

	Items	Factors			
		1	2	3	4
PSS3	The supervisor really cares about my well-being.			.814	
PSS5	The supervisor takes pride in my accomplishments at work.			.800	
PSS4	The supervisor willing to help me when I need a special favor.			.751	
PSS2	The supervisor strongly considers my goals and values.			.746	
PSS1	The supervisor values my contribution to its well-being.			.708	
Self11	When I decide to do something, I go right to work on it.				.814
Self9	If I can't do a job the first time, I keep trying until I can.				.782
Self12	Failure just makes me try harder.				.762
Self10	When I have something unpleasant to do, I stick to it until I finish it.				.732
Self8	When I make plans, I am certain I can make them work.				.690
Eigenvalue		**6.61**	**3.41**	**2.93**	**1.77**
Total variance%		**18.37**	**15.58**	**13.13**	**11.82**
KMO					**0.85**
Bartlett's Test of Sphericity					**3054.52**

The results showed that the KMO measures of sampling adequacy value for the items were 0.85, indicating that the items were correlated and shared a common factor. This was also supported by the results of Barlett's Test of Sphericity where p < 0.000 with the approx. Chi-Square value of 3054.52. In addition, the MSA value for each individual item ranged from 0.66 to 0.91, indicating that the data matrix was suitable for factor analysis.

As shown in Table 4.6, the factor analysis resulted in four factors with an eigenvalue greater than 1, explaining 58.87 percent of the variance in the data. The first factor represented 18.37 percent of the total variance with an eigenvalue of 6.67. It comprised seven items related to self-efficacy and ranged from 0.66 to 0.83. The characteristics in this factor involved the negative perception of self. Thus, this factor was re-named as self-inefficacy (Bresó, Salanove, & Schaufeli, 2007).

The eigenvalue of the second factor was 3.41 and explained 15.58 percent of the total variance. Factor loading for this factor ranged from 0.56 to 0.76. This factor constituted eight items of reward and recognition; therefore, the original name was kept.

Factor 3 elucidated 13.13 percent of the total variance with an eigenvalue of 2.93. The factor loading ranged from 0.70 to 0.81 and it loaded on five items associated with perceived supervisor support; thus, the name was maintained.

Five items of self-efficacy were loaded onto factor 4 which presented 11.82 percent of the total variance with an eigenvalue of 1.77 and ranged from 0.69 to 0.81. Since the factor was loaded onto the positive perception of self, therefore, the factor was named as self-efficacy.

4.4.3 Factor Analysis of Psychological Conditions

Three dimensions of psychological conditions were measured by 14 items. Six of the items were used to measured psychological meaningfulness, three items for psychological safety, and five items to measure psychological availability.

The results of factor analysis indicate that the KMO measure was 0.87 and the values of Measure of Sampling Adequacy (MSA) for each item were between 0.74 and 0.92 and the Bartlett's Test of Sphericity was significant at $p < 0.00$, indicating that factor analysis was appropriate. However, the result from running the factor analysis in the first round found that item number 5 of psychological

availability and item number 1 of psychological safety did not show any value in the range after varimax rotation; therefore, the two items were omitted. Then, the factor analysis was run again and the result was shown in Appendix 6. Table 4.7 summarizes the result of factor analysis after omitting two items.

Table 4.7

Result of Factor Analysis on Psychological Conditions

	Items	Factors		
		F1	**F2**	**F3**
PM1	The work I do on this job is very important to me.	.792		
PM4	My job activities are significant to me.	.783		
PM5	The work I do on this job is meaningful to me.	.772		
PM2	My job activities are personally meaningful to me.	.745		
PM3	The work I do on this job is worthwhile.	.748		
PM6	I feel that the work I do on my job is valuable.	.682		
PA2	I am confident in my ability to deal with problems that come up at work.		.761	
PA1	I am confident in my ability to handle competing demands at work.		.744	
PA3	I am confident in my ability to think clearly at work.		.711	
PA4	I am confident in my ability to display the appropriate emotions at work.		.594	
PS2	I am afraid to express my opinions at work.			.824
PS3	There is a threatening environment at work.			.803
Eigenvalue		**4.82**	**1.45**	**1.15**
Total variance%		**29.94**	**19.33**	**12.55**
KMO				**0.87**
Bartlett's Test of Sphericity				**1104.85**

Table 4.7 shows the results of factor analysis after two items were removed. The KMO measure of sampling adequacy value for the items was 0.87, which means that the items were interrelated and shared common factors. The Bartlett's Test of Sphericity also revealed to be significant at $p < 0.00$ and the approx. chi-square was 1104.85, which confirmed the appropriateness of the factor analysis. The MSA value

also supported the result of the suitability of the factor analysis when it ranged from 0.70 to 0.79. The result of the principal component analysis with a varimax rotation also showed that the three factors with eigenvalue greater than 1 explained 61.63 percent of the total variance (See Appendix 6).

Factor 1 accounted for 29.94 percent of the total variance with an eigenvalue of 4.82 and the factor loading ranged from 0.68 and 0.79. Six items were loaded onto Factor 1. The items were work-related activities; therefore, the original name psychological meaningfulness was retained.

Four items of psychological availability were loaded onto factor 2 with an eigenvalue of 1.45 and explained 19.33 percent of the total variance. The factor loading ranged from 0.59 to 0.76. Given that the items represented the confidence the participants had in their ability to be cognitively, physically, and emotionally available for work, factor 2 was still named psychological availability.

Two items to measure psychological safety were loaded onto factor 3 with values ranging between 0.80 and 0.82. The items explained 12.55 percent of the total variance with an eigenvalue of 1.15. The two items described the participants' feeling of being uncomfortable with themselves and expressing their opinions and of a threatening at work, which represented the feeling of insecurity perceived from the work environment. Thus, the factor was labelled as psychological safety.

4.4.4 Factor Analysis of Work Engagement

Seventeen items were used to measure work engagement. The result of principal component analysis with varimax rotation is provided in Table 4.8 and the output of the SPSS is exhibited in Appendix 7.

Table 4.8

Result of Factor Analysis on Work Engagement

	Items	Factors		
		F1	**F2**	**F3**
WE1	At my work, I feel bursting with energy.	.732		
WE4	At my job, I feel strong and vigorous.	.721		
WE2	I find the work that I do full of meaning and purpose.	.709		
WE5	I am enthusiastic about my job.	.698		
WE10	I am proud on the work that I do.	.533		
WE8	When I get up in the morning, I feel like going to work.		.735	
WE14	I get carried away when I'm working.		.671	
WE9	I feel happy when I am working intensely.		.623	
WE3	Time files when I'm working.		.589	
WE15	At my job, I am very resilient, mentally.		.533	.
WE12	I can continue working for every long periods at a time.			.778
WE13	To me, my job is challenging.			.700
WE17	At my work I always persevere, even when things do not go well.			.547
Eigenvalue		**4.86**	**1.36**	**1.12**
Total variance (%)		**22.61**	**18.51**	**15.31**
KMO				**0.88**
Bartlett's Test of Sphericity				**1002.48**

Table 4.8 shows that the KMO measure of sampling adequacy value for the items was 0.88 and Bartlett's Test of Sphericity was discovered to be significant with $p < 0.00$ and approx. chi-square was 1002.48. The MSA value for each item ranged from 0.79 to 0.92, confirming the appropriateness of the use of factor analysis. The principal component analysis was performed on the 17 items of work engagement

resulting in three factors which explained 56.43 percent of the total variance in the data (See Appendix 7).

As shown in Table 4.8, factor 1 accounted for 22.61 percent of the total variance with an eigenvalue of 4.86. Factor loading for items in this factor ranged from 0.54 to 0.74. Factor 1 constituted five items related to dedication; therefore, factor 1 was named dedication.

Factor 2 had an eigenvalue of 1.36 and accounted for 18.51 of the total variance in the data. It had five items. The factor loadings for this factor ranged from 0.54 to 0.74. Since three of five were from the absorption dimension, this factor was called absorption.

Factor 3 was embodied by three items with an eigenvalue of 1.12 and had 15.31 percent of the total variance in the data. Its loadings for the items ranged from 0.55 to 0.78. Factor 3 represented the attributes of vigor. Therefore, this factor was named vigor.

4.5 Reliability Test

The reliability test was carried out on the results of factor analysis. The reliability of a measure means that an instrument measures a concept without bias and is stable across time and various items in the instrument (Sekaran & Bougie, 2010). The most commonly used statistic to test the reliability of an instrument is Cronbach's alpha which provides an indication of the average correlation between all items of the scale

(Pallant, 2011). Table 4.9 illustrates the reliability coefficient of the measurement and the result of SPSS is provided in Appendix 8.

Table 4.9

Reliability Coefficient for Job-Personal Resources, Psychological Conditions and Work Engagement

Variables and dimensions	No. of items	Cronbach's alpha
Independent Variables		
Job-personal resources	**25**	**0.72**
Self-inefficacy	7	0.90
Reward & recognition	8	0.83
Perceived supervisor support	5	0.87
Self-efficacy	5	0.80
Mediator Variables		
Psychological conditions	**12**	**0.76**
Psychological meaningfulness	6	0.87
Psychological availability	4	0.71
Psychological safety	2	0.60
Dependent Variable		
Work engagement	**13**	**0.85**
Dedication	5	0.79
Absorption	5	0.75
Vigor	3	0.60

Table 4.9 shows that the Cronbach's alpha for the dimensions of job-personal resources ranged from 0.80 to 0.90. These values were considered to be good (Sekaran & Bougie, 2010). Besides, the Cronbach's alphas for psychological conditions ranged from 0.60 to 0.88.

4.6 Restatement of Hypothesis

Because the factor analysis resulted in two dimensions personal resources (self-inefficacy and self-efficacy), the primary hypothesis had to be reworded.

H1: There is a relationship between job-personal resources and work engagement

H1a: There is a relationship between reward and recognition and dedication.

H1b: There is a relationship between reward and recognition and absorption.

H1c: There is a relationship between reward and recognition and vigor.

H1d: There is a relationship between perceived supervisor support and dedication.

H1e: There is a relationship between perceived supervisor support and absorption.

H1f: There is a relationship between perceived supervisor support and vigor.

H1g: There is a relationship between self-inefficacy and dedication.

H1h: There is a relationship between self-inefficacy and absorption.

H1i: There is a relationship between self-inefficacy and vigor.

H1j: There is a relationship between self-efficacy and dedication.

H1k: There is a relationship between self-efficacy and absorption.

H1l: There is a relationship between self-efficacy and vigor.

H2: There is a relationship between psychological conditions and work engagement.

H2a: There is a relationship between psychological meaningfulness and dedication.

H2b: There is a relationship between psychological meaningfulness and absorption.

H2c: There is a relationship between psychological meaningfulness and vigor.

H2d: There is a relationship between psychological safety and dedication.

H2e: There is a relationship between psychological safety and absorption.

H2f: There is a relationship between psychological safety and vigor.

H2g: There is a relationship between psychological availability and dedication.

H2h: There is a relationship between psychological availability and absorption.

H2i: There is a relationship between psychological availability and vigor.

H3: There is a relationship between job-personal resources and psychological conditions

H3a: There is a relationship between rewards and recognition and psychological meaningfulness.

H3b: There is a relationship between rewards and recognition and psychological safety.

H3c: There is a relationship between rewards and recognition and psychological availability.

H3d: There is a relationship between perceived supervisor support and psychological meaningfulness.

H3e: There is a relationship between perceived supervisor support and psychological safety.

H3f: There is a relationship between perceived supervisor support and psychological availability.

H3g: There is a relationship between self-inefficacy and psychological meaningfulness.

H3h: There is a relationship between self-inefficacy and psychological safety.

H3i: There is a relationship between self-inefficacy and psychological availability.

H3j: There is a relationship between self-efficacy and psychological meaningfulness

H3k: There is a relationship between self-efficacy and psychological safety.

H3l: There is a relationship between self-efficacy and psychological availability.

H4: Psychological conditions will mediate the relationship between job-personal resources and employee engagement.

H4a: Psychological meaningfulness mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.

H4b: Psychological meaningfulness mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.

H4c: Psychological meaningfulness mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.

H4d: Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.

H4e: Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.

H4f: Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.

H4g: Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.

H4h: Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.

H4i: Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.

4.7 Descriptive Statistics

Descriptive analysis was conducted to explain the data set of the items measuring the study variables. It provided the mean values and standard deviation of the independent and the dependent variables depicted in Table 4.10. The study variables were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and the SPSS output is presented in Appendix 9.

Table 4.10

Mean Scores and Standard Deviation of the Study Variables

Variables	Mean (M)	Standard Deviations (SD)
Independent Variables		
Job-personal Resources		
Self-inefficacy	2.25	0.73
Reward & recognition	3.69	0.50
Perceived supervisor support	3.81	0.52
Self-efficacy	3.69	0.58
Mediating Variable		
Psychological conditions		
Psychological meaningfulness	4.06	0.49
Psychological safety	2.14	0.49
Psychological availability	3.81	0.43
Dependent Variable		
Work engagement		
Dedication	3.86	0.46
Absorption	3.62	0.49
Vigor	3.83	0.49

Table 4.10 shows that perceived supervisor support received the highest score (M = 3.81, SD = 0.52) compared to the other dimensions of job-personal resources. Of the two dimensions of the mediating variable, psychological meaningfulness was highly perceived by the participants (M = 4.06, SD = 0.49). Of the three dimensions of work engagement, vigor received the highest score compared to the others (M = 3.86, SD = 0.49).

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4.8 Correlations Analysis

Correlation is used to measure and describe the strength and direction of the association between variables (Tabachnik & Fidell, 2007; Pallant, 2011). Pearson Product Moment coefficients (r) was applied to provide information about the pattern of the inter-correlations of the study variables. According to Coakes and Org (2011), the possible value of the coefficient can range from -1 to +1. The sign points out the direction of the relationship with the + sign indicated a positive correlation and the – indicated a negative correlation (Pallant, 2011). However, if the value of the correlation is 0, no relationship between the variables exists (Pallant, 2011).

To determine the strength of the relationship among variables, this study followed Cohen (1988), who suggested that the value range between 0.01 and 0.29, 0.30 and 0.49, and 0.50 and 1 are considered small, medium, and large, respectively. However, to ensure that the multicollinearity problem would not exist, the correlation among the predictor variables should not exceed 0.70 (Pallant, 2007). A summary of the correlation analysis results is shown in Table 4.11 and the SPSS output is provided in Appendix 10.

Table 4.11

Correlation Result for Study Variables

Dimensions	1	2	3	4	5	6	7	8	9	10
1. Reward and recognition	1									
2. Perceived supervisor support	.473**	1								
3. Self-inefficacy	-.274**	-.281**	1							
4. Self-efficacy	-.044	.116	-.069**	1						
5. Psychological meaningfulness	.296**	.413**	-.385**	.308**	1					
6. Psychological safety	-.643**	-.524**	.214**	.011	.313**	1				
7. Psychological availability	.260**	.328**	-.318**	.248**	.484**	-.306**	1			
8. Dedication	.424**	.379**	-.328**	.234**	.599**	-.335**	.429**	1		
9. Absorption	.473**	.239**	-.222**	.071	.312**	-.286**	.411**	.601**	1	
10. Vigor	.302**	.210**	-.183**	.186**	.306**	-.223**	.365**	.422**	.445**	1

** Correlation is significant at the 0.01 level.

Table 4.11 shows that the correlation values among the predictor variables indicated no pattern of high correlation ($r > 0.70$), suggesting that multicollinearity did not exist. All dimensions of job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) were found to correlate positively and negatively with three dimensions of psychological conditions (meaningfulness, insecurity, and availability). For instance, reward and recognition had a positive correlation with psychological meaningfulness ($r = 0.269$, $p < 0.01$), psychological availability ($r = 0.263$, $p < 0.01$), and a negative correlation with psychological safety ($r = 0.643$, $p < 0.01$).

As predicted, the three dimensions of psychological conditions (meaningfulness, insecurity, and availability) had a significant correlation with the three dimensions of work engagement (dedication, absorption, and vigor). While psychological meaningfulness had a positive correlation with dedication ($r = .599$, $p < 0.01$), absorption ($r = 0.312$, $p < 0.01$), and vigor ($r = 0.306$, $p < 0.01$), psychological safety, in contrast, had a negative correlation with dedication ($r = 0.335$, $p < 0.01$), absorption ($r = 0.286$, $p < 0.01$), and vigor ($r = 0.223$, $p < 0.01$).

4.9 Hypotheses Testing

Next, a multiple regression analysis was run to examine the main effects of job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) on work engagement. To examine the mediating effects

of psychological conditions on the relationship between job-personal resources, a hierarchical regression analysis was carried out.

4.9.1 Job-Personal Resources and Work Engagement

To investigate the relationship between job-personal resources and work engagement, a two-step regression analysis was performed. The study aimed to discover the relationship between job-personal resources and the dimensions of work engagement. The job-personal resources (independent variable/predictor) consisted of four dimensions, i.e. reward & recognition, perceived supervisor support, self-inefficacy, and self-efficacy, while work engagement (dependent variable/criterion variable) had three dimensions, namely, dedication, absorption, and vigor. Since Amanfu (2011) and Growri and Mariammal (2012) found that demographic variables exerted a significant effect on the predicted variables, the demographic variables were controlled.

The controlled demographic variables, such as, gender age, period of working at the hospital, period of working as nurse, and level of education, were entered into the prediction equation in the first step, followed by each dimension of job-personal resources (independent variables) with each dimension of work engagement (dependent variable). The SPSS output is provided in Appendix 11-13 and Table 4.12 illustrates the results of the analysis.

Table 4.12

Results of Regression Analysis of Job-Personal Resources and Work Engagement

Predictors	Criterion variables		
	Dedication	**Absorption**	**Vigor**
Step1: Controlled Variables			
Gender	.05	.07	.04
Age	.08	.11	.06
Marital Status	.04	.00	.01
Education	.05	-.00	.13
Department	.02	.11	.01
Position	.02	-.12	.01
Period working at the hospital	-.10	-.08	-.00
Period working as nurse	.01	-.04	-.08
Step2: Job-personal Resources	.		
Reward & recognition	.31**	.45**	.27**
Perceived supervisor support	.16*	.01	.04
Self-inefficacy	-.16*	-.09	-.08
Self-efficacy	.21**	.08	.19*
R^2	.32	.28	.16
Adjusted R^2	.28	.24	.12
R^2 Change	.28	.23	.13
F-change	24.39**	19.45**	9.47*

Note: *p < .05, **p < .01

Table 4.12 shows that after demographic variables were controlled, the four dimensions of job-personal resources were able to explain the observed variations on dedication ($R^2\Delta = 0.28$, $F = 24.39$, $p < 0.01$), on absorption ($R^2\Delta = 0.23$, $F = 19.45$, $p < 0.01$), and vigor ($R^2\Delta = 0.13$, $F = 9.47$, $p < 0.05$).

Table 4.12 also displays the results of the regression analysis of reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy. For reward and recognition, the findings revealed that they were correlated with all the three dimensions of work engagement, namely, dedication ($\beta = 0.31$, $p < 0.01$),

absorption (β = 0.45, p < 0.01), and vigor (β = 0.27, p < 0.01). Since reward and recognition were associated with the three dimensions of work engagement, H1a to H1c were supported. However, perceived supervisor support (β = 0.16, p < 0.01) and self-inefficacy (β = -0.16, p < 0.05) were found to be related with only one dimension of work engagement, that is, dedication. Therefore, H1d and H1g were supported. In addition, the hierarchical multiple regression results also revealed that self-efficacy was correlated with only two dimensions of work engagement: dedication (β = 0.21, p < 0.01) and vigor (β = 0.19, p < 0.01); this means that H1j and H1l were supported.

4.9.2 Psychological Conditions and Work Engagement

To examine the relationship between psychological conditions and the dimensions of work engagement (hypothesis 2), regression analysis was carried out. The predictor variables were the dimensions of psychological conditions and criterion variable was the dimensions of work engagement. The demographic variables were statistically controlled. Table 4.13 exhibits the findings of the relationship and the SPSS output is prepared in Appendix 14 to 16.

Table 4.13

Results of Regression Analysis of Psychological Conditions and Work Engagement

Predictors	Criterion variables		
	Dedication	**Absorption**	**Vigor**
Step1: Controlled Variables			
Gender	.02	.03	.000
Age	-.00	.04	.003
Marital status	-.06	-.05	-.041
Education	.04	-.04	.085
Department	-.11	-.23	-.088
Position	-.09	-.07	-.017
Period working at the hospital	.08	-.00	-.024
Period working as nurse	.00	.12	.010
Step2: Psychological Conditions			
Psychological meaningfulness	.49**	.13*	.16*
Psychological safety	-.15*	-.19*	-.10
Psychological availability	.15*	.31**	.26**
R^2	.42	.26	.18
Adjusted R^2	.39	.23	.14
R^2 Change	.38	.22	.15
F-change	51.79**	23.92**	15.14*

Note: *p < .05, **p < .01

Table 4.13 shows that the two dimensions of psychological conditions were able to explain the total variance in dedication ($R^2\Delta$ = 0.38, F = 51.79, p < 0.01), absorption ($R^2\Delta$ = 0.22, F = 23.92, p < 0.01), and vigor ($R^2\Delta$= 0.15, F = 15.14, p < 0.01). It was also found that psychological meaningfulness (β = 0.53, p < 0.01) was the critical factor in explaining the dedication dimension compared to psychological safety (β = - 0.15, p < 0.01) and availability (β = 0.15, p < 0.01). In addition, the results showed that psychological availability was the strongest predictor of absorption (β = 0.31, p < 0.01) and vigor (β = 0.28, p < 0.01). Table 4.13 also indicates that psychological safety negatively influenced dedication ((β = -0.15, p < 0.01),

absorption (β = - 0.19, p < 0.01), and vigor (β = -0.10, p < 0.01). Since the three dimensions of psychological conditions were found to be related to the three dimensions of work engagement, H2 was supported.

4.9.3 Job-Personal Resources and Psychological Conditions

Another set of regression was conducted to investigate the relationship between job-personal resources and the dimensions of psychological conditions. The results of the analysis are shown in Table 4.14 and the full SPSS output is given in Appendix 17 to 19.

Table 4.14

Results of Regression Analysis of Job-Personal Resources and Psychological Conditions

Predictors	Criterion Variables		
	Psychological Meaningfulness	**Psychological Insecurity**	**Psychological Availability**
Step1: Controlled Variables			
Gender	.033	.007	.097
Age	.121	-.011	.028
Marital Status	.126	-.092	.068
Education	.034	.005	.160
Department	.152	-.148	.158
Position	-.099	-.169	-.096
Period working at the hospital	-.065	.055	.080
Period working as nurse	.051	.116	.044
Step2: Job-personal Resources			
Reward & recognition	.13*	-.52**	.13*
Perceived supervisor support	.26**	-.27**	.18*
Self-inefficacy	-.22**	.00	-.17*
Self-efficacy	.26**	.00	.21**
R^2	.37	.51	.27
Adjusted R^2	.34	.49	.23
R^2 Change	.28	.46	.17

F-change	26.95**	57.14**	14.38*

Note: *p < .05, **p < .01

Table 4.14 shows that the four dimensions of job personal resources were able to explain the total variance of the observed variation in psychological meaningfulness ($R^2\Delta$ = 0.28; F = 26.95), psychological safety ($R^2\Delta$ = 0.46, F = 57.14), and psychological availability ($R^2\Delta$ = 0.17, F = 14.38). The results also indicated that reward and recognition (β = 0.13, p < 0.05) were associated with psychological meaningfulness and psychological availability as predicted in H3a and H3c. The regression results also showed that reward and recognition (β = 0.52, p < 0.01) were a significant determinant of psychological safety. Thus, H3b was supported.

The results provided support for H3d to H3f since it showed that perceived supervisor support was a predictor of psychological meaningfulness (β = 0.26, p < 0.01), psychological safety (β = -0.27, p < 0.01), and psychological availability (β = 0.18, p < 0.01). Self-inefficacy showed no significant relationship with psychological safety (β = 0.00, p < 0.05). The results also revealed that no significant relationship exist between self-efficacy (β = 0.00, p < 0.05) and psychological safety which means that H3h and H3k were not supported.

