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The Moderating Role of Culture in the Job Demands-Resources Model

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THE MODERATING ROLE OF CULTURE IN THE

JOB DEMANDS-RESOURCES MODEL

by

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ABSTRACT

During the past few decades, occupational health researchers have examined the effects of work characteristics on job stress and employee wellbeing (Beehr & Franz, 1987; Caulfield, Chang, Dollard, & Elshaug, 2004; Jex, 1998; Jex & Britt, 2014; Schaufeli & Greenglass, 2001; Sparks, Faragher, & Cooper, 2001). With the help of the Job Demands-Resources model (JD-R model; Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Schaufeli & Bakker, 2004), researchers have been able to examine the impact of job-specific work characteristics (demands and resources) on employee wellbeing. The work processes outlined in the JD-R model have demonstrated utility in predicting a variety of health-related outcomes in various occupations and settings, and as a result, the model has received considerable support in the literature (e.g., Bakker & Demerouti, 2007; Schaufeli & Taris, 2014; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). However, it is possible that national culture influences occupational-health theories such as the JD-R model. Research exploring the tenets of the model under the lens of national culture has been limited to a few studies and has relied on generic demands and resources (e.g., Brough et al., 2003; Farndale & Murrer, 2015; Liu, Spector, & Shi, 2007). As such, the present research effort proposed to test the basic tenets of the JD-R model under the lens of national culture. Using the framework of Hofstede's (1980, 2001; Hofstede, Hofstede, & Minkov, 2010) dimensions to define and assess national culture, in this study, I tested whether the demands/burnout (exhaustion and disengagement) and the resources/work engagement relationships differed depending on employees' national

culture. To do this, I collected data from nurses in two countries representing different national cultures: Spain and the United States.

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DEDICATION

This dissertation is dedicated to my family: my exemplary parents, Sandra and Tomás; my beautiful and lovely partner in crime, Jocelyn; my pride and joy, Oliver; my supportive siblings, Lani, Jeffrey, Jeremy, and Paoli; my loving grandparents, Víctor and Maria Gisela; my caring aunts and uncle, Sonia, Yoselin, Geidi, Miriam, Mary, Lidia, and Joselo; and my compassionate and encouraging mother-in-law, Cecile.

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CHAPTER 1

INTRODUCTION

The topics of job stress and employee wellbeing have received considerable attention from scholars in the past few decades (e.g., Beehr & Franz, 1987; Caulfield, Chang, Dollard, & Elshaug, 2004; Cooper & Cartwright, 1994; Jex, 1998; Jex & Britt, 2014; Schaufeli & Greenglass, 2001; Sparks, Faragher, & Cooper, 2001). Interest in workplace stress and employee wellbeing is not necessarily surprising, especially considering the amount of time that people spend on work-related activities as well as the importance of work to people's sense of identity and self-worth (Schaufeli & Greenglass, 2001). Initially, research on these topics was mainly concerned with studying the negative qualities associated with stress, but in more recent years researchers have also focused on stress's relation with positive work antecedents and outcomes (Schaufeli, Leiter, & Maslach, 2009). This shift in occupational researchers' interest is in line with a fairly recent resurgence of interest in the positive psychology movement (Schaufeli et al., 2009), which aims to turn the "preoccupation only with repairing the worst things in life to also building positive qualities" (Seligman & Csikszentmihalyi, 2000, p. 5).

In their search to explain job factors that could decrease symptoms of job stress and improve employee wellbeing, researchers have explored a myriad of potential antecedents and have relied on various models. One such model is the Job Demands-Resources (JD-R model; Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Schaufeli & Bakker, 2004). The JD-R model is a theoretical framework used to study not only negative consequences of stress, but also positive outcomes that can lead to improved employee wellbeing and improved performance (Bakker & Demerouti, 2007, 2014, 2017; Demerouti et al., 2001). With the JD-R model, Bakker and colleagues (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003, Demerouti et al., 2001; Schaufeli & Bakker, 2004) proposed that, while every occupation may have different antecedents of employee wellbeing or job stress, these factors can be classified into two general job categories: demands and resources. Within this framework, demands (e.g., emotional demands, role ambiguity, interpersonal conflict) exhaust employee's resources (e.g., personal resources, feedback, social support), therefore leading to ill health (e.g., burnout; Bakker & Demerouti, 2007, 2014, 2017). In contrast, resources foster work engagement, boost employee performance, and lead to employee wellbeing (Bakker & Demerouti, 2007, 2014, 2017).