Table 4.14 also shows that the four dimensions of job personal resources were able to explain 27% (R^2 = 0.27, F = 14.38, p < 0.01) of the total variance of the observed variation in psychological availability after the demographic factors were controlled. Psychological availability was predicted by reward and recognition (β =

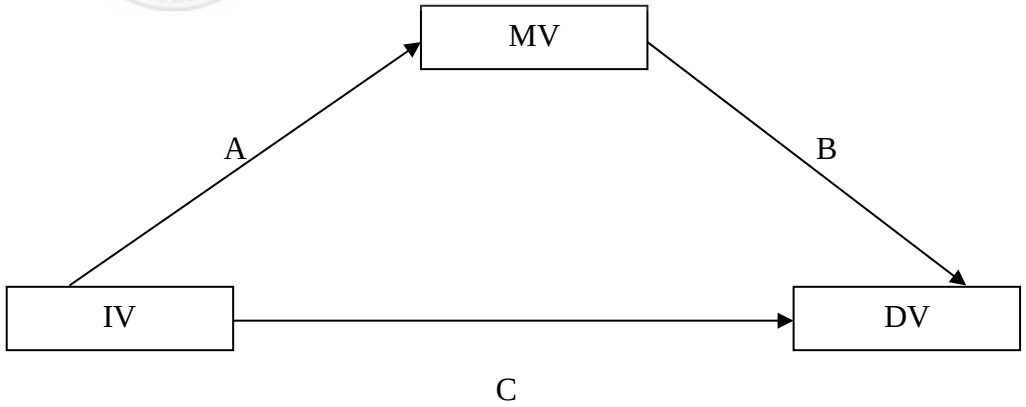
0.13, p < 0.05), perceived supervisor support (β = 0.18, p < 0.01), self-inefficacy (β = -0.17, p < 0.05), self-efficacy (β = 0.21, p < 0.01). The results provided support for H3b, H3f, H3i, and H3l. Overall, the results of the multiple regression analysis indicated that hypothesis 3 was partially supported.

4.9.4 Hypotheses Testing: Test for Mediation Variables

Baron and Kenny (1986) suggested that to test for the mediating effect of a variable, three criteria should be considered. First, the independent variable must be a predictor of the mediator; second, the mediator must be related to the dependent variable, and, finally, the independent variable must be shown to correlate with the dependent variable as shown in Figure 4.1.

Figure 4.1

Mediation model



Sources: Baron & Kenny (1986)

Furthermore, to ascertain that the relationship between the independent and dependent variables are completely mediated by the mediator variable, the effect of the

mediator variable should be zero (full mediation) or no significant relationship exists between the independent and dependent variable after the inclusion of the mediator (Baron & Kenny, 1986). Besides, in case the mediator was unable to fully interfere in the relationship, this means partial mediation where a significant coefficient between x and y is only reduced (Baron & Kenny, 1986).

4.9.5 Mediation Effects of Psychological Conditions on Job-personal Resources and Work Engagement

Prior results of the regression analysis on the relationship between job-personal resources and work engagement indicated that the four dimensions of job-personal resource were predictors to the dedication dimension. However, perceived supervisor support had no relation with the absorption and vigor dimensions. Self-inefficacy was also not associated with the vigor dimension. These means that they did not meet the criteria suggested by Baron and Kenny (1986). Therefore, both variables--supervisor support and self-inefficacy--were excluded from the regression analysis. The results of the regression analysis also showed that all the dimensions of psychological conditions were correlated with the three dimensions of work engagement which met the criteria suggested by Baron and Kenny (1986). Hence, a hierarchical multiple regression analysis was performed to examine the mediating role of psychological conditions on the relationship between job-personal resources and work engagement. Table 4.15 summarizes the results of the mediated regression analysis and the full SPSS output is presented in Appendix 20 to 22.

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Table 4.15

Regression Results on Psychological Meaningfulness as Mediator in the Relationship between Job-Personal Resources and Work Engagement

Predictors	X-M	Std. β X - DV			X-M-DV		
		De	Ab	Vi	De	Ab	Vi
Reward & recognition	.13*	.31**	.45**	.27**	.23**	.43**	.26**
Perceived supervisor support	.26**	.16**	.01	.04	.04	-	-
Self-inefficacy	-.22**	-.16**	-.09	-.08	-.07	-	-
Self-efficacy	.26**	.21**	.08	.19*	.10	-	.16*
R^2	.37	.32	.28	.16	.45	.30	.19
Adjusted R^2	.34	.28	.24	.12	.42	.27	.15
R^2 Change	.28	.28	.23	.13	.41	.25	.16
F-change	26.95**	24.39**	19.45**	9.47	35.50**	43.04**	15.58**

Note: $^{*}p < .05$, $^{**}p < .01$ (De = Dedication, Ab = Absorption, and Vi = vigor)

Table 4.15 shows that the relationship between reward and recognition and the three dimensions of work engagement were significant (β = 0.31, 0.45, 0.27, $p < 0.01$) but the beta value had a slightly decreasing effect when the mediator, psychological meaningfulness, was entered (β = 0.25, 0.43, 0.25 $p < 0.01$), indicating partial mediation of psychological meaningfulness.

Table 4.15 indicated that the relationship between perceived supervisor support and dedication became insignificant in the presence of psychological meaningfulness (β = 0.04, $p < 0.05$), suggesting that psychological meaningfulness fully mediated the relationship between perceived supervisor support and dedication. Table 4.15 also shows that the relationship between self-inefficacy and dedication was mediated by

psychological meaningfulness. On the other hand, the relationship between self-efficacy and dedication was found to be significant (β = 0.21, p < 0.01) but had a decreasing effect (β = 0.10, p < 0.01) in the presence of psychological meaningfulness. This indicated that psychological meaningfulness partial mediated the relationship between self-efficacy and dedication. Psychological meaningfulness partially mediated the relationship between self-efficacy and vigor (β = 0.16, p < 0.01. Overall, the result showed in Table 4.15 revealed that H4a, H4b, and H4c were partially supported.

Table 4.16 shows the regression results on psychological safety as the mediator on the relationship between job-personal resources and work engagement (see Appendix 23 to 25).

Table 4.16
Regression Results on Psychological safety as Mediator in the Relationship between Job-Personal Resources and Work Engagement

Predictors	**Std. β**						
	X-M	**X - DV**			**X-M-DV**		
		De	**Ab**	**Vi**	**De**	**Ab**	**Vi**
Reward & recognition	-.52**	.31**	.45**	.27**	.30**	.47**	.25**
Perceived supervisor support	-.27*	.16**	.01	.04	.21	-	-
Self-inefficacy	-.00	-.16**	-.09	-.08	-	-	-
Self-efficacy	-.00	.21**	.08	.19*	-	-	.-
R^2	.37	.32	.28	.16	.25	.28	.12
Adjusted R^2	.34	.28	.24	.12	.22	.25	.08
R^2 Change	.28	.28	.23	.13	.21	.23	.09
F-change	26.95**	24.39**	19.45**	9.47	23.07**	36.23**	12.61*

Note: *p < .05, **p < .01 (De = Dedication, Ab = Absorption, and Vi = vigor)

Table 4.16 shows that the relationship between reward and recognition and dedication and vigor (β = 0.31, 0.27, p < 0.01) slightly dropped (β = 0.30, 0.25, p < 0.01) after the presence of psychological safety, indicating that psychological safety partially mediated the relationship between reward and recognition and the two dimensions of work engagement (dedication and vigor). In contrast, the association between reward and absorption (β = 0.45, p < 0.01) slightly increased (β = 0.47, p < 0.01) when psychological safety was inserted into the equation. This means that psychological safety was not a mediator in the relationship between reward and recognition and absorption.

The results also showed that after psychological safety was inserted into the equation, the beta value for the relationship between perceived supervisor support and dedication increased from β = 0.16 to β = 0.21 (p < 0.01), which implied no mediating effect of psychological safety. On the contrary, the mediating effects of psychological safety on the relationship between supervisor support and absorption (β = 0.01, p < 0.05) and vigor (β = 0.04, p < 0.05) of work engagement was not examined because no relationship existed between them. Also, the test for the mediating effect of psychological safety on the relationship between self-inefficacy and self-efficacy and the three dimensions of work engagement was not performed because there was no significant association between them and, hence, did not meet the first criteria suggested by Baron and Kenny (1986). Thus, H4d to H4f were partially supported.

Table 4.17

Regression Results on Psychological Availability as Mediator in the Relationship between Job-Personal Resources and Work Engagement

Predictors	Std. β						
	X-M	X - Y			X-M-DV		
		De	Ab	Vi	De	Ab	Vi
Reward & recognition	.13*	.31**	.45**	.27**	26**	.40**	.25**
Perceived supervisor support	.18*	.16*	.01	.04	.15*	-	-
Self-inefficacy	-.17*	-.16*	-.09	-.08	-.12*	-	-
Self-efficacy	.21**	.21**	.08	.19*	.17*	-	.15*
R^2	.27	.32	.28	.16	.36	.35	.22
Adjusted R^2	.23	.28	.24	.12	.32	.33	.18
R^2 Change	.18	.28	.23	.13	.31	.31	.19
F-change	14.38*	24.39**	19.45**	9.47*	21.96**	56.36**	19.03**

Note: *p < .05, **p < .01 (De = Dedication, Ab = Absorption, and Vi = vigor)

Table 4.17 displays the results of multiple regression analysis using psychological availability as the mediator in the relationship between job-personal resources and work engagement. The findings indicated that the relationship between reward and recognition and the three dimensions of engagement (β = 0.31, 0.45, 0.27, p < 0.01) was weakened after psychological availability was taken into account (β = 0.26, 0.40, 0.25, p < 0.01), indicating a partial mediating effect (see Appendix 26 to 28).

The result depicted in the Table 4.17 points out that the association between perceived supervisor support and dedication (β = 0.16, p < 0.05) was slightly weakened (β = 0.15, p < 0.05) after the presence of psychological availability.

In the previous regression analysis, self-inefficacy was found to be related with only the dedication dimension (β = -0.16, p < 0.05). Thus, the hierarchical regression analysis was run. The findings in Table 4.17 showed that the relationship between self-inefficacy and dedication slightly dropped (β = -0.13, p < 0.05), implying that there was a partial mediating effect of psychological availability.

Table 4.17 also shows the results of the mediating effect of psychological availability on the relationship between self-efficacy and the three dimensions of work engagement. The findings indicated that the relationship between self-efficacy and dedication slightly weakened with the inclusion of psychological availability (β = 0.17, p < 0.05), indicating a partial mediation. The relationship between self-efficacy and vigor slightly decreased in the presence of psychological availability (β = 0.15, p < 0.05), implying a partial mediation of psychological availability. Thus, H4g to H4i were partially supported.

4.10 Summary of Hypotheses Testing

Table 4.18 presents a summary of the results of the hypotheses testing.

Table 4.18

Hypothesis Testing Results

Hypotheses		Results
H1:	**There is a relationship between job-personal resources and work engagement**	**Partially Supported**
	H1a: There is a relationship between reward and recognition and dedication.	Supported
	H1b: There is a relationship between reward and recognition and absorption.	Supported
	H1c: There is a relationship between reward and recognition and vigor	Supported
	H1d: There is a relationship between perceived supervisor support and dedication.	Supported
	H1e: There is a relationship between perceived supervisor support and absorption.	Not Supported
	H1f: There is a relationship between perceived supervisor support and vigor.	Not Supported
	H1g: There is a relationship between self-inefficacy and dedication.	Supported
	H1h: There is a relationship between self-inefficacy and absorption.	Not Supported
	H1i: There is a relationship between self-inefficacy and vigor	Not Supported
	H1j: There is a relationship between self-efficacy and dedication.	Supported
	H1k: There is a relationship between self-efficacy and absorption.	Not Supported
	H1l: There is a relationship between self-efficacy and vigor.	Supported

Hypotheses		Results
H2:	**There is a relationship between psychological conditions and work engagement**	**Supported**
	H2a: There is a relationship between psychological meaningfulness and dedication.	Supported
	H2b: There is a relationship between psychological meaningfulness and absorption.	Supported
	H2c: There is a relationship between psychological meaningfulness and vigor.	Supported
	H2d: There is a relationship between psychological safety and dedication.	Supported
	H2e: There is a relationship between psychological safety and absorption	Supported
	H2f: There is a relationship between psychological safety and vigor.	Supported
	H2h: There is a relationship between psychological availability and absorption.	Supported
	H2i: There is a relationship between psychological availability and vigor.	Supported
H3:	**There is a relationship between job-personal resources and psychological conditions**	**Partial Supported**
	H3a: There is a relationship between reward and recognition and psychological meaningfulness	Supported
	H3b: There is a relationship between reward and recognition and psychological safety	Supported
	H3c: There is a relationship between reward and recognition and psychological availability	Supported
	H3d: There is a relationship between perceived supervisor support and psychological meaningfulness	Supported
	H3e: There is a relationship between perceived supervisor support and psychological safety.	Supported
	H3f: There is a relationship between perceived supervisor support and psychological availability.	Supported

Hypotheses		Results
	H3g: There is a relationship between self-inefficacy and psychological meaningfulness	Supported
	H3h: There is a relationship between self-inefficacy and psychological safety	Not Supported
	H3i: There is a relationship between self-inefficacy and psychological availability.	Supported
	H3j: There is a relationship between self-efficacy and psychological meaningfulness.	Supported
	H3k: There is a relationship between self-efficacy and psychological safety.	Supported
	H3l: There is a relationship between self-efficacy and psychological availability.	Supported
H4:	**Psychological conditions mediate the relationship between job-personal resources and work engagement**	**Partial Supported**
	H4a: Psychological meaningfulness mediates the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.	Partial Supported
	H4b: Psychological meaningfulness mediates the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.	Partial Supported
	H4c: Psychological meaningfulness mediates the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.	Partial Supported
	H4d: Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.	Partial Supported
	H4e: Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.	Not Supported

Hypotheses		Results
H4f:	Psychological safety mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.	Partial Supported
H4g:	Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and dedication.	Partial Supported
H4h:	Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and absorption.	Partial Supported
H4i:	Psychological availability mediate the relationship between job-personal resources (reward and recognition, perceived supervisor support, self-inefficacy, and self-efficacy) and vigor.	Partial Supported

4.11 Summary

This chapter presented the data analysis results. Frequency, descriptive, correlation, and hierarchical multiple regression analyses were performed. The results revealed that some of the hypotheses were supported and some were partially supported. A detailed discussion on the results is presented in chapter 5.

CHAPTER 5

DISCUSSION

5.0 Introduction

This chapter discusses the findings presented in chapter 4 along with the theoretical and practical implications of the study. It also presents the limitations of this study and offers some suggestions for future research.

5.1 Recapitulation of the Study Findings

The purpose of this study was to investigate the relationship between job-personal resources and work engagement, and the mediating role of psychological conditions. The specific objectives of the study was to explore the level of work engagement among nurses; to examine the influence of reward and recognition on work engagement; to identify the influence of supervisor support on work engagement; to determine the influence of self-efficacy on work engagement; and to examine whether the three psychological conditions mediate the relationship between reward and recognition, perceived supervisor support, self-efficacy, and work engagement.

The research framework was developed from the job-demands-resources model of Schaufeli and Bakker (2004) and Kahn's (1990) conceptual framework of personal engagement and disengagement. Self-determination theory was chosen as the underpinning theory that helps explain how and what influences work engagement.

The study revealed that after controlling for demographic variables, the variance in the three dimensions of work engagement was explained by job-personal

resources. The influence of job and personal resources will be discussed individually on the three dimensions of work engagement.

5.2 Discussions

5.2.1 To Explore the Level of Work Engagement among Nurses

The level of work engagement among nurses was found by conducting the descriptive analysis following the interpretation of the mean score of the five-point Likert scale frequently used by the previous researchers (Bagheri, Pihie, & Akmaliah, 2014; Hassan, & Kadir, 2013; Masek, & Ibrahim, 2014; Nik Maheran, Jantan, & Md Taib, 2010; Pihie, & Bagheri, 2012; Said, 2015; Yusof, Zakaria, & Maat, 2012). To interpret the level of work engagement among nurses, the following criteria were used: the mean score of < 2.33 means the level of work engagement was low, between 2.33 to 3.66 moderate, and > 3.66 high. Based on these criteria, the findings revealed that the overall mean score of work engagement was 3.74 with a standard deviation of 0.392, suggesting that the level of work engagement among nurses working in the private hospitals in Thailand was high.

When looking separately at the mean scores of each dimension of work engagement, dedication had the highest mean score of 3.86, followed by vigor 3.75, and absorption had a moderate level with a mean score of 3.62. The result indicated that when nurses are engaged at work, they are more likely to be involved, work hard, and happily engrossed. The result supports previous studies (Schaufeli et al., 2001; Schaufeli & Bakker, 2004; Mauno et al., 2007; Schaufel & Salanova, 2007; Chughtai

& Buckley, 2008; den Broeck et al., 2008; Macey & Schneider, 2008; Bakker, 2009; Bakker & Leitr, 2010; Kong, 2009; Demorouti et al., 2010) that found that employees who were engaged in their work were emotionally attached to their organization and highly involved their sense of self in their performance. They also worked hard and willingly put more effort into the job than required by the organization. Moreover, engaged employee are fully focused in their attention and happily preoccupied in their job and hardly detached from work where time passes by.

5.2.2 To Examine the Influence of Job-Personal Resources and Work Engagement

5.2.2.1 Reward & Recognition and Work Engagement

Stajkovic and Luthans (1997) classified rewards as both tangible and intangible outcomes provided by organizations. Tangible rewards are defined as awards granted to employees on the basis of tasks performed, which meet or exceed the expectations initially established, whereas intangible rewards are defined as praises granted in public by virtue of the achievements widely approved in the context of the organizational culture. According to Danish and Usman (2010), tangible rewards include financial rewards, pay and benefits, promotions and incentives that satisfy employees to some extent. However, these tangible rewards may not be solely effective without the provision of intangible rewards, such as recognition (Silverman, 2004). As reward and recognition are recognized as powerful tools in motivating employee desirable behaviors (Bartol, & Srivastava, 2002; Eisenberger et al., 1990;

Hansen et al., 2002), therefore, this study expected that they would predict nurses' work engagement. As expected, the findings showed that reward and recognition made the strongest contribution to explain all the three dimensions of work engagement: dedication (β = 0.31, p < 0.01) absorption (β = 0.45, p < 0.01), and vigor (β = 0.27, p < 0.01). The finding of the study is in agreement with previous studied, such as Koyuncu et al. (2006), Moussa (2013), and Freeney and Tierman (2009).

By nature of the nursing job, nurses are required to be physically and psychologically ready in dealing with high job demands. This is because their jobs are typically stressful and emotionally demanding since they are repeatedly confronted with people's needs, problems, and suffering. They feel that their energy should be rewarded and recognized, leading to the belief that their job is meaningful and valuable. Such felt experience will make them to be fully engaged in their work.

The other possible explanation for this phenomenon is that reward and recognition are representative of personal achievement. The reception of such reward and recognition indicated that the employees' effort in work is worthy, valuable and appreciated by the organization. Reward and recognition also serve as a symbol of increasing social status in the community. When their social status is raised, their need for growth and development is met (Maslow, 1998). This is in consistent with Nohria, Groysberg, and Lee (2008), who found that when employees' emotional need of acquiring (receiving scarce goods, including intangibles) were met it bolstered the sense of well-being. This supports Schaufeli and Bakker (2004) in that job resources

that encourage employee personal achievement and growth and development consequently result in employee willingness to be engaged in their work.

5.2.2.2 Perceived Supervisor Support and Work Engagement

The regression analysis showed that perceived supervisor support was related to dedication (H1d) but not to absorption and vigor. The findings are in line with previous studies, such as Brough et al. (2013), Moussa et al. (2013), Tims et al. (2011), and Karatepe (2012), which confirmed the idea that supervisor support promotes work engagement both extrinsically and intrinsically. Perceived support from supervisor would lead to employees feeling satisfied and devoted to their work, resulting in their willingness to dedicate their efforts to performing their work tasks beyond the standard required by the job (Gagnon & Michael, 2004: Griffin, Patterson, & West, 2001).

In this study, perceived supervisor support was related to dedication but not to absorption and vigor. In other words, when nurses perceive that they are supported by their supervisor, they feel a sense of significance, pride and enthusiasm (dedication); however, the supportive supervisor does not make them energetic (vigor) nor happy while performing their job (absorption). The finding could be explained by the national culture of Thailand characterized by a high degree of power distance. Such culture is also present in Thai organizations, such as hospitals where they often become transformed into a passive-defensive, conservative, traditional, non-participative, bureaucratic system (Sriratanaprapat, Chaowalit, & Sutharangsee, 2012).

Within the health care organization, the centralization of administration is implemented where this type of system provides less opportunities for employees to receive consultation and participate (Sriratanaprapat et al., 2012). Therefore, nurses in the system do not have the opportunity to be involved in managerial decision making. This may lead their supervisor to misunderstand their needs (Sriratanaprapat et al., 2012). Support from supervisors may inform the employees that they are being cared for and valued; however, without the encouragement to participate in the decision-making process, the employees may not have a sense of belonging and being accepted in the organization.

5.2.2.3 Self-efficacy and Work Engagement

Self-efficacy was selected in the present study as a personal resource to measure its influence on work engagement. After the factor analysis had been performed, it was found that the variable was divided into two factors (Table 4.6). They were named self-inefficacy and self-efficacy. Self-inefficacy is the opposite of self-efficacy. Self-inefficacy refers to people who perceive themselves as inefficacious in exercising control over potential threats. They view threats anxiously, conjure up possible calamities were they to have any commerce with them, and avoid them (Bandura, 1986). The findings of the current study showed that self-inefficacy had a negative association with dedication (β = -0.16, $p < 0.05$) but not to absorption (β = -0.09, $p > 0.05$) and vigor (β = -0.08, $p > 0.05$). The self-related doubt or lack of self-efficacy obstructs the engagement process and makes employees be more affected by the

disturbances from the surroundings; consequently, people with low self-efficacy would find it hard to be absorbed and dedicated (Sonnentag, Dormann, & Demerouti, 2010).

Self-efficacy, on the other hand, refers to the capabilities one receives from the achievement of controlling one's environment and from the realization of intentional goals (Tafarodi & Swann, 1995). It is internally and autonomously decided through intention and outcomes (Tafarodi & Swann, 1995). Hence, self-efficacy can be categorized as one of a personal resource since Hobfoll et al. (2003) defined personal resources as positive self-evaluations that are linked to resiliency and refer to individuals' sense of their ability to control and impact upon their environment successfully. According to Tafarodi and Swann (1995), people with high self-efficacy can reduce the fear occurring from a threatening environment while low self-inefficacy is linked to diminishing motivation, anxiety, and depression. Deci and Bryan (2001) also suggested that when the need to feel competent increases, it produces an increase in intrinsic motivation, which is a motivational process that ties to work engagement (Schaufeli & Bakker, 2004).

The findings of this study were also in line with the idea that individuals' belief in their capabilities to organize and control the course of action in their environment is linked to work engagement. The result showed that self-efficacy predicted work engagement by making a contribution to explain variance in dedication (β = 0.21, $p < 0.01$) and vigor (β = 0.14, $p < 0.05$). Unexpectedly, the result illustrated no

relationship between self-efficacy and absorption (β = 0.08, p > 0.05). This means that nurses who believe in their professional abilities are more dedicated, put a lot of effort, and are persistent in the face of difficulties. The findings are in line with previous research works, such as Pati and Kumar (2010), Xanthopoulou et al. (2007), and Llorens et al. (2004), who also found a positive association between self-efficacy and work engagement.

5.2.3 To Determine Whether the Three Psychological Conditions Correlate with Work Engagement

Psychological conditions in this study encompass psychological safety, psychological availability and psychological meaningfulness. The principal component analysis with varimax rotation (Table 4.7), however, found that only two items indicated the concept of unsafety; therefore, the factor was named psychological safety.

The result of the hierarchical multiple regression analysis showed that psychological conditions (Table 4.13) related to the three dimensions of work engagement, supporting hypothesis 2. It was revealed that psychological meaningfulness was the strongest predictor of dedication, followed by psychological availability. However, psychological availability was the strongest contributor to absorption, followed by psychological safety and psychological meaningfulness. The results also showed that psychological availability was the strongest predictor of vigor, followed by psychological meaningfulness and psychological safety. Overall, the result is consistent with previous empirical research (Rothman & Rothman Jr, 2010;

Rothmann & Welsh, 2013; May et al., 2004; Jacobs, 2013; Oliveier & Rothmann, 2007; Rothmann & Hamukang'andu, 2013; Rothmann & Baumann, 2014), which demonstrated that employees who experienced psychological meaningfulness and availability expressed and employed themselves into their work task.

In contrast, the findings of this study revealed that a negative relationship between psychological safety and the three dimensions of work engagement shows that nurses who feel insecure in the workplace will withdraw themselves and do not want to be engaged in their work.

5.2.4 To Investigate Whether Job-personal Resources Correlate with Psychological Conditions

One of the main objectives of this study was to investigate whether there is a relationship between job-personal resources and psychological conditions. The results of hierarchical multiple regression analysis showed that reward and recognition had a significant contribution to the variance in psychological safety. Reward and recognition were also found to contribute to the variance in psychological meaningfulness and psychological availability.

It was also revealed that perceived supervisor support was related to meaningfulness, insecurity, and availability. Self-inefficacy was found to have a negative relationship with psychological meaningfulness and psychological availability. On the contrary, self-efficacy was shown to be positively related with

psychological meaningfulness and psychological availability. The result of this study was in accordance with Rothmann and Welsh (2013), Jacob (2013), Rothmann and Rothmann Jr. (2010), Phale (2008), and May et al. (2004).