However, it is possible that, within the framework of the JD-R model, national-level factors such as culture may have an impact on the way in which people react to demands and on the way in which resources are valued. In fact, several researchers maintain that organizational theories are not culture-free, and as such, they are influenced by culture in various ways (Braun & Warner, 2002; Hofstede, 1991, 2001; House, Hanges, Javidan, Dorfman, & Gupta, 2004). Culture helps explain social norms and values that drive attitudes and behaviors at the individual, organizational, and national levels (Braun & Warner, 2002; Hofstede, 2001; House et al., 2004; Schein, 2010). Therefore, culture could provide a platform by which researchers could better understand employees' reactions to various demands and resources as well as any potential impact that those demands and resources may have on wellbeing.

While the JD-R model has been tested in various countries and settings, research exploring the potential effect of national culture on the way in which the model operates has been scant, with only a few studies exploring the topic (e.g., Brough et al., 2013; Farndale & Murrer, 2015; Liu, Spector, & Shi, 2007). The impact of globalization in today's workplace (Hofstede, Hofstede, & Minkov, 2010) and the position of the JD-R model as one of the leading theoretical frameworks used to explain job stress and employee wellbeing (Bakker & Demerouti, 2014, 2017) drive this research effort. Understanding the potential role of national culture on the demand/burnout (exhaustion and disengagement) and resource/work engagement relationships within the JD-R model could expand our knowledge of the theory and of employee wellbeing in general.

To explain national culture, Hofstede (1980, 1991, 2001; Hofstede et al., 2010) developed a framework distinguishing the ways in which societies differ in various autonomous cultural 'dimensions'. Hofstede and colleagues (Hofstede, 1980, 1991, 2001; Hofstede et al., 2010) have identified six core dimensions that represent differences among national cultures: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long- versus short-term orientation, and indulgence versus restraint. The values of these dimensions at a societal level can be used to make inferences about members of that society given that most people are strongly influenced by social norms and controls (Hofstede, 1991, 2001; Hofstede et al., 2010).

In this dissertation, I used Hofstede's cultural framework to test the underlying psychological processes of the JD-R model among workers in occupations in two countries with different cultures, as defined by Hofstede et al.'s (2010) dimensions: Spain and the United States. Overall, the main focus of this research effort was to better understand the relationship of demands and resources with employee wellbeing (here in the form of burnout and work engagement) and how these relationships differ depending on employees' culture. To understand this proposition, this chapter is divided in three sections: burnout and work engagement, the JD-R model, and the role of national culture.

Burnout and Work Engagement

Though earlier models of employee wellbeing (e.g., Karasek, 1979; Siegrist, 1996) focused on negative aspects (e.g., lack of autonomy) and negative outcomes of work (e.g., physical health problems), the JD-R model aligned itself with the positive psychology movement (Seligman & Csikszentmihalyi, 2000), which attempts to build on positive qualities and reduce preoccupation with negative outcomes in life (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). The JD-R model examines both negative *and* positive consequences of job characteristics and was presented as a supplement to previous models that addressed the deficit-based study of work-related stress (Schaufeli et al., 2009; Van den Broeck et al., 2008). Through *work engagement,* the model introduced the motivational aspects of job characteristics (i.e., resources) that make employees' work meaningful and lead to positive outcomes, such as job performance and job satisfaction (Bakker & Demerouti, 2007, 2014; Schaufeli & Bakker, 2004). Thus, the model emphasizes health *promotion* just as much as it addresses concerns regarding burnout (Van den Broeck et al., 2008). Burnout and work engagement, therefore, are critical within the framework of the JD-R model. Both concepts have evolved over the years, having sparked great interest among researchers and practitioners alike (Saks & Gruman, 2014; Schaufeli et al., 2009).