Reward and recognition and perceived supervisor support are the job resources that generate a meaningful interaction in the workplace, which subsequently promote dignity, self-appreciation, and a sense of worthwhileness of nurses. It also enables relationships in which people want to give to and receive from others. Likewise, this kind of a meaningful relationship satisfies the relatedness need which is the basic human psychological need. The resources are also representative of a job context that promotes trust and when the organization fails to establish the condition that develops the personal trust employees will experience psychological safety. When employees feel that they are secure in this environment, they will experience psychological availability.

The results of this study also showed the critical role played by personal resources, such as self-efficacy on the two psychological conditions: meaningfulness and availability. This possibly can be explained by Rosso et al.'s (2010) argument that individuals' belief of personal capability impacts their behavior, the decisions they make, and the course of action they pursue. Such capability allows them to be in control over the work area. The belief in one's self-capability also provides a sense of meaningfulness when individuals feel competent as a consequence of having successfully achieved the difficult activities which enable them to learn and grow. In

contrast, low self-efficacy lead individuals to experience less meaningfulness in their work life since they believe that they are incompetent and less capable of controlling and making any decision. Besides, individuals with higher efficacy beliefs will be more aware of the resources that they have to apply towards their work role. When individuals have high self-efficacy, they are confident in their abilities to perform work demands (Jacobs, 2013). Another way of looking at this is that they are well aware of the personal resources (cognitive, emotional, and physical) that they have to perform the task. On the contrary, when individuals are low on self-efficacy, they doubt their abilities and focus more of their attention on their inadequacies than their capabilities (Bandura, 1977b).

Unexpectedly, both self-inefficacy and self-efficacy revealed no relationship with psychological safety. According to Kahn (1990), psychological safety is mainly influenced by the external environment factors, such as interpersonal relationships, management style and process, and organizational norms. These factors indicate that for individuals to feel safe or unsafe they need to perceive the environment they are living in and how they are being treated**.**

5.2.5 To Examine Whether Psychological Conditions Mediate the Relationship between Job-personal Resources and Work Engagement

5.2.5.1 Psychological Meaningfulness as Mediator in the Relationship between Job-personal Resources and Work Engagement

The result of hierarchical multiple regression analysis revealed that psychological meaningfulness partially mediated the relationship between reward and recognition and the three dimensions of work engagement. The findings also showed that psychological meaningfulness mediated the relationship between perceived supervisor support, self-inefficacy, and dedication. The relationship between self-efficacy and dedication and vigor were partially mediated by psychological meaningfulness.

In accordance to Kahn (1990), employees will be engaged in their work when they psychologically experience meaningfulness as a result of feeling that the work they do is worthwhile, useful, valuable, and generates meaning or making a difference without being taken for granted. They also feel that the job they are doing provide them with the opportunity to give and receive back in return for their investment in physical, cognitive, or emotional energy.

5.2.5.2 Psychological safety as Mediator in the Relationship between Job-personal Resources and Work Engagement

Psychological safety was found to partially mediate the relationship between reward and recognition and dedication and vigor but not absorption. The results also showed that psychological safety had no mediating effect on the relationship between perceived supervisor support and dedication.

The mediating effect of psychological safety was found to have a small impact on the relationship between job resources and the three dimensions of work engagement. This may be because the direct effect of job resources on work engagement is stronger and with or without psychological safety the influence of job resources will impact work engagement as suggested by Bakker and Demerourti (2008). Additionally, the outcome of the factor analysis on psychological safety revealed that the factor comprised negative items of safety. The result of the factor analysis is incompatible to the dimension of psychological conditions proposed by Kahn (1990). This might be another possible reason why psychological safety did not mediate.

5.2.5.3 Psychological Availability as Mediator in the Relationship between Job-personal Resources and Work Engagement

Psychological availability was found to partially mediate the relationship between reward and recognition, perceived supervisor support, self-inefficacy and self-efficacy, and dedication. The findings also showed that psychological availability had a partial mediation effect on the relationship between reward and recognition and absorption. The results further revealed that psychological availability partially mediated the association between reward and recognition and self-efficacy and vigor.

The partial mediation effect of psychological availability on the relationship between job-personal resources and engagement exists when employees sense that they have the physical, emotional, or psychological resources (Kahn, 1990). These

job-personal resources are a nutrition in nourishing employees' emotional and psychological resources. When they perceive that the resources they need are available, they will experience a sense of availability, making them engaged in their work. The results are consistent with the findings of Jacobs (2013) and Phale (2008).

5.3 Implications of the Study

The results of this study have theoretical implications for future studies and practical implications for Thai private hospitals that strive to succeed in the medical tourism industry.

5.3.1 Theoretical Implications

The aim of this study was to examine the relationship between job-personal resources and work engagement and the role of psychological conditions as a mediator by integrating the job demands-resources model (Schaufeli & Bakker, 2002) and Kahn's (1990) conceptual framework. Schaufeli and Bakker's (2002) presumption is that job and personal resources play both an intrinsic and extrinsic motivational role that foster employees' growth, learning, and development, which in turn satisfy the basic needs of the achievement of work goals, resulting in a fulfilling, work-related state of mind or the feeling of engagement.

Kahn (1990) built his conceptual framework based on the assumption that people use and express or withdraw and defend their preferred selves on the basis of their psychological experiences that influence individuals' internal work motivations. These psychological experiences tend to occur in the momentary circumstances or conditions. The findings of this study empirically support the influence of job-personal resources on work engagement and partially support the mediating effect of psychological conditions on the relationship between job-personal resources and work engagement as illustrated in the research framework (Figure 2.1). Therefore, this study has added further knowledge to the importance of job-personal resources and psychological conditions as predictors of work engagement. In addition, the results of this study also provide empirical support for the conceptual framework proposed by Schaufeli and Bakker (2004) pertaining to the relationship between job resources and

work engagement. The findings of the present study also support the notion introduced by Bakker and Demerouti (2008) that job and personal resources are important predictors of work engagement in their own right. The results obtained from this study also empirically support the idea suggested by Schaufeli and Bakker (2004) and Bakker and Demerouti (2008) that job and personal resources can act as extrinsic and intrinsic motivations to influence nurses' work engagement behaviors.

Moreover, this study has enhanced the knowledge on the influence of individual differences on nurses' work engagement by providing empirical evidence that revealed that nurses with low self-efficacy or individuals who do not believe in their capability to cope with unexpected situations would not be intrinsically motivated to be engaged in their work. The result of the present study also empirically provides partial support to Kahn's (1990) conceptual framework of personal engagement or disengagement behaviors in work task. The findings of this study depicted that psychological conditions can act as a psychological mechanism that mediates the relationship between job-personal resources and work engagement.

The findings of this study provide partial support for the theoretical framework, in that psychological conditions are mechanism that explain why job-personal resources enhance work engagement in the private hospital in Thailand. This research has also provide empirical evidence to validate the postulations of self-determination theory (SDT), which posits that people become self-determined or autonomously engaged in activities when their basic psychological needs are in

agreement (Deci & Ryan, 2000). According to Deci and Ryan (2000), the three psychological needs can be satisfied by both extrinsic and intrinsic motivations. The results of the present study provide evidence for SDT's assumption that employees are likely to display optimal performance and well-being when the extrinsic motivation (i.e. reward and recognition and perceived supervisor support) and the intrinsic motivation (i.e. general self-efficacy) exist.

The findings also demonstrated that the individual psychological needs can play as a psychological mechanism, partially, though, between extrinsic and intrinsic motivation and employee's autonomous behaviors. If these psychological needs are not met, employees are likely to be psychologically malfunctioning and demotivated. As empirical findings on this area are limited, this study has offered a significant contribution to the literature in work engagement.

5.3.2 Practical Implications

The findings of this study provide some guidelines for human resources practitioners in private hospitals to consider in strategic planning. This is important because the Thai private hospitals are currently facing a huge challenge, such as a lack of medical personnel especially nurses. Nurse scarcity results in more workload and stress since working in a private sector requires nurses to be more alert. Although they may receive high compensation, they are required to provide all of their resources physically and psychologically to satisfy the requests of the organization and the patients.

The results of this study provide useful information for human resource managers in decision making. Firstly, the findings revealed that reward and recognition were the important variables in predicting nurses' work engagement. These two components of human management practices could be conducted at the lowest cost especially recognition. For Thais, social recognition plays a crucial role in their life. It connotes their achievement and success in life (Komin, 1990). Particularly, in Thai culture, verbal compliments and favorable comments are strong reinforcements (Knutson, Komolsevin, Chatiketu, & Smith, 2003) as they nurture a sense of belongingness.

Secondly, perceived supervisor support was found to predict dedication, which represents the devotion of time, knowledge, energy of nurses to their work. Hence, to create a supportive environment for work achievement and care for their well-being, leadership training should be given to the nurses' supervisors to enhance their leadership effectiveness. In addition, the supportive environmental received from the supervisor also contributes to a high-quality relationship between the nurses and the organization since the supervisor is considered an agent of the organization. Therefore, when the supervisor shows his or her concern for the subordinates, it reflects the concern by the organization as a whole.

Thirdly, the results of this study showed the importance of individual differences to nurses' engagement. In this study, the individual difference was self-efficacy, which was divided into two dimensions: self-inefficacy and self-efficacy.

Self-efficacy and self-inefficacy were shown to have different influences on the nurses' work engagement. Nurses who believed in their capabilities to control over the environment were found to be more willing to engage in their work those who did not have self-inefficacy believed that they did not have the competence to overcome the difficulties and will be likely to disengage from their work. In light of this finding, the human resource practitioner can prove training and development skills to enhance the nurses' competency level to enable them to cope with work difficulties.

Fourth, the findings of this study revealed that psychological meaningfulness was a mediator of the relationship between perceived supervisor support, self-inefficacy and dedication. This finding implies that the human resources practitioner should put a greater effort in generating a supportive work environment to develop psychological meaningfulness. In addition, the human resources practitioner should provide training and development for nurses to reduce their self-doubt so that they can be engaged in their work.

Finally, this study highlights the importance of the measurement of work engagement in the employee survey to improve the nurses' work engagement so that appropriate measures can be implemented toward the said purpose.

5.4 Limitations of Study

Several limitations of this study are identified. Firstly, the sampling frame consisted only registered nurses working full time in private hospitals located in Bangkok. This

limited population cannot be generalized to the whole tourism healthcare providers in Thailand.

Secondly, this study aimed to examine the influence of job and personal resources in predicting work engagement. However, the independent variables were confined to a few job and personal resources. Some job resources in the hospital environment were overlooked by this study, such as the relationship with doctor and co-workers, patient recognition, autonomy, job control, and fairness. Besides, only one variable of individual differences was selected to predict work engagement without consideration for other personal factors, such as self-esteem, self-control, or self-concept. These types of individual differences can play a role as personal resources that can prevent nurses from experiencing burnout.

Finally, two items of psychological safety adapted from May et al. (2004) were excluded from this study due to poor reliability coefficient. As a result, the present study was unable to identify the relationship between psychological safety, job-personal resources, and work engagement as well as the mediating effect of psychological safety on the relationship between job-personal resources and work engagement.

5.5 Future Research

It is recommended for future research that the sampling could be extended to a population covering all private hospitals in Thailand. This would increase the

generalizability of the research findings. Moreover, other job and personal resources that might have an impact on work engagement should be investigated, such as job control, fairness, relationship with colleagues, self-esteem, and self-consciousness. The inclusion of other potential factors could increase the variance in explaining work engagement.

Since correlational studies are concerned with assessing the association between variables, a longitudinal research that can discover the changes in the psychological conditions to affect work engagement can be considered. It is also recommended that the instrument of psychological safety is validated in work contexts in Thailand.

The target customers of health tourism by private hospitals are foreigners. This requires nurses to have good communication skills in English when dealing with foreign clients. However, it is quite well known that Thais are generally not able to speak English well. Thus, future research should consider investigating the impact of nurse's English skills on their performance, stress, or patient's satisfaction.

In addition, as the result revealed that work engagement can be explained by Self-Determination Theory, future research should consider utilizing the SDT in describing work engagement in difference types of working contexts.

5.6 Conclusion

The purpose of this study was to investigate the relationship between job-personal resources and work engagement and the mediating role of psychological conditions. Overall, the present study was able to achieve the research objectives set out earlier. This study also was able to fill the gap in engagement literature by integrating the two models of Job Demands-Resources Model and Kahn's (1990) conceptual framework to explain work engagement. Besides, this study also filled the lack of empirical knowledge on the association between individual differences and psychological conditions as suggested by Saks and Kahn. In addition, this study also confirmed the validity of social exchange theory as a meaningful theoretical basis for understanding work engagement. The results of this research demonstrated that an organization that provides resources that satisfy the need of employees for psychological meaningfulness, safety and availability will be reciprocated by a higher level of work engagement by the employees.

Practically speaking, the findings have important implications for human resources management in that Thai private hospitals should consider implementing a reward and recognition program, leadership training programs for nurses' supervisors, and training and development programs for nurses to increase their self-efficacy. This study also highlights the importance of work engagement to the policy makers in sustaining the existing nurses during the crisis of a nurse shortage.

Based on the findings, several limitations are highlighted and recommendations for future research are offered with the expectation that future

studies could widen the scope of the study and extend the current framework to enhance its external validity.

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APENDIX 1

Professional Profiles

Ms Pattarin Suwannarat

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Qualification:

MA Teaching English as a foreign language Thammasat University 2012

BA English Literature and Language Thammasat University 2006

Employment

06 / 2013 – present Lecturer in English, Business English Program

Humanities and Social Sciences Faculty

Nakhon Si Thammarat Rajabhat University, Thailand

Published research

Pattarin Halson (2013). A study of teaching memory vocabulary learning strategies on the retention of vocabulary by Nakhon Si Thammarat Rajabhat University students

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Philip Halson

Address:	Craigneuk, Southwick, Dumfries and Galloway, DG2 8AR
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Qualifications

MA Teaching English as a Foreign Language	Thammasat University	May 2014
BA (Hons.) Thai	SOAS, University of London	June 2006
Certificate in Design and Development of Educational Technology	MITx (online)	In progress (est. completion December 2014)
Certificate in Introduction to Computer Science	HarvardX (online)	In progress (est. completion December 2014)

Employment Hitory

10/2014 - present	*Halson Education and Training Services Limited*, London, UK.	Director
06/2011 – 10/2014	*Rajabhat University* Nakhon Si Thammarat, Thailand.	Lecturer in English

Other Recent Professional Experience

07/14 – 10/14	Guest lecturer for MA students, Nakhon Si Thammarat Rajabhat University (48 hours)
21/05/14	Presenter at TRI-ELE Conference: Students' perceptions of a paperless classroom: Integrating web 2.0, open-source and free software into teaching.
29/03/14	Presenter at ELSCA Conference: An evolutionary view of the lifespan of obsolete English words (Paper also submitted for publication in peer-reviewed journal)
08/03/14	English camp organizer and leader for 70 students, Nakhon Si Thammarat Rajabhat University
02/14 – 04/14	TOEFL course teacher for staff in Faculty of Humanities, Nakhon Si Thammarat Rajabhat University (30 hours)
11/13 – 02/14	Guest lecturer for PhD students, Nakhon Si Thammarat Rajabhat University (9 hours)
29/08/13	Public Speaking Competition Judge at Princess Chulabhorn's College, Nakhon Si Thammarat
28/06/13	Impromptu Speaking Contest Judge at Office of Primary Education, District 4, Nakhon Si Thammarat
17/01/13	Public Speaking Competition Judge at Princess Chulabhorn's College,

Nakhon Si Thammarat

13/02/12 Presenter at Nakhon Si Thammarat Rajabhat University: English Sounds: Understanding Phonetics and Teaching Pronunciation

26/11/11 Organiser and Presenter at Promkiri school, Nakhon Si Thammarat:
27/11/11 English for Integrated Studies

APPENDIX 2

QUESTIONNAIR
(THAI VERSION)

หมายเลข…….

ส่วนที่ 1 แบบสอบถามเกี่ยวกับข้อมูลส่วนบุคคลของพยาบาลวิชาชีพ

คำชี้แจง กรุณาทำเครื่องหมาย ✓ ลงใน ☐
และเติมคำในช่องว่างมีเพียงแค่ผู้วิจัยเท่านั้นที่สามารถอ่านข้อมูลส่วนตัวของท่านและจะไม่มีการเผยแพร่ข้อมูลส่วนตัวของท่านให้บุคคลอื่นทราบ

1. เพศ ☐ หญิง ☐ ชาย

2. อายุ ☐ 21-25 ☐ 26-30
☐ 31-35 ☐ 36-40
☐ 41-45 ☐ 46-50

3. สถานภาพสมรส
☐ โสด ☐ แต่งงานแล้ว
☐ หย่า ☐ แยกกันอยู่
☐ หม้าย ☐ อื่นๆ ……

4. ระดับการศึกษาสูงสุด
☐ ต่ำกว่าปริญญาตรี ☐ ปริญญาตรี
☐ ปริญญาโท ☐ ปริญญาเอก

5. แผนกที่ปฏิบัติงานในปัจจุบัน

☐ ศัลยกรรม ☐ อายุรกรรม
☐ สูตินารีเวชกรรม ☐ กุมารเวชกรรม
☐ ออร์โธปิดิกส์ ☐ หอผู้ป่วยหนัก
☐ ห้องฉุกเฉิน ☐ อื่น ๆ……..

6. ตำแหน่งที่ปฏิบัติงาน

☐ หัวหน้าแผนก / หัวหน้าฝ่าย
☐ ผู้ตรวจการพยาบาล
☐ พยาบาลประจำการ

7. ท่านทำงานที่โรงพยาบาลแห่งนี้เป็นเวลานานเท่าใด

☐ 1-5 ปี ☐ 6- 10 ปี
☐ 11-15 ปี ☐ 16-20 ปี
☐ 21-25 ปี

8. ท่านทำงานอาชีพพยาบาลเป็นเวลานานเท่าใด

☐ 1-5 ปี ☐ 6- 10 ปี
☐ 11-15 ปี ☐ 16-15 ปี
☐ 16-20 ปี

ส่วนที่ 2 แบบสอบถามเกี่ยวกับข้อมูลด้านทรัพยากรงานและทรัพยากรส่วนบุคคล

คำชี้แจง กรุณาอ่านประโยคในแต่ละข้อด้านล่างนี้และระบุคำตอบด้วยการวงกลมหมายเลขที่เหมาะสมด้านขวามือ

ระดับการให้คะแนน 1 = ไม่เห็นด้วยอย่างยิ่ง 2 = ไม่เห็นด้วย 3 = ไม่รู้สึกใด ๆ 4 = เห็นด้วย 5 = เห็นด้วยอย่างยิ่ง

รางวัลและการได้รับการยอมรับ	**ไม่เห็นด้วยอย่างยิ่ง**	**ไม่เห็นด้วย**	**ไม่รู้สึกใด ๆ**	**เห็นด้วย**	**เห็นด้วยอย่างยิ่ง**
1. องค์กรมีการเพิ่มค่าตอบแทนตามผลการปฏิบัติงานของฉัน	1	2	3	4	5
2. งานของฉันมีความมั่นคงในองค์กรนี้	1	2	3	4	5
3. องค์กรมีการเลื่อนตำแหน่งให้ฉัน	1	2	3	4	5
4. องค์กรนี้ให้อิสระและโอกาสที่ดีแก่ฉัน	1	2	3	4	5
5. ฉันได้รับการนับถือจากกลุ่มคนที่ฉันทำงานด้วยในองค์กรนี้	1	2	3	4	5
6. ฉันได้รับคำชมเชยจากหัวหน้างานในองค์กรนี้	1	2	3	4	5
7. ฉันมีโอกาสได้เข้าร่วมฝึกอบรมและพัฒนาในองค์กรนี้	1	2	3	4	5
8. ฉันได้รับมอบหมายงานที่มีความท้าทายมากกว่าเดิมจากองค์กรนี้	1	2	3	4	5
9. ฉันได้รับการยอมรับในระดับสาธารณะในรูปแบบใดรูปแบบหนึ่งจากองค์กรนี้ (เช่นพนักงานดีเด่นประจำเดือน)	1	2	3	4	5
10. ฉันได้รับรางวัลหรือสิ่งใด ๆ ที่แสดงให้เห็นว่าองค์กรนี้ชื่นชมฉัน (เช่นเลี้ยงอาหารเที่ยง)	1	2	3	4	5
การรับรู้การสนับสนุนจากหัวหน้างาน					
1. หัวหน้างานของฉันเห็นคุณค่าต่อผลงานของฉันรวมไปถึงสภาพ	1	2	3	4	5
2. หัวหน้างานของฉันพิจารณาเห็นความสำคัญอย่างจริงจังต่อเป้าหมายของฉันและคุณค่าในตัวฉัน	1	2	3	4	5
3. หัวหน้างานของฉันใส่ใจอย่างยิ่งต่อสภาพความเป็นอยู่ที่ดีของฉั	1	2	3	4	5
4. หัวหน้างานของฉันเต็มใจช่วยเหลือฉันเสมอเมื่อใดก็ตามที่ฉันขอความช่วยเหลือ	1	2	3	4	5
5. หัวหน้างานภูมิใจในตัวฉันเมื่อฉันบรรลุเป้าหมายงานต่างๆ	1	2	3	4	5
6. หัวหน้างานของฉันใส่ใจฉันน้อยมาก ®	1	2	3	4	5

ความมีประสิทธิภาพของตัวเอง					
1. หากมีสิ่งใดที่ดูยุ่งยากเกินจะเข้าใจฉันจะไม่พยายามลองทำสิ่งนั้น ®	1	2	3	4	5
2. ฉันหลีกเลี่ยงการพยายามที่จะเรียนรู้สิ่งใหม่ ๆ หากมันดูยากเกินไป ®	1	2	3	4	5
3. ยามที่ฉันพยายามเรียนรู้สิ่งใหม่ ๆ หากฉันไม่สามารถทำสิ่งนั้นได้สำเร็จในช่วงแรก ๆ	1	2	3	4	5
4. เมื่อฉันตั้งเป้าหมายสำคัญสำหรับตัวฉันแล้วฉันบรรลุเป้าหมายนั้นได้น้อยครั้งมาก	1	2	3	4	5
5. ดูเหมือนว่าฉันไม่สามารถจัดการกับปัญหาส่วนใหญ่ที่เกิดขึ้นในชีวิตฉันได้ ®	1	2	3	4	5
6. เมื่อเกิดอุปสรรคหรือปัญหาใด ๆ ที่ไม่ได้คาดคิดมาก่อนฉันจัดการกับสิ่งเหล่านั้นได้ไม่ดีนัก ®	1	2	3	4	5
7. .ฉันรู้สึกไม่เชื่อมั่นในความสามารถของฉันในการทำสิ่งต่างๆ ®	1	2	3	4	5
8. เมื่อฉันวางแผนทำสิ่งต่าง ๆ ฉันแน่ใจว่าแผนเหล่านั้นใช้ได้ผลจริง	1	2	3	4	5
9. หากฉันไม่สามารถทำงานให้บรรลุเป้าหมายได้สำเร็จในครั้งแรกฉันก็จะพยายามทำอยู่ต่อไปจนกว่างานจะสำเร็จ	1	2	3	4	5
10. เมื่อฉันต้องทำในสิ่งที่ไม่เป็นที่น่าสนใจฉันก็จะทำงานนั้นจนกว่าง	1	2	3	4	5
11. เมื่อฉันตัดสินใจแล้วจะทำสิ่งใดฉันก็จะลงมือทำในทันที	1	2	3	4	5
12. ความล้มเหลวกลับทำให้ฉันพยายามมากขึ้น	1	2	3	4	5

ส่วนที่ 3 แบบสอบถามเกี่ยวกับข้อมูลด้านสภาวะทางด้านจิตใจ

คำชี้แจง กรุณาอ่านประโยคในแต่ละข้อด้านล่างนี้และระบุคำตอบด้วยการวงกลมหมายเลขที่เหมาะสมด้านขวามือ

ระดับการให้คะแนน 1 = ไม่เห็นด้วยอย่างยิ่ง 2 = ไม่เห็นด้วย 3 = ไม่รู้สึกใด ๆ 4 = เห็นด้วย 5 = เห็นด้วยอย่างยิ่ง

การมีความหมายทางด้านจิตใจ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่รู้สึกใด ๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1. งานต่าง ๆ ที่ฉันทำในอาชีพนี้มีความสำคัญต่อฉันมาก	1	2	3	4	5
2. กิจกรรมต่าง ๆ [illegible]	1	2	3	4	5
3. งานที่ฉันทำอยู่ตอนนี้คุ้มค่ากับความพยายาม	1	2	3	4	5
4. กิจกรรมงานต่าง ๆ ของฉันเป็นสิ่งที่สำคัญสำหรับฉัน	1	2	3	4	5

5. หน้าที่ที่ฉันต้องปฏิบัติในงานนี้มีความหมายสำหรับฉัน	1	2	3	4	5
6. ฉันรู้สึกว่างานต่างๆที่ฉันทำในอาชีพนี้เป็นสิ่งที่มีคุณค่า	1	2	3	4	5

ความรู้สึกปลอดภัยด้านจิตใจ	ไม่เห็นด้วยอ	ไม่เห็นด้วย	ไม่รู้สึกใดๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1. ฉันไม่กลัวที่จะเป็นตัวของตัวเอง ณ ที่ทำงาน	1	2	3	4	5
2. ฉันหวาดหวั่นที่จะแสดงความคิดเห็นของตัวเองในที่ทำงาน ®	1	2	3	4	5
3. ที่ทำงานของฉันมีสภาพแวดล้อมการทำงานแบบดุกดาม ®	1	2	3	4	5
ความพร้อมทางจิตใจ					
1. ฉันเชื่อมั่นในความสามารถของฉันว่าสามารถรับมือได้กับสภาวะความต้องการในเชิงแข่งขันในที่ทำงาน	1	2	3	4	5
2. ฉันเชื่อมั่นในความสามารถของฉันว่าสามารถจัดการกับปัญหาต่าง ๆ ที่เกิดขึ้นในที่ทำงาน	1	2	3	4	5
3. ฉันเชื่อมั่นในความสามารถของฉันในการคิดอย่างทะลุปรุโปร่งในที่ทำงาน	1	2	3	4	5
4. ฉันเชื่อมั่นในความคิดของฉันในการที่จะแสดงออกด้านอารมณ์ไ	1	2	3	4	5
5. ฉันเชื่อมั่นว่าฉันสามารถรับมือกับความเหนื่อยล้าทางร่างกายที่เกิดขึ้นในที่ทำงานได้	1	2	3	4	5

ส่วนที่ 4 แบบสอบถามเกี่ยวกับข้อมูลด้านความผูกพันของพนักงาน

คำชี้แจง กรุณาอ่านประโยคในแต่ละข้อด้านล่างนี้และระบุคำตอบด้วยการวงกลมหมายเลขที่เหมาะสมด้านขวามือ

ระดับการให้คะแนน 1 = ไม่เคย 2 = แทบจะไม่เคย 3 = บางครั้ง 4 = บ่อย 5 = บ่อยมาก

ความผูกพันของพนักงาน	ไม่เคย	แทบจะไม่เคย	บางครั้ง	บ่อย	บ่อยมาก
1. ฉันทำงานด้วยความรู้สึกเปี่ยมล้นด้วยพลังงานในที่ทำงาน	1	2	3	4	5
2. ฉันพบว่างานต่าง ๆ [illegible]	1	2	3	4	5
3. เวลาผ่านไปอย่างรวดเร็วในขณะที่ฉันทำงาน	1	2	3	4	5
4. ฉันรู้สึกแข็งแรงและกระฉับกระเฉงเมื่อทำงาน	1	2	3	4	5
5. ฉันมีความกระตือรือร้นในการทำงาน	1	2	3	4	5
6. ในขณะที่ฉันทำงานฉันไม่สนใจทุกสิ่งทุกอย่างที่อยู่รอบกายฉัน	1	2	3	4	5

7. งานของฉันสร้างแรงบันดาลใจให้แก่ฉัน	1	2	3	4	5
8. เมื่อฉันตื่นนอนในตอนเช้าฉันรู้สึกอยากไปทำงาน	1	2	3	4	5
9. ฉันมีความสุขเมื่อได้ทำงานอย่างขะมักเขม้น	1	2	3	4	5
10. ฉันภูมิใจกับงานที่ฉันทำ	1	2	3	4	5
11. ฉันคร่ำเคร่งกับงานของฉัน	1	2	3	4	5
12. ฉันสามารถทำงานติดต่อกันได้หลายชั่วโมง	1	2	3	4	5
13. สำหรับฉันแล้วงานของฉันนั้นเป็นสิ่งที่ท้าทาย	1	2	3	4	5
14. ขณะทำงานฉันเคลิบเคลิ้มไปกับงาน	1	2	3	4	5
15. เมื่อทำงานฉันมีความยืดหยุ่นด้านจิตใจ	1	2	3	4	5
16. ในเวลาที่ฉันทำงานมันยากที่จะแยกตัวเองออกจากงานที่ฉัน	1	2	3	4	5
17. ฉันมีความมุมานะในการทำงานอยู่เสมอแม้จะมีเหตุการณ์ที่ดำเนินไปได้ไม่ดีนักเกิดขึ้นก็ตาม	1	2	3	4	5

QUESTIONNAIR
(ENGLISH VERSION)

Number……

Direction Please marked √ in □ and fill in the blank. Only the researcher can access to your profile and no personal identifying information will ever be released to anyone else.

1. Gender ☐ Female ☐ Male

2. Age

☐ 21-25 ☐ 26-30

☐ 31-35 ☐ 36-40

☐ 41-45 ☐ 46-50

3. Marital status

☐ Single ☐ Married

☐ Divorce ☐ Separated

☐ Widowed ☐ Other_____

4. Level of education

☐ Below bachelor degree ☐ Bachelor degree

☐ Master degree ☐ Doctorate

5. Current department

☐ Surgery ☐ Internal Medicine

☐ Obstetric & Gynaecological ☐ Paediatrics

☐ Orthopedics ☐ Intensive Care Unit

☐ Emergency Room ☐ Others

6. Position

☐ Head of Department ☐ Inspector of nursing

☐ Duty nurse

7. How long have you worked at this hospital?

☐ 1-5 year ☐ 6-10 year

☐ 11-15year ☐ 16-20 year

☐ 21-25 year and above

8. How long have you worked as a nurse?

☐ 1-5 year ☐ 6-10 year

☐ 11-15 year ☐ 16-20 year

☐ 21-25 year and above

Part 2 Job-personal Resources

Directions: Please read each of the following items and indicate your answer by circling the appropriate number at the right.

Rating Scales: Strongly Disagree**,** Disagree, Neither Agree nor Disagree**,** Agree**,** Strongly Agree

Reward and Recognition	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
1. The organization provide me with a pay raise.	1	2	3	4	5
2. The organization provide me with job security.	1	2	3	4	5
3. The organization provide me with a promotion	1	2	3	4	5
4. The organization provide me with more freedom and opportunities	1	2	3	4	5
5. The organization provide me with respect from the people you work with.	1	2	3	4	5
6. The organization provide me with praise from your supervisor.	1	2	3	4	5
7. The organization provide me with training and development opportunities.	1	2	3	4	5

Reward and Recognition	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8. The organization provide me with more challenging work assignments.	1	2	3	4	5
9. The organization provide me with some form of public recognition.	1	2	3	4	5
10. The organization provide me with a reward or token of appreciation.	1	2	3	4	5
Perceived supervisor support	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
1. The supervisor values my contribution to its well-being	1	2	3	4	5
2. The supervisor strongly considers my goals and values.	1	2	3	4	5
3. The supervisor really cares about my well-being.	1	2	3	4	5
4. The supervisor is willing to help me when I need a special favor.	1	2	3	4	5
5. The supervisor takes pride in my accomplishments at work.	1	2	3	4	5
6. The supervisor shows very little concern for me. ®	1	2	3	4	5
Self-efficacy	**Strongly Disagree**	**Disagree**	**Neither Agree nor**	**Agree**	**Strongly Agree**
1. If something looks too complicated I will not even brother to try it	1	2	3	4	5
2. I avoid trying to learn new things when they look too difficult	1	2	3	4	5
3. When trying to learn something new, I soon give up if I am not initially successful	1	2	3	4	5
4. When I set important goals for myself, I rarely achieve them	1	2	3	4	5
5. I do not seem capable of dealing with most problems that come up in my life.	1	2	3	4	5
6. When unexpected problems occur, I don't handle them very well	1	2	3	4	5

Self-efficacy	Strongly Disagree	Disagree	Neither Agree nor	Agree	Strongly Agree
7. I feel insecure about my ability to do things.	1	2	3	4	5
8. When I have something unplaesant to do , I stick to it until I finish it	1	2	3	4	5
9. If I can't do a job the first time, I keep trying until I can	1	2	3	4	5
11. When I decide to do something, I go right to work on it	1	2	3	4	5
12. Failure just makes me try harder	1	2	3	4	5

Part 3 Psychological Conditions

Directions: Please read each of the following items and indicate your answer by circling the appropriate number at the right.
Rating Scales: Strongly Disagree**,** Disagree, Neither Agree nor Disagree**,** Agree**,** Strongly Agree

Psychological meaningfulness	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. The work I do on this job is very important to me.	1	2	3	4	5
2. My job activities are personally meaningful to me.	1	2	3	4	5
3. The work I do on this job is worthwhile.	1	2	3	4	5
4. My job activities are significant to me**.**	1	2	3	4	5
5. The work I do on this job is meaningful to me	1	2	3	4	5
6. I feel that the work I do on my job is valuable	1	2	3	4	5
Psychological safety	**Strongly Disagree**	**Disagree**	**Neither Agree nor**	**Agree**	**Strongly Agree**
1. I 'm not afraid to be myself at work.	1	2	3	4	5
2. I am afraid to express my opinions at work. (r)	1	2	3	4	5
3. There is a threatening environment at work. (r)	1	2	3	4	5

Psychological availability	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I am confident in my ability to handle competing demands at work.	1	2	3	4	5
2. I am confident in my ability to deal with problems that come up at work.	1	2	3	4	5
3. I am confident in my ability to think clearly at work.	1	2	3	4	5
4. I am confident in my ability to display the appropriate emotions at work.	1	2	3	4	5
5. I am confident that I can handle the physical demands at work.	1	2	3	4	5

Part 4 Work engagement

Directions: Please read each of the following items and indicate your answer by circling the appropriate number at the right.
Rating Scales: Strongly Disagree**,** Disagree, Neither Agree nor Disagree**,** Agree**,** Strongly Agree

Work Engagement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. At my work, I feel bursting with energy	1	2	3	4	5
2. I find the work that I do full of meaning and purpose	1	2	3	4	5
3. Time files when I'm working	1	2	3	4	5
4. At my job, I feelstrong and vigorous	1	2	3	4	5
5. I am enthusiasiitic about my job	1	2	3	4	5
6. When I am working, I forget everything else around me	1	2	3	4	5
7. My job inspires me	1	2	3	4	5
8. When I get up in the morning, I feel like going to work	1	2	3	4	5
9. I feel happy when I am working intensely	1	2	3	4	5
10. I am proud on the work that I do	1	2	3	4	5
11. I am immersed in my work	1	2	3	4	5
12. I can continue working for every long periods at a time	1	2	3	4	5

Work Engagement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
13. To me, my job is challenging	1	2	3	4	5
14. I get carried away when I'm working	1	2	3	4	5
15. At my job, I am very resilient, mentally	1	2	3	4	5
16. It is difficult to detach myself from my job	1	2	3	4	5
17. At my work I always persevere, even when things do not go well	1	2	3	4	5

APPENDIX 3
Multivariate Outliers

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8877	4.2977	3.6783	.24357	242
Std. Predicted Value	-3.268	2.534	-.015	1.002	242
Standard Error of Predicted Value	.021	.111	.047	.015	242
Adjusted Predicted Value	2.8883	4.4416	3.6778	.24549	236
Residual	-1.29766	.74615	.00651	.28633	236
Std. Residual	-4.434	2.550	.022	.978	236
Stud. Residual	-4.673	2.596	.022	.997	236
Deleted Residual	-1.44157	.77381	.00644	.29752	236
Stud. Deleted Residual	-4.894	2.628	.021	1.005	236
Mahal. Distance	.298	34.086	5.991	4.629	242
Cook's Distance	.000	.346	.006	.024	236
Centered Leverage Value	.001	.140	.025	.019	242

a. Dependent Variable: TEE

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8558	4.2411	3.6874	.24493	238
Std. Predicted Value	-3.410	2.243	-.017	.999	238
Standard Error of Predicted Value	.021	.086	.046	.013	238
Adjusted Predicted Value	2.8536	4.2610	3.6862	.24571	232
Residual	-1.00049	.80112	.00781	.27407	232
Std. Residual	-3.553	2.845	.028	.973	232
Stud. Residual	-3.659	2.901	.029	.990	232
Deleted Residual	-1.06083	.83288	.00832	.28348	232
Stud. Deleted Residual	-3.760	2.948	.028	.995	232
Mahal. Distance	.292	21.651	5.970	3.828	238
Cook's Distance	.000	.115	.005	.010	232
Centered Leverage Value	.001	.090	.025	.016	238

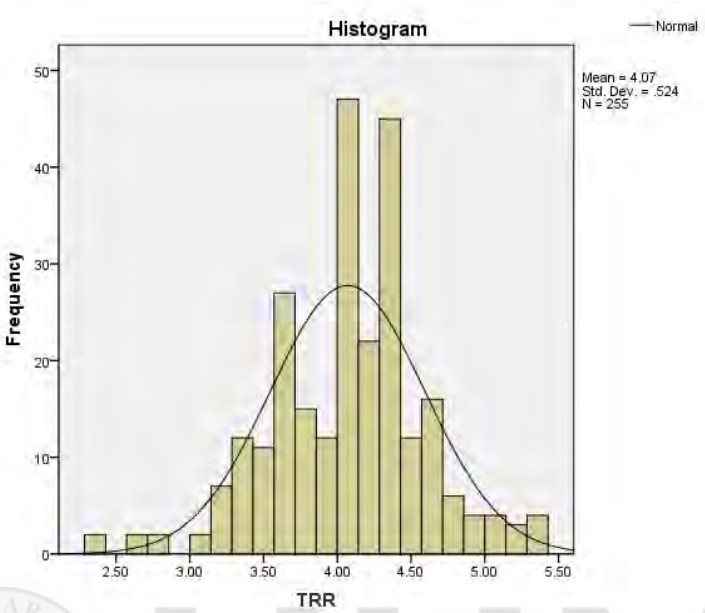
a. Dependent Variable: TEE

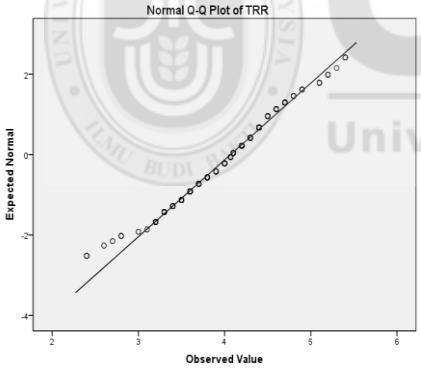
APPENDIX 4
Normality Test

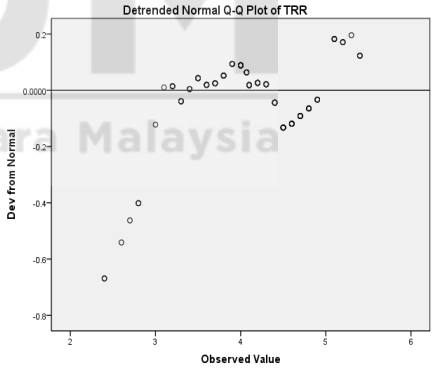
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TRR	255	2.40	5.40	4.0699	.52356	-.214	.153	.627	.304
TPSS	255	2.17	5.00	3.7279	.52796	.033	.153	.446	.304
TSelf	255	2.67	5.00	3.7233	.50824	.012	.153	-.570	.304
TPM	255	2.83	5.00	4.0604	.48700	-.047	.153	.214	.304
TPS	255	2.20	4.60	3.4669	.40116	-.013	.153	.969	.304
TPA	255	2.80	5.00	3.8031	.41959	.036	.153	.322	.304
TEE	255	2.71	4.71	3.6912	.36621	-.028	.153	-.069	.304
Valid N (listwise)	255								