Burnout. The concept of job burnout as we know it today evolved from two separate lines of research conducted in the 1970s within service and caregiving professions (Maslach, Leiter, & Schaufeli, 2008). Researchers found that rooted within these occupations was the interpersonal relationship between the provider and the recipient (Maslach et al., 2008). This dynamic introduced an interpersonal context within the job that makes burnout a phenomenon studied not only as an individual stress response, but also in terms of the individual's relational transactions in the workplace (Maslach et al., 2008). As Maslach and Schaufeli (1993) noted, early work by Freudenberger (1974, 1975) and Maslach (1976), respectively, provided an initial description of the concept of burnout and showed that burnout was not limited to a few 'deviant people', but that in reality it was much more common.

Burnout defined. Burnout was first coined by clinical psychologist Herbert Freudenberger, who observed volunteers in a few aid organizations in New York and documented how, over time, they had lost their motivation to work (Freudenberger, 1974, 1975). Freudenberger (1974, 1975) noted that many of the volunteers with whom he had worked (as well as he himself) started working with great enthusiasm, but within a period of time this enthusiasm had faded. The volunteers had been working with drug addicts and used the term 'burn out' to describe their own psychological deterioration and stress. Freudenberger (1974, 1975) described this phenomenon as a state in which people are worn out or exhausted by excessive demands of their work conditions. According to Freudenberger and colleagues (Freudenberger, 1974, 1975; Freudenberger & Richelson, 1980), when burned out, people's motivation diminishes, particularly when they perceive that their efforts fail to yield the desired results. Thus, in the case of the volunteers at the aid organizations, they had lost their motivation and commitment to work and were experiencing a gradual emotional depletion characterized by a mental state of exhaustion (Freudenberger, 1974, 1975).

Freudenberger's definition of burnout made it difficult to measure – efforts relied on information obtained through observation and case studies. However, use of his definition popularized the term as a 'buzzword' in the late 1970s and early 1980s. It introduced burnout to the general population and started a trend among researchers to study the burnout syndrome in less-clinical ways (Schaufeli & Enzmann, 1998).

Independently and during the same time period, Christina Maslach, a social psychologist conducting exploratory research, was trying to understand how workers in healthcare and human-service jobs coped with strong emotional arousal associated with their jobs (Maslach, 1976). Some of the workers Maslach (1976) interviewed expressed having felt exhausted by their work and had developed negative attitudes toward their patients and/or their clients. The employees referred to their psychological difficulties at work as 'burnout', prompting Maslach to shift her attention to the study of the phenomenon (Maslach et al., 2008; Schaufeli et al., 2009). Following a thorough process of interviews and observations, and on the basis of the human service workers' feedback, Maslach (1982) offered a more-specific characterization for burnout. She defined burnout as a multi-dimensional construct comprised of "emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind" (Maslach, 1982, p. 2).

In Maslach's (1982) definition, emotional exhaustion is the central strain dimension of burnout and refers to feelings of emotional overextension caused by one's work. As such, employees who are emotionally exhausted feel incapable of giving more to their job and feel as if they lack the adaptive resources necessary to perform their work (Maslach, 1982). Depersonalization, also known as cynicism and disengagement, represents the interpersonal context dimension of burnout and often occurs as a response to the aforementioned dimension of emotional exhaustion (Maslach, 1982; Maslach, Schaufeli, & Leiter, 2001). Depersonalization describes a process whereby employees detach themselves from their job in an effort to distance themselves from stress-inducing situations (Maslach, 1982; Maslach et al., 2001). In the process, employees develop negative, callous, or uncaring attitudes toward their jobs, their performance, and other aspects of their work environments (e.g., patients, care recipients, coworkers, clients) (Maslach et al., 2001).