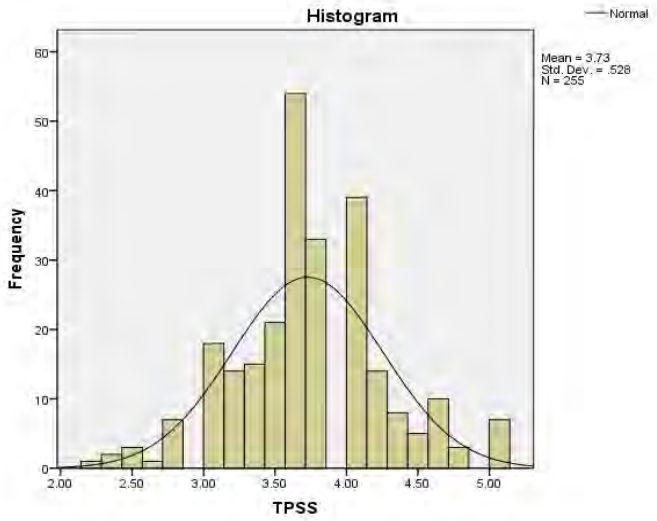
Reward & Recognition

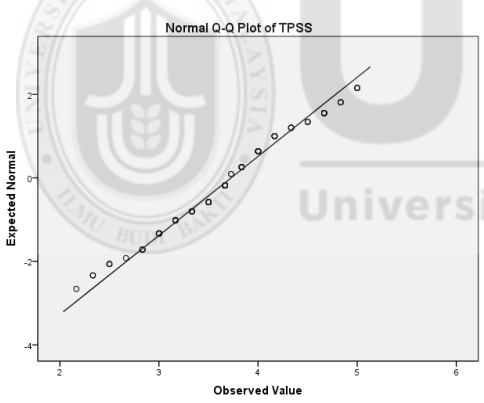


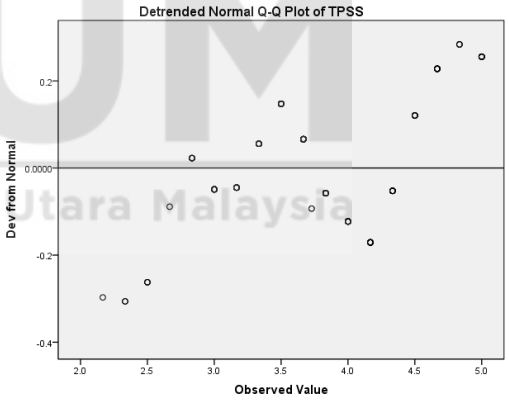




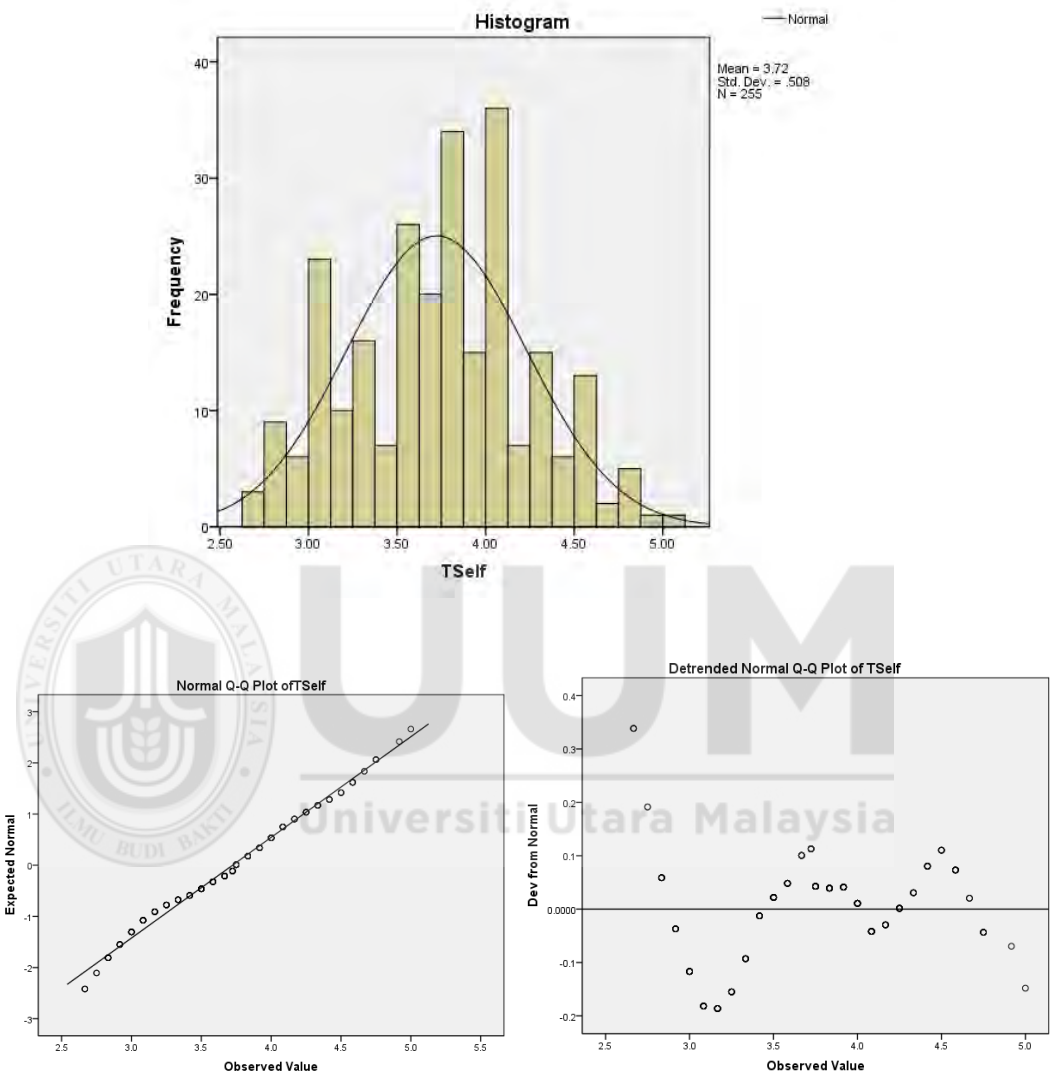
Perceived Supervisor Support



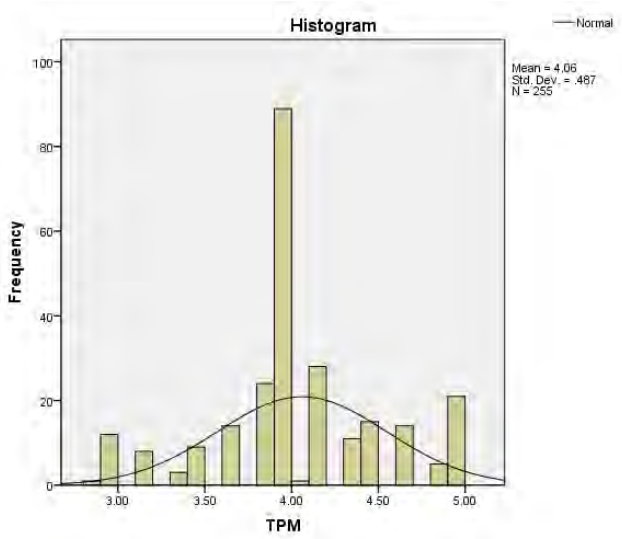


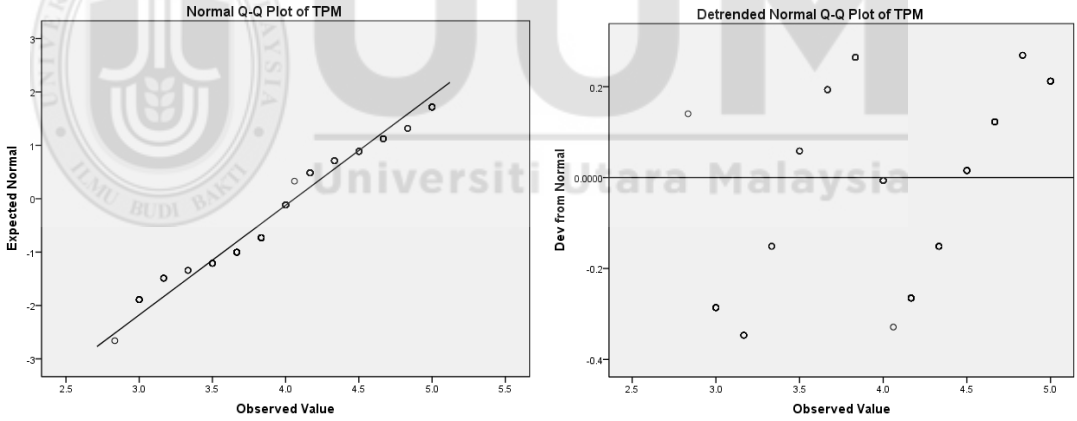


Self-efficacy

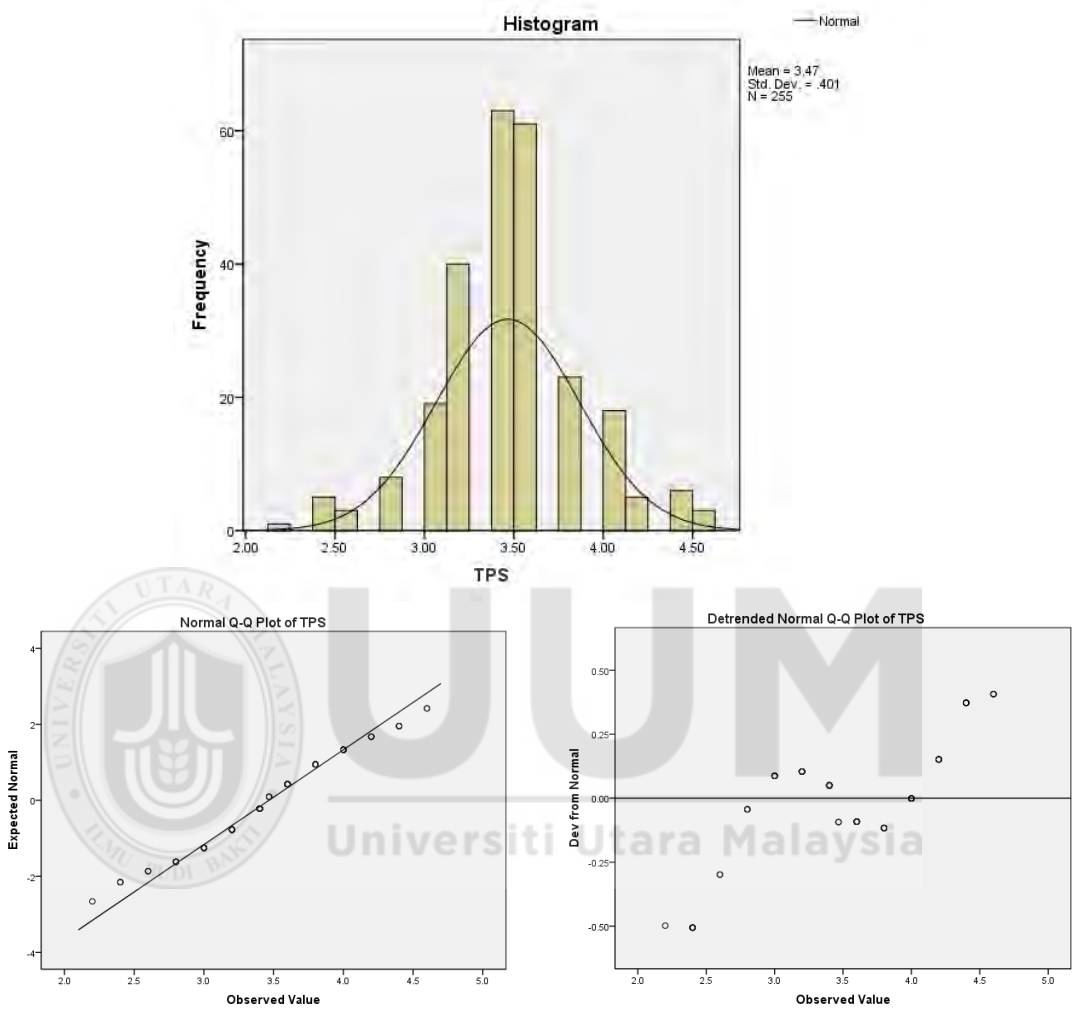


Psychological Meaningfulness

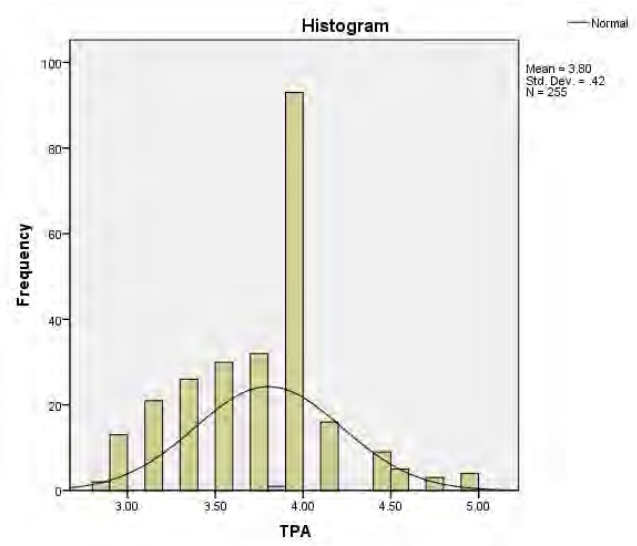


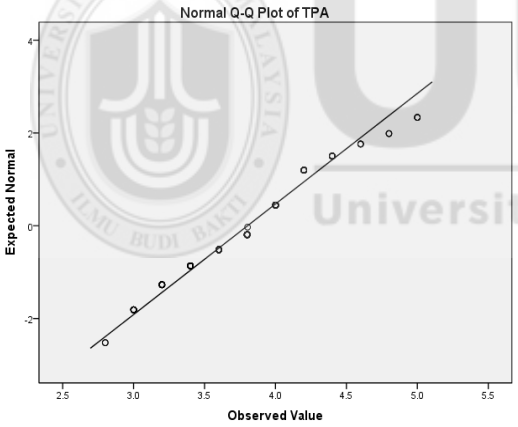


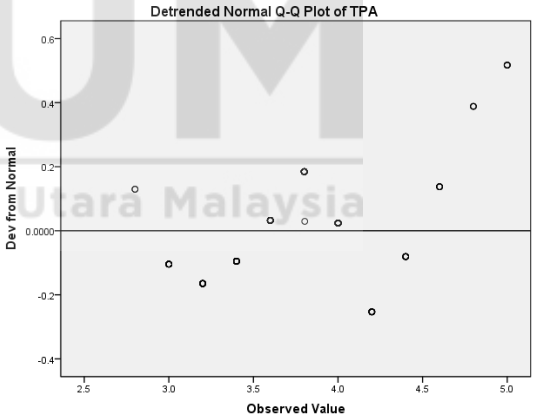
Psychological Safety



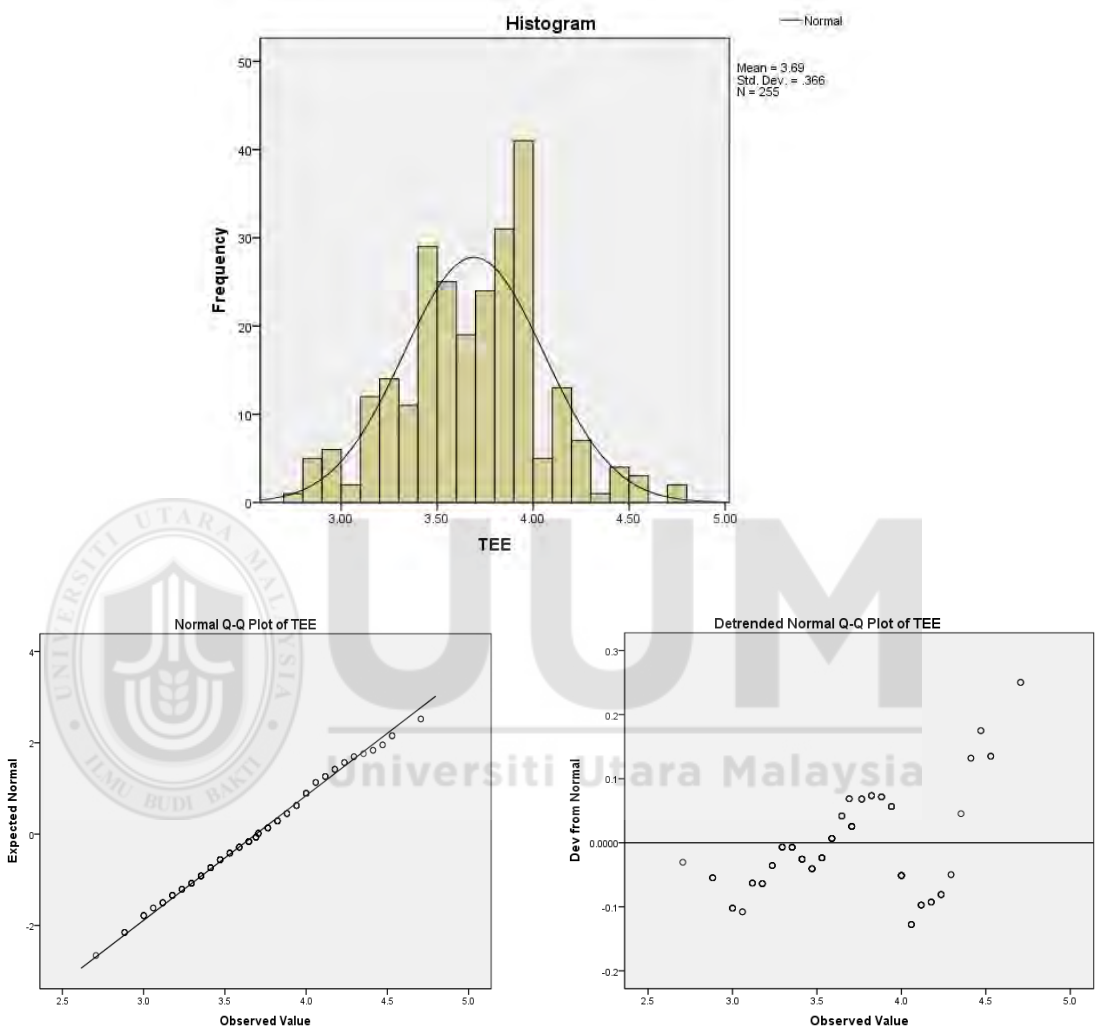
Psychological Availability







Work Engagement



APPENDIX 5
Factor Analysis of Job-Personal Resources

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.853
Bartlett's Test of Sphericity	Approx. Chi-Square	3054.520
	df	300
	Sig.	.000

Communalities

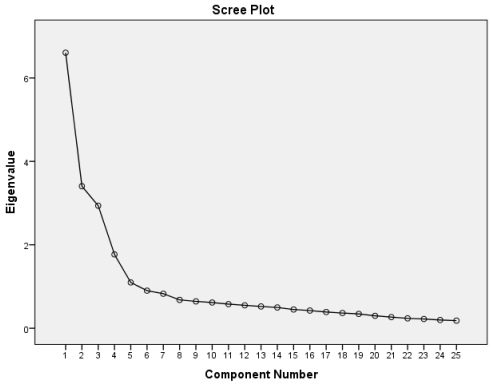
	Initial	Extraction
RR1	1.000	.555
RR2	1.000	.389
RR3	1.000	.532
RR4	1.000	.603
RR5	1.000	.396
RR7	1.000	.387
RR8	1.000	.490
RR10	1.000	.524
PSS1	1.000	.702
PSS2	1.000	.652
PSS3	1.000	.701
PSS4	1.000	.620
PSS5	1.000	.687
SeIf1	1.000	.449
Self2	1.000	.638
Self3	1.000	.627
Self4	1.000	.675
Self5	1.000	.712
Self6	1.000	.694
Self7	1.000	.656
Self8	1.000	.521
Self9	1.000	.632
Self10	1.000	.537
Self11	1.000	.672
Self12	1.000	.667

Extraction Method: Principal Component Analysis.

		RR1	RR2	RR3	RR4	RR5	RR7	RR8	RR10	PSS1	PSS2	PSS3	PSS4	PSS5	Self1	Self2	Self3	Self4	Self5	Self6	Self7	Self8	Self9	Self10	Self11	Self12
Anti-Image Correlation	RR1	.889[a]																								
	RR2	-.140	.866[a]																							
	RR3	-.108	-.040	.870[a]																						
	RR4	-.237	-.194	-.273	.819[a]																					
	RR5	-.075	-.042	-.096	-.047	.913[a]																				
	RR7	-.103	-.051	.113	-.079	-.231	.904[a]																			
	RR8	-.097	-.113	-.149	-.052	-.096	-.186	.917[a]																		
	RR10	-.099	.006	-.200	-.199	-.073	-.063	-.065	.896[a]																	
	PSS1	-.096	-.140	-.046	.027	-.007	-.092	.025	-.114	.876[a]																
	PSS2	.108	.127	.012	-.088	-.007	.050	-.077	-.080	-.505	.848[a]															
	PSS3	-.024	.151	-.116	.035	-.037	-.062	.054	-.042	-.222	.053	.787[a]														
	PSS4	.071	-.134	.093	-.087	-.041	.053	-.023	.031	-.097	-.106	-.363	.876[a]													
	PSS5	.004	-.071	.017	.077	-.007	-.022	-.177	.009	.023	-.265	-.442	-.093	.844[a]												
	Se1	.032	.025	-.017	.103	.007	.020	-.002	-.051	-.134	.024	-.135	.075	.122	.892[a]											
	Se2	.053	-.014	-.040	-.066	-.080	.069	.029	.027	.176	-.134	-.004	.066	-.086	-.227	.883[a]										
	Se3	.035	.087	.012	-.071	-.047	-.036	-.028	-.088	.035	.039	.009	-.046	.119	-.140	-.348	.899[a]									
	Se4	.030	.037	.013	-.075	.085	-.060	.115	-.001	-.045	.054	.092	-.076	-.079	-.137	-.193	-.144	.908[a]								
	Se5	-.145	-.082	.078	.039	-.006	.042	-.067	.158	.047	-.046	-.066	.148	-.051	-.036	-.009	-.225	-.140	.881[a]							
	Se6	.015	.027	-.013	.031	.135	-.042	.054	-.165	.019	.091	.028	-.040	-.040	-.093	-.114	.062	-.095	-.363	.882[a]						
	Se7	.064	-.073	-.104	.167	-.035	.068	-.105	-.052	.000	.004	-.004	-.048	.051	.055	-.056	-.015	-.218	-.286	-.295	.884[a]					
	Se8	-.096	.002	.024	.126	-.092	.058	.019	-.003	.014	-.072	.000	.049	-.010	.025	.061	-.035	-.120	.011	-.090	.044	.680[a]				
	Se9	.103	.060	.127	-.242	-.067	.030	.048	.068	-.093	.073	.045	-.068	-.059	-.017	.011	.019	.181	-.004	-.158	-.067	-.579	.662[a]			
	Se10	-.051	-.111	.045	.167	.087	.028	-.058	-.101	-.004	.007	-.196	.102	.120	.085	-.091	-.005	-.099	.020	-.001	.120	-.048	-.091	.738[a]		
	Se11	.035	.048	.063	-.179	.054	.015	.007	-.048	.055	.020	-.056	.087	-.034	-.084	-.029	-.006	.010	.025	.082	-.071	-.092	-.066	-.338	.743[a]	
	Se12	-.037	-.020	-.093	.178	.030	-.054	-.030	-.037	-.054	-.049	.230	-.125	-.069	.011	.031	.085	.007	-.013	.044	.065	.071	-.250	-.174	-.464	.776[a]

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	6.606	26.423	26.423	6.606	26.423	26.423	4.584	18.337	18.337
2	3.405	13.62	40.043	3.405	13.62	40.043	3.894	15.577	33.914
3	2.938	11.751	51.794	2.938	11.751	51.794	3.283	13.134	47.048
4	1.769	7.077	58.87	1.769	7.077	58.87	2.956	11.822	58.87
5	1.097	4.386	63.256						
6	0.9	3.602	66.858						
7	0.827	3.31	70.168						
8	0.679	2.718	72.885						
9	0.644	2.576	75.461						
10	0.616	2.466	77.927						
11	0.578	2.311	80.238						
12	0.549	2.197	82.434						
13	0.522	2.087	84.521						
14	0.497	1.989	86.511						
15	0.449	1.797	88.308						
16	0.424	1.695	90.002						
17	0.389	1.556	91.559						
18	0.364	1.456	93.015						
19	0.344	1.376	94.391						
20	0.298	1.193	95.584						
21	0.266	1.066	96.65						
22	0.237	0.947	97.596						
23	0.221	0.885	98.481						
24	0.198	0.791	99.273						
25	0.182	0.727	100						



Rotated Component Matrix[a]

	Component			
	1	2	3	4
RR1		.737		
RR2		.612		
RR3		.702		
RR4		.758		
RR5		.577		
RR7		.566		
RR8		.639		
RR10		.667		
PSS1			.708	
PSS2			.746	
PSS3			.814	
PSS4			.751	
PSS5			.800	
SeIf1	.664			
Self2	.788			
Self3	.762			
Self4	.806			
Self5	.828			
Self6	.812			
Self7	.801			
Self8				.690
Self9				.782
Self10				.732
Self11				.814
Self12				.762

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

APPENDIX 6

Factor Analysis of Psychological Conditions

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.873
Bartlett's Test of Sphericity	Approx. Chi-Square	1104.853
	df	66
	Sig.	.000

Communalities

	Initial	Extraction
PM1	1.000	.645
PM2	1.000	.666
PM3	1.000	.569
PM4	1.000	.645
PM5	1.000	.697
PM6	1.000	.610
PS2	1.000	.714
PS3	1.000	.694
PA1	1.000	.567
PA2	1.000	.647
PA3	1.000	.539
PA4	1.000	.424

Extraction Method: Principal Component Analysis.

Anti-image Matrices

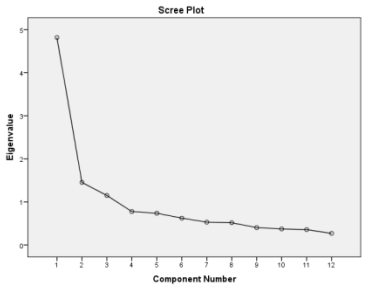
		PM1	PM2	PM3	PM4	PM5	PM6	PS2	PS3	PA1	PA2	PA3	PA4
Anti-image Correlation	PM1	.904[a]	-0.153	-0.209	-0.137	-0.09	-0.23	0.072	-0.144	0.077	-0.069	0.047	-0.077
	PM2	-0.153	.923[a]	-0.079	-0.2	-0.13	-0.277	-0.013	0.022	-0.045	-0.011	-0.067	-0.124
	PM3	-0.209	-0.079	.872[a]	-0.366	-0.098	0.055	-0.09	0.043	0.024	-0.07	0.003	0.035
	PM4	-0.137	-0.2	-0.366	.867[a]	-0.254	0.082	0.062	0.01	-0.073	0.082	-0.122	0.023
	PM5	-0.09	-0.13	-0.098	-0.254	.896[a]	-0.377	0.068	0.075	0.019	-0.027	0.057	-0.083
	PM6	-0.23	-0.277	0.055	0.082	-0.377	.873[a]	0.087	0.006	-0.068	-0.094	-0.056	0.017
	PS2	0.072	-0.013	-0.09	0.062	0.068	0.087	.780[a]	-0.364	0.068	0.035	-0.054	-0.067
	PS3	-0.144	0.022	0.043	0.01	0.075	0.006	-0.364	.747[a]	-0.083	0.108	0.103	0.14
	PA1	0.077	-0.045	0.024	-0.073	0.019	-0.068	0.068	-0.083	.837[a]	-0.341	-0.099	-0.121
	PA2	-0.069	-0.011	-0.07	0.082	-0.027	-0.094	0.035	0.108	-0.341	.850[a]	-0.272	-0.108
	PA3	0.047	-0.067	0.003	-0.122	0.057	-0.056	-0.054	0.103	-0.099	-0.272	.874[a]	-0.136
	PA4	-0.077	-0.124	0.035	0.023	-0.083	0.017	-0.067	0.14	-0.121	-0.108	-0.136	.908[a]

a. Measures of Sampling Adequacy(MSA)

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	4.817	40.144	40.144	4.817	40.144	40.144	3.593	29.942	29.942
2	1.453	12.105	52.249	1.453	12.105	52.249	2.319	19.328	49.270
3	1.149	9.572	61.820	1.149	9.572	61.820	1.506	12.550	61.820
4	.776	6.464	68.285						
5	.737	6.139	74.423						
6	.623	5.194	79.617						
7	.530	4.414	84.031						
8	.516	4.297	88.328						
9	.403	3.359	91.687						
10	.373	3.104	94.791						
11	.356	2.969	97.760						
12	.269	2.240	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix[a]

	Component		
	1	2	3
PM1	.792		
PM2	.745		
PM3	.748		
PM4	.783		
PM5	.772		
PM6	.682		
PS2			.824
PS3			.803
PA1		.744	
PA2		.761	
PA3		.711	
PA4		.594	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

APPENDIX 7

Factor Analysis of Work Engagement

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.875
Bartlett's Test of Sphericity	Approx. Chi-Square	1002.475
	df	78
	Sig.	.000

Communalities

	Initial	Extraction
EE1	1.000	.659
EE2	1.000	.567
EE3	1.000	.449
EE4	1.000	.582
EE5	1.000	.561
EE8	1.000	.600
EE9	1.000	.645
EE10	1.000	.411
EE12	1.000	.642
EE13	1.000	.584
EE14	1.000	.644
EE15	1.000	.510
EE17	1.000	.482

Extraction Method: Principal Component Analysis.

Anti-image Matrices

		EE1	EE2	EE3	EE4	EE5	EE8	EE9	EE10	EE12	EE13	EE14	EE15	EE17
Anti-image Correlation	EE1	.890[a]												
	EE2	-.300	.856[a]											
	EE3	-.122	-.048	.918[a]										
	EE4	-.186	.004	-.021	.865[a]									
	EE5	-.076	-.165	-.002	-.371	.878[a]								
	EE8	-.123	.037	-.086	-.136	.064	.891[a]							
	EE9	-.193	.076	-.157	-.058	-.183	-.237	.896[a]						
	EE10	-.112	-.146	-.012	-.086	-.030	.005	-.190	.896[a]					
	EE12	.014	.022	.082	-.090	-.034	.052	.078	-.069	.788[a]				
	EE13	.112	-.087	.005	.150	-.057	-.066	-.077	-.242	-.262	.801[a]			
	EE14	-.016	.004	-.137	-.003	-.018	-.117	-.130	.042	-.013	-.255	.886[a]		
	EE15	-.010	.024	.039	-.002	-.094	-.194	-.041	.029	-.095	-.028	-.244	.886[a]	
	EE17	-.028	-.249	-.018	-.115	.053	.050	-.084	.040	-.220	-.048	-.066	-.187	.869[a]

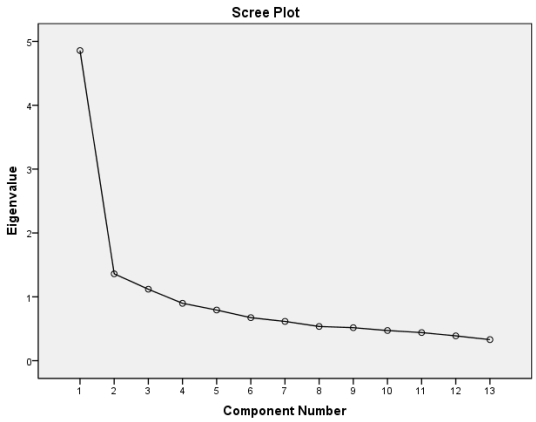
a. Measures of Sampling Adequacy(MSA)

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	4.856	37.358	37.358	4.856	37.358	37.358	2.939	22.609	22.609
2	1.360	10.465	47.822	1.360	10.465	47.822	2.407	18.513	41.122
3	1.119	8.610	56.433	1.119	8.610	56.433	1.990	15.311	56.433
4	.898	6.911	63.344						
5	.793	6.100	69.444						
6	.674	5.184	74.628						
7	.615	4.730	79.358						
8	.536	4.124	83.481						
9	.517	3.974	87.455						
10	.472	3.634	91.089						
11	.440	3.383	94.472						
12	.388	2.988	97.460						
13	.330	2.540	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix[a]

	Component		
	1	2	3
WE1	.735		
WE4	.721		
WE2	.709		
WE5	.698		
WE10	.533		
WE8		.736	
WE14		.678	
WE9		.624	
WE3		.585	
WE15		.541	
WE12			.778
WE13			.700
WE17			.547

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

APPENDIX 8

Reliability Analysis for Variables

1. Job-Personal Resources

Reliability Statistics

Cronbach's Alpha	N of Items
.720	25

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
RR1	79.2709	46.962	0.269	0.711
RR2	78.9124	48.163	0.247	0.713
RR3	79.3969	47.015	0.301	0.708
RR4	79.2551	47.318	0.302	0.709
RR5	79.0065	48.591	0.263	0.712
RR7	78.9359	49.051	0.214	0.715
RR8	79.1488	47.716	0.343	0.707
RR10	79.3339	45.477	0.443	0.697
PSS1	79.0692	47.869	0.345	0.707
PSS2	79.0653	48.235	0.315	0.709
PSS3	79.0898	47.241	0.359	0.705
PSS4	78.9555	48.522	0.244	0.713
PSS5	79.0346	47.541	0.365	0.706
Se1	80.4992	47.464	0.216	0.716
Se2	80.7477	47.146	0.245	0.713
Se3	80.6222	47.616	0.199	0.718
Se4	80.5976	47.557	0.232	0.714
Se5	80.7666	47.251	0.235	0.714
Se6	80.4849	47.111	0.266	0.711
Se7	80.5307	47.004	0.243	0.714
Se8	79.3575	47.584	0.225	0.715
Se9	79.1398	47.779	0.232	0.714
Se10	79.1712	48.994	0.173	0.717
Se11	79.0622	48.897	0.213	0.715
Se12	79.0307	49.472	0.121	0.721

a. Reward and recognition

Reliability Statistics

Cronbach's Alpha	N of Items
.834	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
RR1	25.9854	12.219	.604	.811
RR2	25.6269	13.736	.495	.823
RR3	26.1114	12.701	.589	.812
RR4	25.9697	12.630	.664	.801
RR5	25.7210	14.194	.519	.821
RR7	25.6504	14.326	.501	.823
RR8	25.8634	13.725	.585	.813
RR10	26.0484	12.800	.574	.814

b. Perceived supervisor support

Reliability Statistics

Cronbach's Alpha	N of Items
.872	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PSS1	15.2690	4.610	.720	.840
PSS2	15.2650	4.734	.698	.845
PSS3	15.2895	4.320	.714	.842
PSS4	15.1552	4.591	.661	.854
PSS5	15.2344	4.550	.705	.843

c. Self-inefficacy

Reliability Statistics

Cronbach's Alpha	N of Items
.901	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Se1	13.3716	21.281	.571	.902
Se2	13.6200	20.182	.723	.885
Se3	13.4945	20.211	.697	.888
Se4	13.4700	20.357	.751	.882
Se5	13.6390	19.792	.772	.879
Se6	13.3573	20.395	.739	.884
Se7	13.4031	19.977	.720	.886

d. Self-efficacy

Reliability Statistics

Cronbach's Alpha	N of Items
.809	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Se8	15.0103	5.334	.538	.798
Se9	14.7926	5.101	.673	.748
Se10	14.8239	5.991	.548	.787
Se11	14.7149	5.932	.658	.760
Se12	14.6834	5.778	.608	.770

2. Psychological Conditions

Reliability Statistics

Cronbach's Alpha	N of Items
.759	12

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PM1	39.758	11.473	0.607	0.717
PM2	39.8364	11.214	0.68	0.708
PM3	39.9933	11.412	0.533	0.725
PM4	39.8913	11.512	0.615	0.716
PM5	39.7658	11.768	0.644	0.717
PM6	39.6434	11.379	0.621	0.715
PS2	41.8051	15.201	-0.248	0.806
PS3	41.6631	15.222	-0.245	0.811
PA1	40.1502	12.202	0.387	0.744
PA2	39.9698	12.358	0.486	0.734
PA3	40.1266	12.391	0.413	0.741
PA4	40.0292	12.47	0.417	0.741

a. Psychological Meaningfulness

Reliability Statistics

Cronbach's Alpha	N of Items
.874	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PM1	20.2480	6.076	.677	.853
PM2	20.3264	5.978	.719	.846
PM3	20.4833	5.992	.601	.869
PM4	20.3813	6.088	.694	.850
PM5	20.2558	6.271	.739	.845
PM6	20.1333	6.077	.663	.855

b. Psychological Safety

Reliability Statistics

Cronbach's Alpha	N of Items
.578	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PS2	2.2126	.380	.407	.
PS3	2.0706	.326	.407	.

c. Psychological Availability

Reliability Statistics

Cronbach's Alpha	N of Items
.711	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PA1	11.5014	1.644	.493	.657
PA2	11.3210	1.801	.597	.596
PA3	11.4778	1.809	.491	.653
PA4	11.3804	1.937	.430	.688

3. Work Engagement

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.848	.853	14

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EE1	48.6613	25.861	.593	.487	.833
EE2	48.5161	26.534	.500	.378	.838
EE4	48.5605	26.191	.540	.449	.836
EE5	48.4677	26.347	.556	.441	.835
EE10	48.3226	26.357	.504	.334	.838
EE3	48.5282	26.436	.407	.243	.844
EE8	48.9153	25.859	.512	.370	.837
EE9	48.6774	25.442	.649	.516	.829
EE14	48.8629	25.520	.565	.396	.834
EE15	48.7177	26.090	.510	.336	.837
EE12	48.5161	27.036	.347	.278	.848
EE13	48.4677	26.517	.458	.356	.840
EE16	48.8710	27.084	.287	.187	.853
EE17	48.5806	26.431	.531	.362	.836

a. Dedication

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.789	.790	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EE1	15.5850	3.387	.634	.413	.727
EE2	15.4427	3.621	.541	.319	.758
EE4	15.4862	3.481	.588	.406	.743
EE5	15.3913	3.557	.601	.398	.739
EE10	15.2490	3.680	.476	.230	.779

b. Absorption

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.753	.756	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EE3	14.2520	4.374	.405	.199	.752
EE8	14.6400	4.047	.563	.340	.693
EE9	14.4040	4.153	.610	.384	.680
EE14	14.5920	4.066	.559	.330	.695
EE15	14.4480	4.361	.476	.277	.725

c. Vigor

Reliability Statistics

Cronbach's Alpha	N of Items
.598	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EE12	7.6614	1.039	.448	.432
EE13	7.6220	1.153	.398	.510
EE17	7.7244	1.299	.378	.539

APPENDIX 9

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NRR	255	2.13	5.00	3.6995	.50357
NPSS	255	2.20	5.00	3.8126	.52391
NSin	255	1.00	4.43	2.2457	.73864
NSc	255	2.00	5.00	3.6948	.57515
NPM	255	2.83	5.00	4.0604	.48700
NPA	255	2.75	5.00	3.8061	.42678
NDe	255	2.40	5.00	3.8577	.45696
NAb	255	1.80	5.00	3.6168	.49234
NVi	255	2.67	5.00	3.8346	.49117
Valid N (listwise)	255				

APPENDIX 10

Correlations

		RR	PSS	Self_in	Self_e	PM	PS	PA	De	Ab	Vi
RR	Pearson Correlation	1	.473**	-.274**	-.044	.296**	-.643**	.260**	.424**	.473**	.302**
	Sig. (2-tailed)		.000	.000	.489	.000	.000	.000	.000	.000	.000
	N	255	255	255	255	255	255	255	255	255	255
PSS	Pearson Correlation	.473**	1	-.281**	.116	.413**	-.524**	.328**	.379**	.239**	.210**
	Sig. (2-tailed)	.000		.000	.064	.000	.000	.000	.000	.000	.001
	N	255	255	255	255	255	255	255	255	255	255
Self_in	Pearson Correlation	-.274**	-.281**	1	-.069	-.385**	.214**	-.318**	-.328**	-.222**	-.183**
	Sig. (2-tailed)	.000	.000		.273	.000	.001	.000	.000	.000	.003
	N	255	255	255	255	255	255	255	255	255	255
Self_e	Pearson Correlation	-.044	.116	-.069	1	.308**	.011	.248**	.234**	.071	.186**
	Sig. (2-tailed)	.489	.064	.273		.000	.859	.000	.000	.256	.003
	N	255	255	255	255	255	255	255	255	255	255
PM	Pearson Correlation	.296**	.413**	-.385**	.308**	1	-.313**	.484**	.599**	.312**	.306**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	255	255	255	255	255	255	255	255	255	255
PS	Pearson Correlation	-.643**	-.524**	.214**	.011	-.313**	1	-.306**	-.335**	-.286**	-.223**
	Sig. (2-tailed)	.000	.000	.001	.859	.000		.000	.000	.000	.000
	N	255	255	255	255	255	255	255	255	255	255
PA	Pearson Correlation	.260**	.328**	-.318**	.248**	.484**	-.306**	1	.429**	.411**	.365**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	255	255	255	255	255	255	255	255	255	255
De	Pearson Correlation	.424**	.379**	-.328**	.234**	.599**	-.335**	.429**	1	.601**	.442**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	255	255	255	255	255	255	255	255	255	255
Ab	Pearson Correlation	.473**	.239**	-.222**	.071	.312**	-.286**	.411**	.601**	1	.445**
	Sig. (2-tailed)	.000	.000	.000	.256	.000	.000	.000	.000		.000
	N	255	255	255	255	255	255	255	255	255	255
Vi	Pearson Correlation	.302**	.210**	-.183**	.186**	.306**	-.223**	.365**	.442**	.445**	1
	Sig. (2-tailed)	.000	.001	.003	.003	.000	.000	.000	.000	.000	
	N	255	255	255	255	255	255	255	255	255	255

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 11

Regression Analysis of Job-personal Resources and Dedication

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	TWN, Department, Sex, Education, Status, Position, TWH, Age[b]	.	Enter
2	NRR, NSc, NSin, NPSS[b]	.	Enter

a. Dependent Variable: NDe

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.197[a]	0.039	0.008	0.4552	0.039	1.246	8	246	0.273	
2	.561[b]	0.315	0.281	0.38744	0.276	24.391	4	242	0	1.675

a. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

c. Dependent Variable: NDe

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.065	8	0.258	1.246	.273[b]
	Residual	50.972	246	0.207		
	Total	53.037	254			
2	Regression	16.71	12	1.393	9.277	.000[c]
	Residual	36.327	242	0.15		
	Total	53.037	254			

a. Dependent Variable: NDe

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

c. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.259	0.391		8.34	0			
	Sex	0.088	0.142	0.039	0.616	0.539	0.039	0.039	0.038
	Age	0.031	0.043	0.081	0.709	0.479	0.074	0.045	0.044
	Status	0.012	0.064	0.013	0.188	0.851	0.046	0.012	0.012
	Education	0.181	0.127	0.096	1.423	0.156	0.095	0.09	0.089
	Department	0.001	0.011	0.008	0.119	0.905	0.023	0.008	0.007
	Position	0.033	0.055	0.049	0.591	0.555	0.021	0.038	0.037
	TWH	-0.115	0.056	-0.234	-2.055	0.041	-0.039	-0.13	-0.128
	TWN	0.082	0.059	0.18	1.387	0.167	0.063	0.088	0.087
2	(Constant)	1.492	0.468		3.19	0.002			
	Sex	0.12	0.121	0.053	0.984	0.326	0.039	0.063	0.052
	Age	0.031	0.037	0.082	0.834	0.405	0.074	0.054	0.044
	Status	0.034	0.055	0.038	0.621	0.535	0.046	0.04	0.033
	Education	0.099	0.109	0.053	0.912	0.362	0.095	0.059	0.049
	Department	0.003	0.01	0.018	0.339	0.735	0.023	0.022	0.018
	Position	0.01	0.048	0.015	0.207	0.836	0.021	0.013	0.011
	TWH	-0.049	0.048	-0.099	-1.008	0.314	-0.039	-0.065	-0.054
	TWN	0.002	0.051	0.005	0.042	0.967	0.063	0.003	0.002
	NRR	0.283	0.057	0.312	4.974	0	0.424	0.305	0.265
	NPSS	0.138	0.055	0.158	2.494	0.013	0.379	0.158	0.133
	NSin	-0.101	0.036	-0.164	-2.794	0.006	-0.328	-0.177	-0.149
	NSc	0.168	0.043	0.212	3.864	0	0.234	0.241	0.206

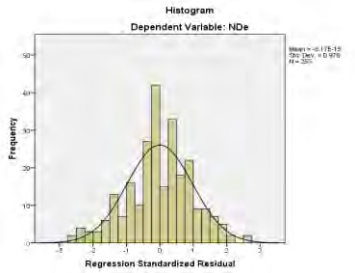
a. Dependent Variable: NDe

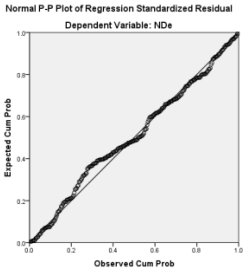
Excluded Variables[a]

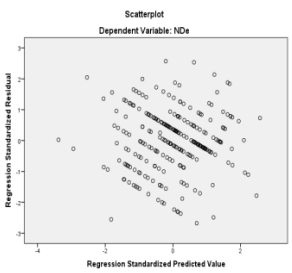
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	NRR	.419[b]	7.312	0	0.423	0.982
	NPSS	.374[b]	6.322	0	0.375	0.962
	NSin	-.307[b]	-4.928	0	-0.3	0.919
	NSc	.218[b]	3.52	0.001	0.219	0.974

a. Dependent Variable: NDe

b. Predictors in the Model: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age







APPENDIX 12

Regression Analysis of Job-personal Resources and Absorption

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	TWN, Department, Sex, Education, Status, Position, TWH, Age[b]	.	Enter
2	NRR, NSc, NSin, NPSS[b]	.	Enter

a. Dependent Variable: NAb

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.203[a]	0.041	0.01	0.48985	0.041	1.324	8	246	0.232	
2	.524[b]	0.275	0.239	0.42961	0.233	19.454	4	242	0	1.597

a. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

c. Dependent Variable: NAb

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.542	8	0.318	1.324	.232[b]
	Residual	59.028	246	0.24		
	Total	61.569	254			
2	Regression	16.904	12	1.409	7.632	.000[c]
	Residual	44.665	242	0.185		
	Total	61.569	254			

a. Dependent Variable: NAb

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

c. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

Coefficients[a]

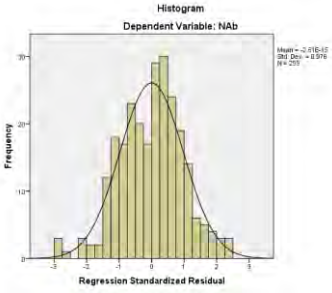
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.47	0.42		8.253	0			
	Sex	0.136	0.153	0.056	0.885	0.377	0.054	0.056	0.055
	Age	0.026	0.046	0.064	0.558	0.577	0.108	0.036	0.035
	Status	-0.004	0.069	-0.004	-0.056	0.955	0.057	-0.004	-0.004
	Education	0.066	0.137	0.033	0.486	0.627	0.078	0.031	0.03
	Department	0.02	0.012	0.105	1.66	0.098	0.113	0.105	0.104
	Position	-0.083	0.06	-0.116	-1.397	0.164	-0.117	-0.089	-0.087
	TWH	-0.084	0.06	-0.158	-1.393	0.165	0.037	-0.088	-0.087
	TWN	0.05	0.064	0.102	0.786	0.432	0.094	0.05	0.049
2	(Constant)	1.851	0.519		3.568	0			
	Sex	0.165	0.135	0.068	1.223	0.223	0.054	0.078	0.067
	Age	0.043	0.041	0.105	1.038	0.3	0.108	0.067	0.057
	Status	0	0.061	0	-0.003	0.998	0.057	0	0
	Education	-0.008	0.12	-0.004	-0.066	0.948	0.078	-0.004	-0.004
	Department	0.021	0.011	0.109	1.947	0.053	0.113	0.124	0.107
	Position	-0.087	0.053	-0.122	-1.634	0.104	-0.117	-0.104	-0.089
	TWH	-0.041	0.054	-0.078	-0.769	0.443	0.037	-0.049	-0.042
	TWN	-0.019	0.057	-0.039	-0.335	0.738	0.094	-0.022	-0.018
	NRR	0.438	0.063	0.448	6.936	0	0.473	0.407	0.38
	NPSS	0.011	0.061	0.011	0.173	0.863	0.239	0.011	0.009
	NSin	-0.06	0.04	-0.089	-1.481	0.14	-0.222	-0.095	-0.081
	NSc	0.065	0.048	0.076	1.35	0.178	0.071	0.086	0.074

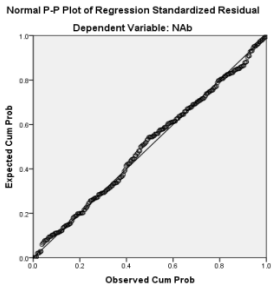
a. Dependent Variable: NAb

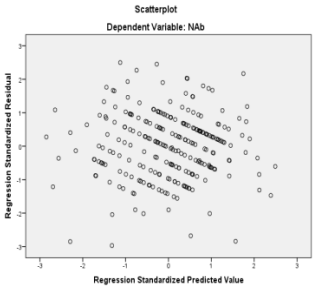
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8814	4.2597	3.6168	0.25798	255
Residual	-1.2763	1.07388	0	0.41934	255
Std. Predicted Value	-2.851	2.492	0	1	255
Std. Residual	-2.971	2.5	0	0.976	255

a. Dependent Variable: NAb







APPENDIX 13

Regression Analysis of Job-personal Resources and Vigor

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	TWN, Department, Sex, Education, Status, Position, TWH, Age[b]	.	Enter
2	NRR, NSc, NSin, NPSS[b]	.	Enter

a. Dependent Variable: NVi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.163[a]	0.026	-0.005	0.49246	0.026	0.834	8	246	0.573	
2	.398[b]	0.158	0.116	0.4617	0.132	9.466	4	242	0	1.672

a. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

c. Dependent Variable: NVi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.619	8	0.202	0.834	.573[b]
	Residual	59.658	246	0.243		
	Total	61.277	254			
2	Regression	9.69	12	0.807	3.788	.000[c]
	Residual	51.587	242	0.213		
	Total	61.277	254			

a. Dependent Variable: NVi

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

c. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

Coefficients[a]

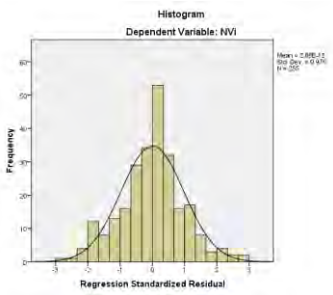
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.156	0.423		7.466	0			
	Sex	0.052	0.154	0.021	0.336	0.737	0.019	0.021	0.021
	Age	0.014	0.047	0.035	0.302	0.763	0.047	0.019	0.019
	Status	-0.003	0.069	-0.003	-0.041	0.967	0.014	-0.003	-0.003
	Education	0.307	0.137	0.152	2.232	0.026	0.148	0.141	0.14
	Department	0.001	0.012	0.004	0.067	0.947	0.011	0.004	0.004
	Position	0.008	0.06	0.011	0.127	0.899	-0.022	0.008	0.008
	TWH	-0.051	0.061	-0.096	-0.839	0.402	-0.009	-0.053	-0.053
	TWN	0.023	0.064	0.047	0.36	0.719	0.025	0.023	0.023
2	(Constant)	1.657	0.557		2.972	0.003			
	Sex	0.085	0.145	0.035	0.588	0.557	0.019	0.038	0.035
	Age	0.023	0.044	0.056	0.512	0.609	0.047	0.033	0.03
	Status	0.006	0.065	0.006	0.086	0.932	0.014	0.005	0.005
	Education	0.252	0.129	0.125	1.947	0.053	0.148	0.124	0.115
	Department	0.001	0.012	0.006	0.098	0.922	0.011	0.006	0.006
	Position	0.005	0.057	0.007	0.082	0.935	-0.022	0.005	0.005
	TWH	-0.002	0.058	-0.003	-0.031	0.976	-0.009	-0.002	-0.002
	TWN	-0.04	0.061	-0.082	-0.657	0.512	0.025	-0.042	-0.039
	NRR	0.264	0.068	0.27	3.891	0	0.302	0.243	0.229
	NPSS	0.034	0.066	0.036	0.518	0.605	0.21	0.033	0.031
	NSin	-0.05	0.043	-0.076	-1.167	0.245	-0.183	-0.075	-0.069
	NSc	0.162	0.052	0.19	3.125	0.002	0.186	0.197	0.184

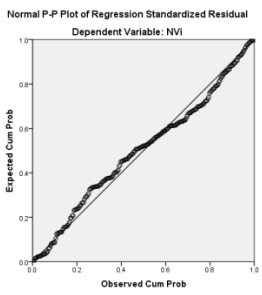
a. Dependent Variable: NVi

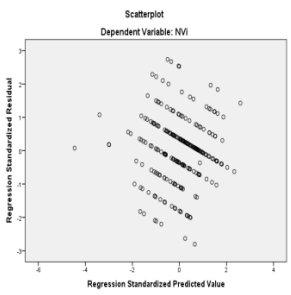
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9643	4.3404	3.8346	0.19532	255
Residual	-1.29527	1.2643	0	0.45067	255
Std. Predicted Value	-4.456	2.59	0	1	255
Std. Residual	-2.805	2.738	0	0.976	255

a. Dependent Variable: NVi







APPENDIX 14
Regression Analysis of Psychological Conditions and Dedication

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	PS, PM, PA[b]	.	Enter

a. Dependent Variable: De

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.198[a]	.039	.008	.45698	.039	1.247	8	244	.272
2	.647[b]	.419	.392	.35773	.379	52.392	3	241	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

c. Dependent Variable: De

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.083	8	.260	1.247	.272[b]
	Residual	50.954	244	.209		
	Total	53.037	252			
2	Regression	22.197	11	2.018	15.769	.000[c]
	Residual	30.840	241	.128		
	Total	53.037	252			

a. Dependent Variable: De

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

Coefficients[a]

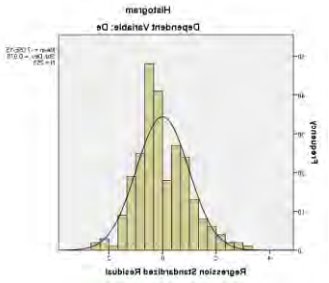
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.234	.402		8.042	.000					
	Sex	.090	.143	.040	.628	.531	.039	.040	.039	.970	1.030
	Age	.032	.044	.084	.730	.466	.074	.047	.046	.298	3.354
	Status	.010	.065	.011	.157	.875	.046	.010	.010	.783	1.277
	Edu	.190	.132	.098	1.444	.150	.099	.092	.091	.859	1.165
	Post	.034	.056	.052	.612	.541	.021	.039	.038	.550	1.818
	TWH	-.114	.057	-.230	-2.007	.046	-.040	-.127	-.126	.301	3.328
	TWN	.081	.060	.176	1.344	.180	.063	.086	.084	.229	4.373
	Department	.001	.011	.006	.092	.927	.023	.006	.006	.981	1.019
2	(Constant)	1.737	.409		4.252	.000					
	Sex	.047	.113	.021	.421	.674	.039	.027	.021	.960	1.042
	Age	.000	.034	-.001	-.006	.995	.074	.000	.000	.294	3.398
	Status	-.052	.051	-.056	-1.012	.313	.046	-.065	-.050	.775	1.290
	Edu	.068	.105	.035	.646	.519	.099	.042	.032	.830	1.205
	Post	-.075	.045	-.113	-1.675	.095	.021	-.107	-.082	.527	1.896
	TWH	-.046	.045	-.093	-1.023	.307	-.040	-.066	-.050	.291	3.442
	TWN	.036	.047	.079	.765	.445	.063	.049	.038	.226	4.422
	Department	.001	.009	.003	.057	.955	.023	.004	.003	.947	1.056
	PM	.464	.055	.493	8.401	.000	.601	.476	.413	.700	1.428
	PS	-.135	.050	-.146	-2.685	.008	-.337	-.170	-.132	.812	1.232
	PA	.162	.063	.150	2.554	.011	.432	.162	.125	.699	1.431

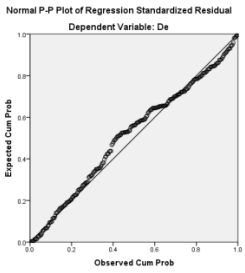
a. Dependent Variable: De

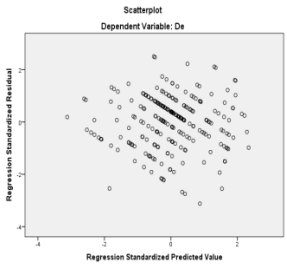
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9327	4.5510	3.8577	.29679	253
Residual	-1.11630	.89479	.00000	.34983	253
Std. Predicted Value	-3.117	2.336	.000	1.000	253
Std. Residual	-3.121	2.501	.000	.978	253

a. Dependent Variable: De







APPENDIX 15

Regression Analysis of Psychological Conditions and Absorption

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	PS, PM, PA[b]	.	Enter

a. Dependent Variable: Ab

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.204[a]	.042	.010	.49482	.042	1.307	8	241	.241
2	.511[b]	.262	.227	.43706	.220	23.639	3	238	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

c. Dependent Variable: Ab

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.56	8	0.32	1.307	.241[b]
	Residual	59.009	241	0.245		
	Total	61.569	249			
2	Regression	16.107	11	1.464	7.665	.000[c]
	Residual	45.463	238	0.191		
	Total	61.569	249			

a. Dependent Variable: Ab

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

Coefficients[a]