Over time, depersonalization leads to a sense of reduced personal accomplishment (Maslach, 1982). Reduced personal accomplishment represents the self-evaluation context dimension of burnout and refers to a decline in feelings of competence and a lack of accomplishment and productivity at work (Maslach, 1982; Maslach et al., 2001). When personal accomplishment is reduced enough, employees perceive as though they are incapable of performing at their job as well as they once could (Maslach, 1982; Maslach et al., 2001; see also Maslach & Jackson, 1984, 1986; Maslach, Jackson, & Leiter, 1996; Maslach & Leiter, 2008; Schaufeli et al., 2009). In a recent meta-analysis, Alarcon (2011) found support for Maslach's (1982) proposed temporal order, with emotional exhaustion developing first, followed by cynicism, and reduced personal accomplishment later.

Although Maslach's (1982) tripartite definition has become widely accepted among burnout researchers, emotional exhaustion is generally considered to be the major component of burnout (e.g., Alarcon, 2011; Evans & Fisher, 1993; Lee & Ashforth, 1996; Shirom, 1989). In separate meta-analytic works, Lee and Ashforth (1996) and Alarcon (2011) showed that emotional exhaustion had the strongest and most-consistent relationship with job demands (e.g., workload) and negative outcomes when compared to the other burnout dimensions. Though Maslach and her colleagues (e.g., Maslach et al., 2001; Schaufeli et al., 2009) have argued that focusing solely on the individual component of emotional exhaustion as the hallmark of burnout would not be sufficient to understand the phenomenon entirely, some scholars contend that the other components of burnout, particularly reduced personal accomplishment, are incidental or even unnecessary (e.g., Kristensen, Borritz, Villadsen, & Christensen, 2005; Shirom, 1989; Shirom & Melamed, 2005).

Expansion of burnout and instruments. Originally, research on burnout was mostly based on qualitative and non-empirical work (Schaufeli et al., 2009). In an early review of 48 articles published on burnout between 1974 and 1981, Perlman and Hartman (1982) found that only 5 of these articles had empirical data that went beyond occasional anecdotes or the authors' personal experiences. The vast majority of the articles contained ideas about the causes of burnout along with suggestions of what people should do about it (Perlman & Hartman, 1982). Furthermore, early articles on burnout were qualitative in nature and relied mostly on observations and subsequent analyses of individual case studies (Schaufeli et al., 2009). During the next few decades, however, research on burnout entered a more empirical phase driven by quantitative studies and marked by the introduction of standardized measures of burnout, such as the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) (Schaufeli et al., 2009).

The introduction of the MBI generated a myriad of studies interested in the burnout syndrome (Maslach et al., 2008). Initially, though, the idea that burnout could affect employees was limited to a few occupations (Schaufeli et al., 2009). At the time, scholars considered burnout to be a phenomenon that occurred solely among workers in the human-services field (Maslach & Schaufeli, 1993). This was in line with

Freudenberger's (1974, 1975) anecdotal evidence and Maslach's (1982) definition of burnout. Indeed, early work on burnout found that it was prevalent among human-services professionals, such as social workers (e.g., Pines & Kafry, 1978), mental-health workers (e.g., Pines & Maslach, 1978), and nurses (e.g., Pick & Leiter, 1991). However, the idea of burnout's exclusivity within human-service jobs was gradually rejected and it became clear that burnout occurred across all kinds of work settings and affected individuals in occupations outside of the human services (Leiter & Schaufeli, 1996; Maslach et al., 2001; Schaufeli et al., 2009). For example, burnout has been studied among other types of occupations, such as political activists (e.g., Pines, 1994), athletes (e.g., DeFreese & Smith, 2013; Fender, 1989), restaurant managers (e.g., Hayes & Weathington, 2007), and forestry workers (Leiter et al., 2013).

This expansion from studying burnout solely among human-service jobs to trying to understand how burnout affects other jobs and work settings also paved the way to the introduction of more general burnout measures. For example, based on the notion that burnout could be broadened beyond jobs in the human-services field, Schaufeli, Leiter, Maslach, and Jackson (1996) introduced the Maslach Burnout Inventory – General Survey (MBI-GS). The authors adapted the original version of the MBI to reflect a more general focus toward work that did not exclusively put emphasis on attitudes toward other people.