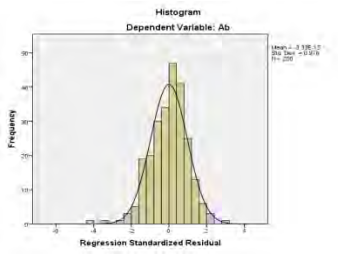
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.474	.435		7.996	.000					
	Sex	.136	.155	.056	.876	.382	.055	.056	.055	.971	1.030
	Age	.025	.047	.062	.538	.591	.109	.035	.034	.296	3.376
	Status	-.003	.070	-.003	-.037	.971	.058	-.002	-.002	.784	1.275
	Edu	.064	.143	.030	.447	.655	.081	.029	.028	.858	1.165
	Post	-.084	.061	-.117	-1.387	.167	-.117	-.089	-.087	.558	1.794
	TWH	-.085	.061	-.159	-1.382	.168	.038	-.089	-.087	.301	3.326
	TWN	.051	.065	.104	.788	.432	.094	.051	.050	.229	4.368
	Department	.020	.012	.105	1.650	.100	.114	.106	.104	.980	1.020
2	(Constant)	2.649	.499		5.304	.000					
	Sex	.073	.138	.030	.529	.597	.055	.034	.029	.960	1.042
	Age	.014	.042	.035	.339	.735	.109	.022	.019	.293	3.416
	Status	-.045	.062	-.045	-.717	.474	.058	-.046	-.040	.776	1.288
	Edu	-.078	.128	-.037	-.608	.544	.081	-.039	-.034	.830	1.205
	Post	-.167	.055	-.233	-3.064	.002	-.117	-.195	-.171	.538	1.858
	TWH	-.036	.055	-.068	-.658	.511	.038	-.043	-.037	.289	3.459
	TWN	-.002	.058	-.004	-.035	.972	.094	-.002	-.002	.226	4.426
	Department	.023	.011	.119	2.071	.039	.114	.133	.115	.944	1.059
	PM	.134	.068	.132	1.976	.049	.314	.127	.110	.696	1.437
	PS	-.192	.062	-.192	-3.110	.002	-.289	-.198	-.173	.814	1.228
	PA	.357	.078	.308	4.601	.000	.412	.286	.256	.691	1.447

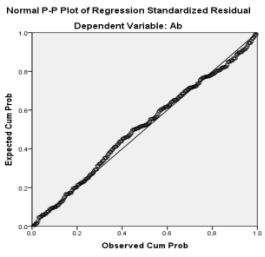
a. Dependent Variable: Ab

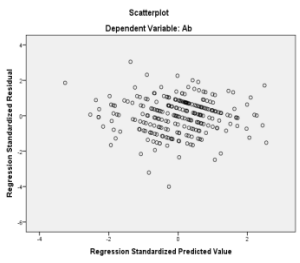
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.7871	4.264	3.6168	0.25433	250
Residual	-1.74936	1.33263	0	0.4273	250
Std. Predicted Value	-3.262	2.545	0	1	250
Std. Residual	-4.003	3.049	0	0.978	250

a. Dependent Variable: Ab







APPENDIX 16

Regression Analysis of Psychological Conditions and Vigor

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	PS, PM, PA[b]	.	Enter

a. Dependent Variable: Vi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.166[a]	.028	-.004	.49390	.028	.866	8	243	.546
2	.424[b]	.180	.142	.45652	.152	14.808	3	240	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

c. Dependent Variable: Vi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.69	8	0.211	0.866	.546[b]
	Residual	59.277	243	0.244		
	Total	60.967	251			
2	Regression	10.948	11	0.995	4.776	.000[c]
	Residual	50.019	240	0.208		
	Total	60.967	251			

a. Dependent Variable: Vi

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, PS, PM, PA

Coefficients[a]

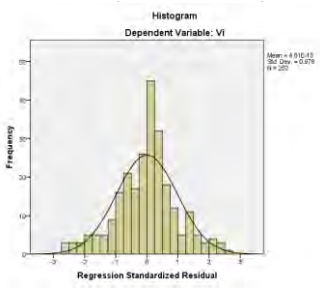
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.125	.428		7.296	.000					
	Sex	.071	.161	.028	.440	.660	.026	.028	.028	.975	1.026
	Age	.014	.047	.034	.294	.769	.050	.019	.019	.294	3.401
	Status	-.012	.070	-.012	-.169	.866	.010	-.011	-.011	.777	1.288
	Edu	.307	.138	.152	2.225	.027	.149	.141	.141	.857	1.167
	Post	.012	.060	.016	.192	.848	-.019	.012	.012	.562	1.779
	TWH	-.055	.061	-.104	-.903	.367	-.008	-.058	-.057	.303	3.299
	TWN	.033	.065	.067	.507	.613	.032	.032	.032	.228	4.378
	Department	.002	.012	.008	.130	.897	.016	.008	.008	.984	1.016
2	(Constant)	2.177	.520		4.186	.000					
	Sex	-.001	.150	.000	-.007	.994	.026	.000	.000	.963	1.038
	Age	.001	.044	.003	.029	.977	.050	.002	.002	.291	3.438
	Status	-.040	.065	-.041	-.612	.541	.010	-.039	-.036	.771	1.296
	Edu	.172	.130	.085	1.325	.186	.149	.085	.077	.826	1.210
	Post	-.063	.057	-.088	-1.107	.269	-.019	-.071	-.065	.540	1.853
	TWH	-.009	.057	-.017	-.160	.873	-.008	-.010	-.009	.292	3.429
	TWN	-.012	.061	-.024	-.198	.843	.032	-.013	-.012	.225	4.440
	Department	.002	.012	.010	.170	.865	.016	.011	.010	.949	1.054
	PM	.160	.071	.159	2.267	.024	.305	.145	.133	.696	1.436
	PS	-.100	.064	-.101	-1.554	.122	-.220	-.100	-.091	.812	1.231
	PA	.298	.081	.259	3.691	.000	.368	.232	.216	.695	1.440

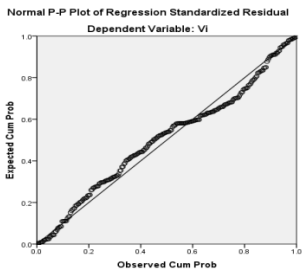
a. Dependent Variable: Vi

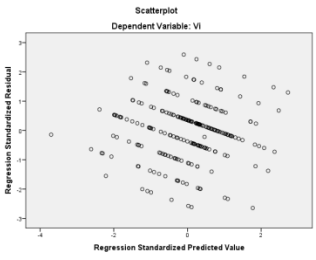
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.0652	4.4078	3.838	0.20885	252
Residual	-1.20828	1.183	0	0.44641	252
Std. Predicted Value	-3.7	2.728	0	1	252
Std. Residual	-2.647	2.591	0	0.978	252

a. Dependent Variable: Vi







APPENDIX 17

Regression Analysis of Job-personal Resources and Psychological Meaningfulness

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	TWN, Department, Sex, Education, Status, Position, TWH, Age[b]	.	Enter
2	NRR, NSc, NSin, NPSS[b]	.	Enter

a. Dependent Variable: NPM

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.289[a]	0.084	0.054	0.47367	0.084	2.813	8	246	0.005	
2	.605[b]	0.366	0.335	0.39723	0.282	26.945	4	242	0	1.726

a. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

c. Dependent Variable: NPM

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.049	8	0.631	2.813	.005[b]
	Residual	55.192	246	0.224		
	Total	60.241	254			
2	Regression	22.056	12	1.838	11.648	.000[c]
	Residual	38.186	242	0.158		
	Total	60.241	254			

a. Dependent Variable: NPM

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

c. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

Coefficients[a]

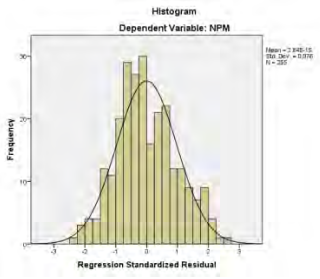
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.13	0.407		7.699	0			
	Sex	0.051	0.148	0.021	0.342	0.733	0.016	0.022	0.021
	Age	0.064	0.045	0.16	1.432	0.153	0.017	0.091	0.087
	Status	0.085	0.067	0.088	1.274	0.204	0.063	0.081	0.078
	Education	0.155	0.132	0.077	1.17	0.243	0.037	0.074	0.071
	Department	0.007	0.012	0.038	0.611	0.541	0.051	0.039	0.037
	Position	0.149	0.058	0.21	2.589	0.01	0.17	0.163	0.158
	TWH	-0.133	0.058	-0.253	-2.277	0.024	-0.146	-0.144	-0.139
	TWN	0.051	0.062	0.104	0.822	0.412	-0.019	0.052	0.05
2	(Constant)	1.508	0.48		3.145	0.002			
	Sex	0.079	0.124	0.033	0.634	0.526	0.016	0.041	0.032
	Age	0.048	0.038	0.121	1.272	0.205	0.017	0.081	0.065
	Status	0.122	0.056	0.126	2.163	0.032	0.063	0.138	0.111
	Education	0.069	0.111	0.034	0.62	0.536	0.037	0.04	0.032
	Department	0.01	0.01	0.051	0.978	0.329	0.051	0.063	0.05
	Position	0.108	0.049	0.152	2.177	0.03	0.17	0.139	0.111
	TWH	-0.052	0.05	-0.099	-1.042	0.298	-0.146	-0.067	-0.053
	TWN	-0.032	0.053	-0.065	-0.599	0.55	-0.019	-0.038	-0.031
	NRR	0.129	0.058	0.134	2.215	0.028	0.296	0.141	0.113
	NPSS	0.237	0.057	0.255	4.185	0	0.413	0.26	0.214
	NSin	-0.145	0.037	-0.22	-3.902	0	-0.385	-0.243	-0.2
	NSc	0.223	0.045	0.263	4.996	0	0.308	0.306	0.256

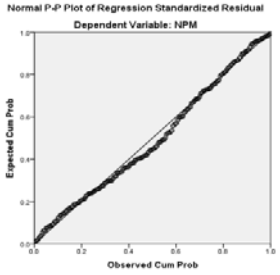
a. Dependent Variable: NPM

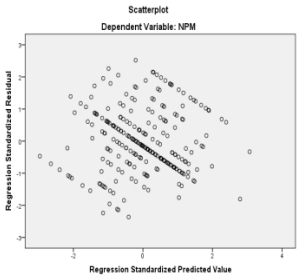
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.1868	4.9647	4.0604	0.29467	255
Residual	-0.93943	1.00139	0	0.38773	255
Std. Predicted Value	-2.964	3.069	0	1	255
Std. Residual	-2.365	2.521	0	0.976	255

a. Dependent Variable: NPM







APPENDIX 18

Regression Analysis of Job-personal Resources and Psychological Safety

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SMEAN (Department), Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, Self_e, Self_in, PSS[b]	.	Enter

a. Dependent Variable: PS

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.236[a]	.056	.025	.49096	.056	1.811	8	246	.075
2	.717[b]	.514	.490	.35497	.459	57.143	4	242	.000

a. Predictors: (Constant), SMEAN(Department), Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), SMEAN(Department), Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, Self_in, PSS

c. Dependent Variable: PS

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.493	8	.437	1.811	.075[b]
	Residual	59.296	246	.241		
	Total	62.788	254			
2	Regression	32.295	12	2.691	21.358	.000[c]
	Residual	30.494	242	.126		
	Total	62.788	254			

a. Dependent Variable: PS

b. Predictors: (Constant), SMEAN(Department), Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), SMEAN(Department), Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, Self_in, PSS

Coefficients[a]

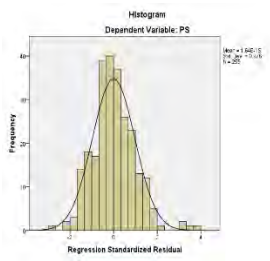
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.696	.421		6.397	.000					
	Sex	.040	.154	.016	.262	.794	.003	.017	.016	.972	1.029
	Age	.015	.046	.036	.313	.755	-.061	.020	.019	.298	3.351
	Status	-.068	.069	-.069	-.991	.323	-.075	-.063	-.061	.784	1.275
	Edu	-.079	.137	-.038	-.574	.566	-.021	-.037	-.036	.857	1.167
	Post	-.120	.060	-.166	-2.015	.045	-.045	-.127	-.125	.564	1.774
	TWH	-.050	.060	-.093	-.828	.409	-.087	-.053	-.051	.302	3.307
	TWN	-.052	.064	-.105	-.811	.418	-.099	-.052	-.050	.231	4.331
	SMEAN(Department)	.031	.012	.159	2.539	.012	.162	.160	.157	.981	1.019
2	(Constant)	5.350	.429		12.484	.000					
	Sex	.018	.111	.007	.163	.870	.003	.011	.007	.968	1.033
	Age	-.005	.034	-.011	-.136	.892	-.061	-.009	-.006	.290	3.449
	Status	-.091	.050	-.092	-1.803	.073	-.075	-.115	-.081	.776	1.289
	Edu	.010	.099	.005	.105	.917	-.021	.007	.005	.849	1.177
	Post	-.107	.044	-.148	-2.434	.016	-.045	-.155	-.109	.540	1.851
	TWH	-.091	.044	-.169	-2.040	.042	-.087	-.130	-.091	.292	3.420
	TWN	.028	.047	.055	.585	.559	-.099	.038	.026	.224	4.468
	SMEAN(Department)	.022	.009	.116	2.523	.012	.162	.160	.113	.956	1.046
	RR	-.508	.052	-.515	-9.754	.000	-.643	-.531	-.437	.720	1.389
	PSS	-.254	.051	-.267	-5.021	.000	-.524	-.307	-.225	.708	1.412
	Self_in	.003	.033	.004	.082	.934	.214	.005	.004	.824	1.213
	Self_e	.005	.040	.006	.133	.894	.011	.009	.006	.944	1.059

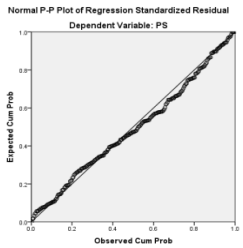
a. Dependent Variable: PS

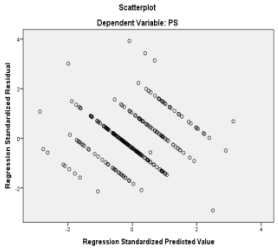
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.117	3.2567	2.1398	0.35657	255
Residual	-1.03125	1.39323	0	0.34649	255
Std. Predicted Value	-2.868	3.133	0	1	255
Std. Residual	-2.905	3.925	0	0.976	255

a. Dependent Variable: PS







APPENDIX 19

Regression Analysis of Job-personal Resources and Psychological Availability

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	TWN, Department, Sex, Education, Status, Position, TWH, Age[b]	.	Enter
2	NRR, NSc, NSin, NPSS[b]	.	Enter

a. Dependent Variable: NPA

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.305[a]	0.093	0.063	0.41302	0.093	3.15	8	246	0.002	
2	.517[b]	0.267	0.231	0.37431	0.174	14.377	4	242	0	1.629

a. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

c. Dependent Variable: NPA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.299	8	0.537	3.15	.002[b]
	Residual	41.964	246	0.171		
	Total	46.263	254			
2	Regression	12.356	12	1.03	7.349	.000[c]
	Residual	33.907	242	0.14		
	Total	46.263	254			

a. Dependent Variable: NPA

b. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age

c. Predictors: (Constant), TWN, Department, Sex, Education, Status, Position, TWH, Age, NRR, NSc, NSin, NPSS

Coefficients[a]

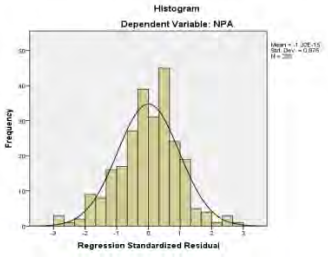
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	2.472	0.355		6.974	0			
	Sex	0.183	0.129	0.087	1.416	0.158	0.086	0.09	0.086
	Age	0.019	0.039	0.053	0.481	0.631	0.045	0.031	0.029
	Status	0.034	0.058	0.04	0.583	0.56	0.042	0.037	0.035
	Education	0.34	0.115	0.194	2.95	0.003	0.15	0.185	0.179
	Department	0.006	0.01	0.035	0.567	0.571	0.048	0.036	0.034
	Position	0.124	0.05	0.2	2.471	0.014	0.118	0.156	0.15
	TWH	-0.1	0.051	-0.217	-1.966	0.05	-0.075	-0.124	-0.119
	TWN	0.093	0.054	0.217	1.715	0.088	0.05	0.109	0.104
2	(Constant)	1.316	0.452		2.911	0.004			
	Sex	0.204	0.117	0.097	1.742	0.083	0.086	0.111	0.096
	Age	0.01	0.036	0.028	0.276	0.783	0.045	0.018	0.015
	Status	0.057	0.053	0.068	1.083	0.28	0.042	0.069	0.06
	Education	0.28	0.105	0.16	2.674	0.008	0.15	0.169	0.147
	Department	0.007	0.009	0.044	0.777	0.438	0.048	0.05	0.043
	Position	0.098	0.047	0.158	2.104	0.036	0.118	0.134	0.116
	TWH	-0.044	0.047	-0.096	-0.939	0.349	-0.075	-0.06	-0.052
	TWN	0.034	0.05	0.08	0.69	0.491	0.05	0.044	0.038
	NRR	0.11	0.055	0.129	1.994	0.047	0.26	0.127	0.11
	NPSS	0.147	0.053	0.18	2.755	0.006	0.328	0.174	0.152
	NSin	-0.098	0.035	-0.169	-2.785	0.006	-0.318	-0.176	-0.153
	NSc	0.157	0.042	0.212	3.741	0	0.248	0.234	0.206

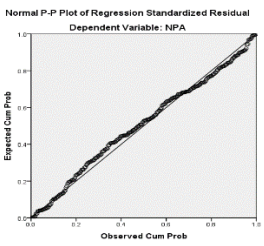
a. Dependent Variable: NPA

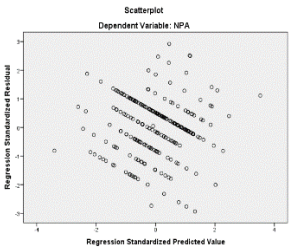
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.0551	4.5835	3.8061	0.22056	255
Residual	-1.09903	1.09253	0	0.36536	255
Std. Predicted Value	-3.405	3.525	0	1	255
Std. Residual	-2.936	2.919	0	0.976	255

a. Dependent Variable: NPA







APPENDIX 20

The Mediation Effect of Psychological Meaningfulness on Job-personal Resources and Dedication

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, Age, TWH[b]	.	Enter
2	RR, Self_e, Self_in, PSS, PM[b]	.	Enter

a. Dependent Variable: De

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.213[a]	.045	.012	.44970	.045	1.373	8	231	.209
2	.672[b]	.452	.420	.34455	.406	33.501	5	226	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH, RR, Self_e, Self_in, PSS, PM

c. Dependent Variable: De

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.221	8	.278	1.373	.209[b]
	Residual	46.715	231	.202		
	Total	48.936	239			
2	Regression	22.107	13	1.701	14.324	.000[c]
	Residual	26.830	226	.119		
	Total	48.936	239			

a. Dependent Variable: De

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH, RR, Self_e, Self_in, PSS, PM

Coefficients[a]

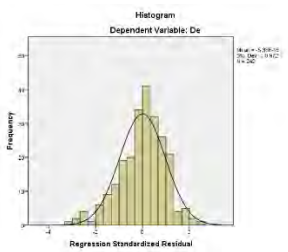
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.238	.387		8.369	.000					
	Sex	.088	.141	.041	.625	.532	.040	.041	.040	.971	1.030
	Age	.039	.043	.107	.913	.362	.076	.060	.059	.300	3.332
	Status	.018	.065	.020	.274	.785	.057	.018	.018	.769	1.301
	Edu	.177	.126	.098	1.411	.160	.099	.092	.091	.855	1.170
	Post	.034	.055	.053	.616	.539	.023	.040	.040	.565	1.770
	TWH	-.125	.059	-.260	-2.130	.034	-.047	-.139	-.137	.277	3.610
	TWN	.079	.062	.176	1.279	.202	.054	.084	.082	.219	4.576
	Department	.007	.011	.038	.591	.555	.048	.039	.038	.992	1.008
2	(Constant)	.741	.439		1.686	.093					
	Sex	.077	.108	.036	.709	.479	.040	.047	.035	.965	1.036
	Age	.011	.034	.031	.340	.734	.076	.023	.017	.290	3.448
	Status	-.005	.051	-.005	-.096	.924	.057	-.006	-.005	.737	1.357
	Edu	.077	.097	.042	.792	.429	.099	.053	.039	.846	1.183
	Post	-.033	.044	-.052	-.763	.446	.023	-.051	-.038	.529	1.891
	TWH	-.039	.046	-.081	-.849	.397	-.047	-.056	-.042	.268	3.737
	TWN	.020	.048	.045	.417	.677	.054	.028	.021	.212	4.720
	Department	.003	.009	.019	.378	.706	.048	.025	.019	.973	1.027
	RR	.206	.053	.229	3.921	.000	.414	.252	.193	.709	1.410
	PSS	.061	.053	.069	1.142	.254	.387	.076	.056	.661	1.512
	Self_in	-.024	.035	-.040	-.705	.481	-.337	-.047	-.035	.749	1.336
	Self_e	.076	.042	.097	1.826	.069	.239	.121	.090	.862	1.160
	PM	.431	.059	.460	7.341	.000	.608	.439	.362	.618	1.618

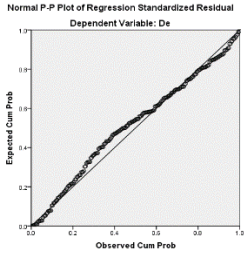
a. Dependent Variable: De

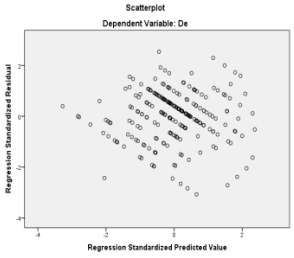
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8633	4.5787	3.8588	0.30413	240
Residual	-1.05885	0.87605	0	0.33505	240
Std. Predicted Value	-3.273	2.367	0	1	240
Std. Residual	-3.073	2.543	0	0.972	240

a. Dependent Variable: De







APPENDIX 21

The Mediation Effect of Psychological Meaningfulness on Job-personal Resources and Absorption

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, PM[b]	.	Enter

a. Dependent Variable: Ab

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.215[a]	.046	.014	.48634	.046	1.452	8	240	.176
2	.547[b]	.299	.270	.41853	.253	43.038	2	238	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PM

c. Dependent Variable: Ab

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.747	8	.343	1.452	.176[b]
	Residual	56.766	240	.237		
	Total	59.513	248			
2	Regression	17.824	10	1.782	10.176	.000[c]
	Residual	41.689	238	.175		
	Total	59.513	248			

a. Dependent Variable: Ab

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PM

Coefficients[a]

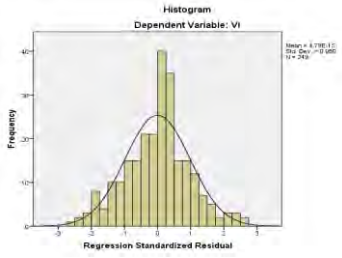
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.421	.418		8.189	.000					
	Sex	.140	.152	.059	.920	.359	.057	.059	.058	.972	1.029
	Age	.027	.046	.066	.575	.566	.118	.037	.036	.299	3.345
	Status	-.001	.069	-.001	-.020	.984	.062	-.001	-.001	.788	1.269
	Edu	.063	.136	.032	.466	.642	.079	.030	.029	.856	1.168
	Post	-.078	.059	-.110	-1.312	.191	-.121	-.084	-.083	.564	1.773
	TWH	-.075	.060	-.143	-1.246	.214	.050	-.080	-.079	.302	3.316
	TWN	.049	.064	.101	.774	.439	.105	.050	.049	.233	4.297
	Department	.023	.012	.122	1.913	.057	.130	.123	.121	.983	1.018
2	(Constant)	1.411	.424		3.328	.001					
	Sex	.151	.131	.064	1.155	.249	.057	.075	.063	.971	1.030
	Age	.037	.040	.092	.920	.359	.118	.060	.050	.293	3.417
	Status	-.019	.059	-.020	-.328	.743	.062	-.021	-.018	.783	1.278
	Edu	-.016	.117	-.008	-.134	.894	.079	-.009	-.007	.850	1.176
	Post	-.098	.052	-.139	-1.894	.059	-.121	-.122	-.103	.545	1.836
	TWH	-.032	.052	-.061	-.611	.542	.050	-.040	-.033	.295	3.384
	TWN	-.009	.055	-.019	-.164	.870	.105	-.011	-.009	.230	4.355
	Department	.024	.011	.125	2.273	.024	.130	.146	.123	.979	1.021
	RR	.409	.055	.426	7.381	.000	.480	.432	.400	.885	1.130
	PM	.182	.060	.180	3.014	.003	.302	.192	.164	.823	1.216