For many years, the MBI and its variations (e.g., MBI-GS) had been the 'gold standard' for measuring burnout (Schaufeli & Taris, 2005), but more recently, other viable instruments for measuring burnout in different contexts and occupations have been introduced, such as the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003) and the Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005). Of these two alternative instruments to measuring burnout, the OLBI is of particular interest to this research endeavor. The CBI reduces burnout to a single dimension that taps physical and mental fatigue and exhaustion (Kristensen et al., 2005; Schaufeli & Taris, 2005), but the instrument has received some criticism. For instance, in a commentary on the development of the CBI, Schaufeli and Taris (2005) argued that burnout should be conceptualized as a work-related phenomenon that contains at least two dimensions, fatigue and withdrawal – and perhaps lack of efficacy. Contrary to the CBI, both the MBI and the OLBI fit this description.

With the OLBI, Demerouti et al. (2003) introduced a new way of assessing burnout that closely resembles Maslach's (1982) conceptualization, but it differs in a few aspects. Contrary to the MBI, the OLBI includes *both* positively and negatively framed items to assess the two main dimensions of burnout: exhaustion and disengagement (from work) (Demerouti et al., 2003). Exhaustion refers to affective, physical, and cognitive strain resulting from exposure to demands (Demerouti et al., 2003). The other component of the instrument, disengagement, refers to distancing oneself from one's work in general (Demerouti et al., 2003). Disengaged/cynical employees distance themselves from their work and experience negative attitudes toward the work object, the work content (e.g., no longer finding work interesting or challenging), or the work in general (Demerouti et al., 2003).

As opposed to the way in which exhaustion is operationalized in the MBI-GS (which covers only affective aspects), the OLBI also covers physical and cognitive aspects (Demerouti et al., 2003). This enables researchers to apply the instrument to a wide variety of jobs with more physical or cognitive work (Demerouti & Bakker, 2008). Moreover, contrary to the MBI-GS, in the OLBI, disengagement extends the concept of depersonalization beyond solely distancing oneself emotionally from a recipient and also includes the work content and the work object (Demerouti et al., 2003). Overall, the OLBI continues to advance the burnout and wellbeing research (e.g., Demerouti & Bakker, 2008; Demerouti, Mostert, & Bakker, 2010) and its validity has been confirmed in different countries (Bakker & Heuven, 2006; Demerouti & Bakker, 2008; Demerouti et al., 2010; Tims, Bakker, & Derks, 2013).

Though the ways to measure burnout has been an area of continued refinement, from the outset, burnout scholars (e.g., Freudenberger, 1974, 1975; Maslach, 1982; Maslach & Leiter, 1997; Perlman & Hartman, 1982) have agreed on the impact of stressors (i.e., demands) on burnout, and by extension on burnout's negative role on employee wellbeing. Overall, studies have found demands (e.g., workload, role conflict) to be the most-important predictors of burnout (e.g., Alarcon, 2011; Lee & Ashforth, 1996) and burnout has been linked to a wide range of negative consequences – from behavioral outcomes, such as lower job performance (e.g., Taris, 2006) and increased levels of absenteeism (e.g., Parker & Kulik, 1995), to health-related outcomes, such as physical (e.g., Kim, Ji, & Kao, 2011) and psychological health problems (e.g., Dollard & Bakker, 2010), to depressive symptoms and life dissatisfaction (e.g., Hakanen & Schaufeli, 2012). For instance, Kim et al. (2011) conducted a study with 406 social workers over the span of a three-year period. They found that social workers with higher initial levels of burnout reported more physical health complaints (e.g., headaches, respiratory infections, gastrointestinal infections). Furthermore, Kim et al. (2011) reported that higher levels of burnout led to a faster rate of deterioration in physical health over a one-year period; in contrast, the social workers with the lowest initial levels of burnout reported having the best physical health.