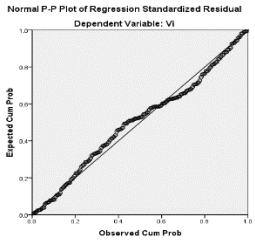
a. Dependent Variable: Ab

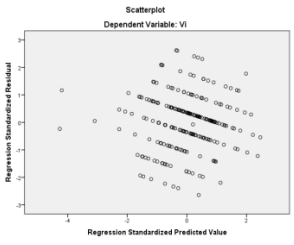
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.1098	4.2536	3.8347	0.17003	249
Residual	-1.23539	1.22617	0	0.45764	249
Std. Predicted Value	-4.263	2.464	0	1	249
Std. Residual	-2.644	2.625	0	0.98	249

a. Dependent Variable: Vi







APPENDIX 22

The Mediation Effect of Psychological Meaningfulness on Job-personal Resources and Vigor

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, Self_e, PM[b]	.	Enter

a. Dependent Variable: Vi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.168[a]	.028	-.004	.49022	.028	.872	8	239	.541
2	.435[b]	.189	.151	.45071	.161	15.579	3	236	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, PM

c. Dependent Variable: Vi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.676	8	.209	.872	.541[b]
	Residual	57.435	239	.240		
	Total	59.111	247			
2	Regression	11.170	11	1.015	4.999	.000[c]
	Residual	47.941	236	.203		
	Total	59.111	247			

a. Dependent Variable: Vi

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, PM

Coefficients[a]

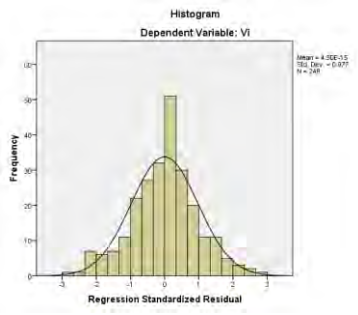
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.130	.421		7.429	.000					
	Sex	.055	.153	.023	.356	.722	.020	.023	.023	.972	1.029
	Age	.017	.047	.042	.357	.722	.051	.023	.023	.298	3.356
	Status	-.003	.069	-.003	-.047	.963	.014	-.003	-.003	.788	1.269
	Edu	.304	.137	.153	2.224	.027	.151	.142	.142	.856	1.168
	Post	.009	.060	.013	.158	.874	-.022	.010	.010	.565	1.771
	TWH	-.050	.061	-.096	-.826	.410	-.008	-.053	-.053	.302	3.308
	TWN	.022	.064	.045	.341	.733	.028	.022	.022	.233	4.291
	Department	.005	.012	.026	.410	.682	.033	.027	.026	.983	1.018
2	(Constant)	1.149	.490		2.345	.020					
	Sex	.076	.141	.032	.534	.594	.020	.035	.031	.967	1.034
	Age	.020	.043	.050	.456	.649	.051	.030	.027	.290	3.443
	Status	-.019	.064	-.020	-.299	.765	.014	-.019	-.018	.782	1.279
	Edu	.241	.126	.121	1.911	.057	.151	.123	.112	.850	1.176
	Post	-.010	.056	-.014	-.171	.864	-.022	-.011	-.010	.539	1.854
	TWH	.006	.057	.011	.104	.918	-.008	.007	.006	.293	3.409
	TWN	-.038	.060	-.078	-.629	.530	.028	-.041	-.037	.226	4.430
	Department	.004	.011	.020	.339	.735	.033	.022	.020	.979	1.022
	RR	.246	.061	.257	4.064	.000	.308	.256	.238	.861	1.162
	PM	.188	.069	.188	2.751	.006	.313	.176	.161	.739	1.353
	Self_e	.136	.054	.158	2.513	.013	.198	.161	.147	.871	1.148

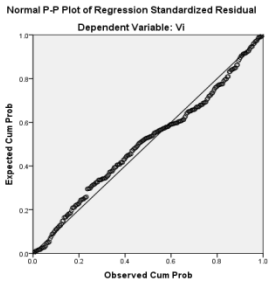
a. Dependent Variable: Vi

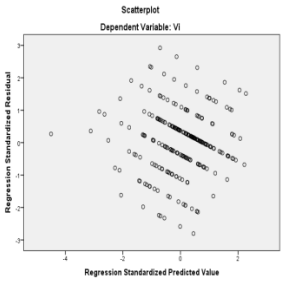
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8788	4.3179	3.8347	0.21265	248
Residual	-1.26375	1.31617	0	0.44056	248
Std. Predicted Value	-4.495	2.273	0	1	248
Std. Residual	-2.804	2.92	0	0.977	248

a. Dependent Variable: Vi







APPENDIX 23

The Mediation Effect of Psychological Safety on Job-personal Resources and Dedication

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, PSS, PS[b]	.	Enter

a. Dependent Variable: De

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.198[a]	.039	.008	.45698	.039	1.246	8	244	.273
2	.504[b]	.254	.220	.40528	.214	23.074	3	241	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PSS, PS

c. Dependent Variable: De

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.082	8	.260	1.246	.273[b]
	Residual	50.955	244	.209		
	Total	53.037	252			
2	Regression	13.453	11	1.223	7.446	.000[c]
	Residual	39.585	241	.164		
	Total	53.037	252			

a. Dependent Variable: De

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PSS, PS

Coefficients[a]

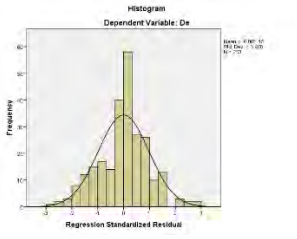
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.234	.402		8.043	.000					
	Sex	.089	.143	.040	.624	.533	.039	.040	.039	.970	1.030
	Age	.032	.044	.084	.729	.467	.074	.047	.046	.298	3.354
	Status	.010	.065	.011	.158	.874	.046	.010	.010	.783	1.277
	Edu	.190	.132	.098	1.444	.150	.099	.092	.091	.859	1.165
	Post	.034	.056	.052	.612	.541	.021	.039	.038	.550	1.818
	TWH	-.114	.057	-.230	-2.007	.046	-.040	-.127	-.126	.300	3.328
	TWN	.081	.060	.176	1.343	.180	.063	.086	.084	.229	4.374
	Department	.001	.011	.006	.092	.926	.023	.006	.006	.981	1.019
2	(Constant)	1.665	.573		2.906	.004					
	Sex	.106	.127	.047	.839	.402	.039	.054	.047	.969	1.031
	Age	.045	.039	.118	1.149	.252	.074	.074	.064	.294	3.400
	Status	.020	.058	.022	.340	.734	.046	.022	.019	.765	1.308
	Edu	.163	.117	.084	1.391	.166	.099	.089	.077	.858	1.166
	Post	.024	.051	.037	.479	.633	.021	.031	.027	.531	1.884
	TWH	-.086	.051	-.174	-1.698	.091	-.040	-.109	-.095	.294	3.406
	TWN	.027	.054	.059	.503	.616	.063	.032	.028	.225	4.451
	Department	.007	.010	.040	.699	.486	.023	.045	.039	.943	1.061
	RR	.270	.069	.296	3.901	.000	.427	.244	.217	.539	1.854
	PSS	.187	.059	.213	3.143	.002	.381	.198	.175	.676	1.480
	PS	-.040	.073	-.043	-.543	.588	-.337	-.035	-.030	.491	2.037

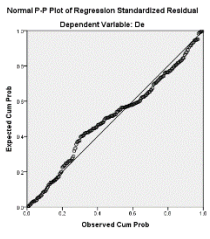
a. Dependent Variable: De

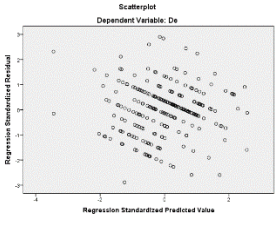
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.0606	4.4502	3.8577	0.23105	253
Residual	-1.17097	1.17624	0	0.39634	253
Std. Predicted Value	-3.45	2.564	0	1	253
Std. Residual	-2.889	2.902	0	0.978	253

a. Dependent Variable: De







APPENDIX 24

The Mediation Effect of Psychological Safety on Job-personal Resources and Absorption

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, PS[b]	.	Enter

a. Dependent Variable: Ab

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.225[a]	.051	.018	.48939	.051	1.564	8	235	.136
2	.525[b]	.276	.245	.42925	.225	36.230	2	233	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PS

c. Dependent Variable: Ab

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.997	8	.375	1.564	.136[b]
	Residual	56.283	235	.240		
	Total	59.281	243			
2	Regression	16.349	10	1.635	8.873	.000[c]
	Residual	42.932	233	.184		
	Total	59.281	243			

a. Dependent Variable: Ab

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PS

Coefficients[a]

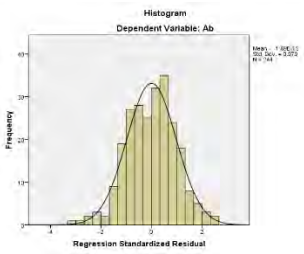
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.337	.434		7.681	.000					
	Sex	.209	.160	.084	1.304	.193	.084	.085	.083	.974	1.027
	Age	.021	.047	.052	.447	.656	.120	.029	.028	.296	3.384
	Status	-.011	.070	-.012	-.161	.872	.057	-.010	-.010	.785	1.275
	Edu	.063	.141	.031	.449	.654	.082	.029	.029	.857	1.166
	Post	-.073	.060	-.103	-1.212	.227	-.118	-.079	-.077	.556	1.799
	TWH	-.077	.061	-.146	-1.267	.206	.055	-.082	-.081	.303	3.302
	TWN	.066	.065	.134	1.006	.315	.116	.065	.064	.229	4.372
	Department	.023	.012	.120	1.862	.064	.131	.121	.118	.979	1.021
2	(Constant)	1.767	.569		3.107	.002					
	Sex	.203	.141	.082	1.447	.149	.084	.094	.081	.974	1.027
	Age	.052	.041	.129	1.253	.211	.120	.082	.070	.293	3.414
	Status	-.020	.061	-.020	-.318	.751	.057	-.021	-.018	.779	1.284
	Edu	.034	.124	.017	.278	.782	.082	.018	.015	.857	1.167
	Post	-.063	.054	-.089	-1.165	.245	-.118	-.076	-.065	.537	1.863
	TWH	-.049	.054	-.094	-.920	.358	.055	-.060	-.051	.297	3.361
	TWN	-.002	.058	-.005	-.039	.969	.116	-.003	-.002	.224	4.465
	Department	.026	.011	.132	2.300	.022	.131	.149	.128	.947	1.056
	RR	.452	.073	.465	6.157	.000	.483	.374	.343	.545	1.833
	PS	-.023	.077	-.023	-.298	.766	-.298	-.020	-.017	.529	1.890

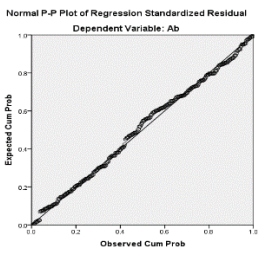
a. Dependent Variable: Ab

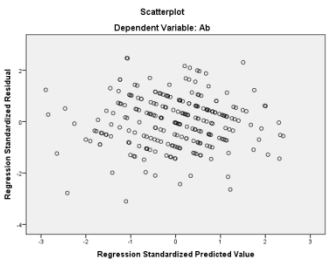
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8676	4.2402	3.618	0.25938	244
Residual	-1.33156	1.06361	0	0.42033	244
Std. Predicted Value	-2.893	2.399	0	1	244
Std. Residual	-3.102	2.478	0	0.979	244

a. Dependent Variable: Ab







APPENDIX 25

The Mediation Effect of Psychological Safety on Job-personal Resources and Vigor

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, PS[b]	.	Enter

a. Dependent Variable: Vi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.168[a]	.028	-.004	.48924	.028	.870	8	240	.543
2	.348[b]	.121	.084	.46716	.093	12.612	2	238	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PS

c. Dependent Variable: Vi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.665	8	.208	.870	.543[b]
	Residual	57.445	240	.239		
	Total	59.111	248			
2	Regression	7.170	10	.717	3.285	.001[c]
	Residual	51.941	238	.218		
	Total	59.111	248			

a. Dependent Variable: Vi

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PS

Coefficients[a]

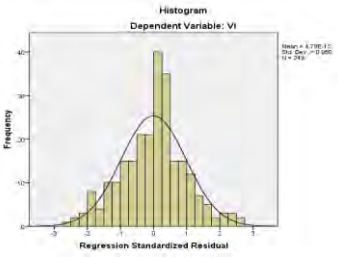
Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.102	.425		7.305	.000					
	Sex	.074	.160	.030	.465	.643	.028	.030	.030	.975	1.026
	Age	.013	.047	.032	.276	.783	.051	.018	.018	.298	3.361
	Status	-.004	.069	-.004	-.058	.954	.014	-.004	-.004	.784	1.275
	Edu	.306	.137	.154	2.243	.026	.151	.143	.143	.856	1.168
	Post	.011	.060	.015	.182	.856	-.022	.012	.012	.562	1.779
	TWH	-.048	.060	-.091	-.789	.431	-.005	-.051	-.050	.305	3.283
	TWN	.026	.065	.053	.400	.689	.031	.026	.025	.231	4.336
	Department	.004	.012	.022	.348	.728	.030	.022	.022	.980	1.020
2	(Constant)	2.510	.609		4.119	.000					
	Sex	.071	.153	.029	.468	.640	.028	.030	.028	.974	1.026
	Age	.029	.045	.073	.653	.514	.051	.042	.040	.295	3.386
	Status	-.008	.066	-.009	-.125	.901	.014	-.008	-.008	.779	1.284
	Edu	.268	.131	.135	2.055	.041	.151	.132	.125	.853	1.172
	Post	.004	.058	.005	.063	.950	-.022	.004	.004	.542	1.844
	TWH	-.041	.058	-.077	-.697	.486	-.005	-.045	-.042	.299	3.339
	TWN	-.011	.062	-.022	-.173	.863	.031	-.011	-.010	.226	4.417
	Department	.008	.012	.042	.675	.500	.030	.044	.041	.950	1.053
	RR	.238	.079	.247	3.000	.003	.306	.191	.182	.543	1.840
	PS	-.083	.083	-.084	-1.001	.318	-.237	-.065	-.061	.526	1.900

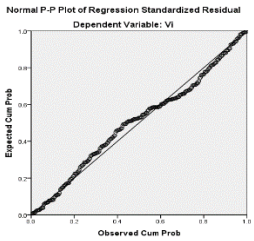
a. Dependent Variable: Vi

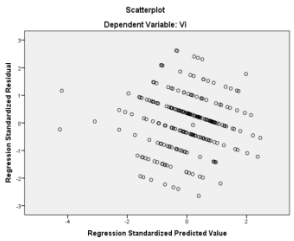
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.1098	4.2536	3.8347	0.17003	249
Residual	-1.23539	1.22617	0	0.45764	249
Std. Predicted Value	-4.263	2.464	0	1	249
Std. Residual	-2.644	2.625	0	0.98	249

a. Dependent Variable: Vi







APPENDIX 26

The Mediation Effect of Psychological Availability on Job-personal Resources and Dedication

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, Age, TWH[b]	.	Enter
2	RR, Self_e, Self_in, PA, PSS[b]	.	Enter

a. Dependent Variable: De

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.216[a]	.047	.014	.44987	.047	1.410	8	231	.193
2	.599[b]	.358	.321	.37312	.312	21.959	5	226	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH, RR, Self_e, Self_in, PA, PSS

c. Dependent Variable: De

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.283	8	.285	1.410	.193[b]
	Residual	46.750	231	.202		
	Total	49.033	239			
2	Regression	17.569	13	1.351	9.707	.000[c]
	Residual	31.464	226	.139		
	Total	49.033	239			

a. Dependent Variable: De

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, Age, TWH, RR, Self_e, Self_in, PA, PSS

Coefficients[a]

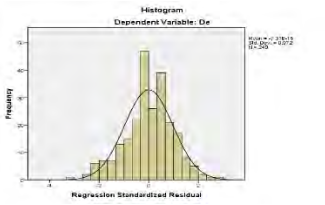
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.241	.387		8.372	.000					
	Sex	.088	.141	.041	.627	.532	.039	.041	.040	.971	1.030
	Age	.041	.043	.111	.951	.343	.077	.062	.061	.302	3.309
	Status	.016	.065	.018	.252	.801	.056	.017	.016	.769	1.301
	Edu	.177	.126	.098	1.405	.161	.099	.092	.090	.855	1.170
	Post	.034	.055	.053	.614	.540	.023	.040	.039	.564	1.772
	TWH	-.127	.058	-.264	-2.170	.031	-.050	-.141	-.139	.278	3.598
	TWN	.079	.062	.176	1.276	.203	.053	.084	.082	.218	4.587
	Department	.007	.011	.040	.622	.535	.051	.041	.040	.992	1.008
2	(Constant)	1.120	.473		2.365	.019					
	Sex	.065	.118	.030	.548	.584	.039	.036	.029	.954	1.048
	Age	.031	.036	.085	.862	.390	.077	.057	.046	.294	3.398
	Status	.042	.055	.047	.770	.442	.056	.051	.041	.751	1.331
	Edu	.039	.106	.022	.372	.711	.099	.025	.020	.823	1.214
	Post	-.010	.047	-.016	-.217	.828	.023	-.014	-.012	.529	1.891
	TWH	-.045	.049	-.094	-.908	.365	-.050	-.060	-.048	.267	3.740
	TWN	-.010	.052	-.022	-.192	.848	.053	-.013	-.010	.211	4.737
	Department	.005	.010	.026	.474	.636	.051	.032	.025	.971	1.030
	RR	.235	.057	.261	4.131	.000	.415	.265	.220	.712	1.404
	PSS	.129	.056	.147	2.288	.023	.387	.150	.122	.691	1.447
	Self_in	-.072	.037	-.118	-1.959	.051	-.341	-.129	-.104	.777	1.288
	Self_e	.135	.044	.172	3.062	.002	.241	.200	.163	.902	1.108
	PA	.230	.065	.219	3.516	.001	.432	.228	.187	.731	1.368

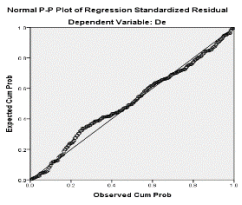
a. Dependent Variable: De

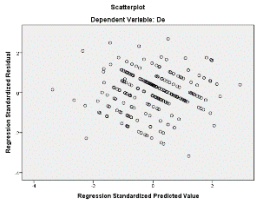
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9445	4.6515	3.8596	0.27112	240
Residual	-1.18464	1.00367	0	0.36284	240
Std. Predicted Value	-3.375	2.921	0	1	240
Std. Residual	-3.175	2.69	0	0.972	240

a. Dependent Variable: De







APPENDIX 27

The Mediation Effect of Psychological Availability on Job-personal Resources and Absorption

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, PA[b]	.	Enter

a. Dependent Variable: Ab

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.218[a]	.048	.016	.48657	.048	1.500	8	240	.158
2	.595[b]	.354	.327	.40251	.306	56.358	2	238	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PA

c. Dependent Variable: Ab

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.840	8	.355	1.500	.158[b]
	Residual	56.821	240	.237		
	Total	59.661	248			
2	Regression	21.102	10	2.110	13.025	.000[c]
	Residual	38.559	238	.162		
	Total	59.661	248			

a. Dependent Variable: Ab

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, PA

Coefficients[a]

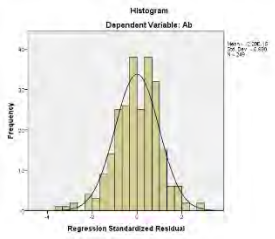
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.422	.418		8.187	.000					
	Sex	.140	.152	.059	.918	.359	.056	.059	.058	.972	1.029
	Age	.029	.046	.071	.620	.536	.120	.040	.039	.301	3.323
	Status	-.004	.069	-.004	-.062	.951	.060	-.004	-.004	.788	1.269
	Edu	.062	.136	.031	.458	.647	.079	.030	.029	.856	1.168
	Post	-.077	.059	-.109	-1.301	.194	-.120	-.084	-.082	.563	1.775
	TWH	-.078	.060	-.149	-1.296	.196	.048	-.083	-.082	.302	3.308
	TWN	.050	.064	.103	.792	.429	.105	.051	.050	.232	4.303
	Department	.024	.012	.125	1.966	.050	.134	.126	.124	.982	1.018
2	(Constant)	1.187	.405		2.932	.004					
	Sex	.094	.127	.040	.746	.456	.056	.048	.039	.962	1.040
	Age	.042	.038	.105	1.101	.272	.120	.071	.057	.298	3.350
	Status	-.018	.057	-.018	-.309	.757	.060	-.020	-.016	.787	1.271
	Edu	-.105	.114	-.053	-.922	.358	.079	-.060	-.048	.827	1.210
	Post	-.116	.050	-.164	-2.325	.021	-.120	-.149	-.121	.546	1.830
	TWH	-.025	.050	-.047	-.490	.624	.048	-.032	-.026	.298	3.358
	TWN	-.030	.053	-.061	-.555	.579	.105	-.036	-.029	.228	4.391
	Department	.023	.010	.121	2.296	.023	.134	.147	.120	.979	1.022
	RR	.388	.052	.403	7.401	.000	.481	.433	.386	.915	1.093
	PA	.353	.065	.307	5.412	.000	.401	.331	.282	.842	1.188

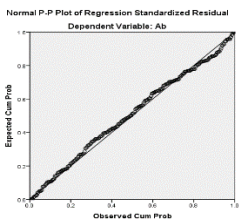
a. Dependent Variable: Ab

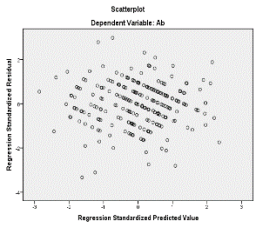
Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.7807	4.3021	3.6156	0.2917	249
Residual	-1.34222	1.19945	0	0.39431	249
Std. Predicted Value	-2.862	2.353	0	1	249
Std. Residual	-3.335	2.98	0	0.98	249

a. Dependent Variable: Ab







APPENDIX 28

The Mediation Effect of Psychological Availability on Job-personal Resources and Vigor

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Department, Post, Sex, Edu, Status, TWN, TWH, Age[b]	.	Enter
2	RR, Self_e, PA[b]	.	Enter

a. Dependent Variable: Vi

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.169[a]	.029	-.004	.48820	.029	.885	8	240	.530
2	.466[b]	.217	.181	.44103	.189	19.026	3	237	.000

a. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, PA

c. Dependent Variable: Vi

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.687	8	.211	.885	.530[b]
	Residual	57.200	240	.238		
	Total	58.887	248			
2	Regression	12.789	11	1.163	5.977	.000[c]
	Residual	46.098	237	.195		
	Total	58.887	248			

a. Dependent Variable: Vi

b. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age

c. Predictors: (Constant), Department, Post, Sex, Edu, Status, TWN, TWH, Age, RR, Self_e, PA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.122	.419		7.444	.000					
	Sex	.053	.153	.022	.347	.729	.019	.022	.022	.972	1.029
	Age	.015	.046	.038	.324	.746	.053	.021	.021	.301	3.323
	Status	-.006	.069	-.006	-.083	.934	.013	-.005	-.005	.788	1.269
	Edu	.305	.136	.154	2.238	.026	.151	.143	.142	.856	1.168
	Post	.011	.060	.016	.193	.847	-.021	.012	.012	.563	1.775
	TWH	-.050	.060	-.096	-.831	.407	-.006	-.054	-.053	.302	3.308
	TWN	.027	.064	.055	.416	.677	.033	.027	.026	.232	4.303
	Department	.005	.012	.028	.436	.664	.035	.028	.028	.982	1.018
2	(Constant)	1.052	.480		2.194	.029					
	Sex	.027	.139	.011	.190	.849	.019	.012	.011	.956	1.046
	Age	.022	.042	.056	.531	.596	.053	.034	.031	.298	3.353
	Status	-.014	.062	-.015	-.228	.820	.013	-.015	-.013	.786	1.272
	Edu	.170	.125	.086	1.360	.175	.151	.088	.078	.826	1.211
	Post	-.018	.055	-.026	-.331	.741	-.021	-.022	-.019	.543	1.843
	TWH	.010	.055	.020	.188	.851	-.006	.012	.011	.294	3.405
	TWN	-.049	.059	-.100	-.826	.410	.033	-.054	-.047	.225	4.447
	Department	.003	.011	.018	.310	.757	.035	.020	.018	.978	1.022
	RR	.234	.058	.245	4.045	.000	.307	.254	.232	.901	1.110
	Self_e	.129	.052	.151	2.504	.013	.198	.161	.144	.912	1.097
	PA	.303	.074	.265	4.102	.000	.371	.257	.236	.792	1.263

a. Dependent Variable: Vi

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.8577	4.5123	3.836	0.22708	249
Residual	-1.2977	1.21054	0	0.43114	249
Std. Predicted Value	-4.308	2.978	0	1	249
Std. Residual	-2.942	2.745	0	0.978	249

a. Dependent Variable: Vi