Perhaps just as important for the growth of burnout research as the expansion in instruments addressing burnout has been the emergence of a broader, more-positive perspective of burnout, which considers it as the deterioration of a positive state of mind (i.e., engagement; Maslach & Leiter, 1997). Maslach and Leiter (1997) operationalized engagement as the direct opposite of burnout, and as such, measured engagement by the reverse patterns of scores on the MBI. Schaufeli and his colleagues (Schaufeli, 2014; Schaufeli & Bakker, 2010; Schaufeli, Salanova, González-Romá, & Bakker, 2002) took a slightly different approach and argued that, despite their antithetical composition, burnout and engagement are negatively related to each other but are distinct psychological states that could be more-adequately assessed using separate measures. This expansion to the burnout research positioned burnout as a key component within the JD-R model and has driven a large amount of empirical research on the construct (e.g., Brom, Buruck, Horváth, Ritcher, & Leiter, 2015; Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli, & Ahola, 2008; Hu & Schaufeli, 2011).

In sum, over the past few decades, researchers have come to view burnout as a form of job strain stemming from accumulated work-related stress (Hobfoll & Shirom, 2000; Schaufeli et al., 2009). Initially, research on burnout relied mostly on qualitative interviews and case studies, but with the introduction of the MBI and other important instruments, such as the CBI and the OLBI, research on burnout has since taken a more quantitative focus (Schaufeli et al., 2009). Burnout is now increasingly considered by some scholars as an erosion of a positive psychological state (e.g., Maslach & Leiter, 1997; Schaufeli et al., 2009), and along with work engagement, it provides a platform from which to understand and improve employee wellbeing and from which to address several health-impairing aspects of work that are detrimental to both the individual (e.g., job satisfaction; Martinussen, Richardsen, & Burke, 2007) and to the organization (e.g., poor performance; Bakker, Demerouti, & Verbeke, 2004).

Engagement. Given burnout's etiological nature, for decades, burnout prevention had been a main topic of interest among occupational health researchers (Schaufeli et al., 2009). Viewed as a product of work-related stress and chronic workplace demands (Halbesleben, 2006; Hobfoll & Shirom, 2000), interventions for preventing burnout had primarily focused on the removal and reduction of job strain and on increasing the availability of additional resources (Halbesleben & Buckley, 2004; Leiter & Maslach, 2010). However, the emergence of the positive psychology movement in organizational behavior research helped to shift researchers' attention from merely trying to prevent negative psychological states to identifying ways to promote wellbeing (Cole, Walter, Bedeian, & O'Boyle, 2012; Van den Broeck et al., 2008). This, coupled with claims that engagement is a major contributor to employee performance, organizational success, and competitive advantage (Crawford, LePine, & Rich, 2010; Macey & Schneider, 2008; Macey, Schneider, Barbera, & Young, 2009; Rich, LePine, & Crawford, 2010), catapulted engagement into popularity among practitioners, organizational leaders, and researchers in organizational sciences (Saks & Gruman, 2014).

Interest in engagement continues to grow, but recently, Saks & Gruman (2014) noted that major issues have plagued attempts to further develop the construct. Particularly, they pointed to the lack of agreement about what engagement "actually means" (Saks and Gruman, 2014, p. 156) and, relatedly, to the lack of agreement on how to measure it. For instance, they noted that there is still disagreement over what to call the construct – some researchers have referred to it as employee engagement (e.g., Bakker & Demerouti, 2008; Cole et al., 2012; Maslach et al., 2001), others as job engagement (e.g., Rich et al., 2010), and others as work engagement (e.g., Schaufeli & Salanova, 2011). Additionally, there have been concerns over the distinctiveness of engagement from burnout, mainly because a major portion of research on engagement stems from burnout research (Cole et al., 2012).

The growing interest on engagement also means that several definitions and theories have been proposed in an effort to better comprehend the nature of the construct. As Schaufeli (2014) explained, such work mostly stems from two primary areas of research: a) Kahn's (1990) ethnographic study on personal engagement, and b) Maslach and Leiter's (1997) and Schaufeli et al.'s (2002) work on burnout and employee wellbeing, respectively. Both research areas share some similarity and overlap, particularly in terms of the proposed motivational potential attached to engagement; though they also differ in some respects. For example, Kahn's (1990) conceptualization pertains to placing the complete self in a role, while engagement theories with a basis in burnout research categorize it as the opposite (or positive antithesis) of burnout (Saks & Gruman, 2014).

In this dissertation, the definition and theory of engagement I adopted is that of an affective-cognitive state, as proposed by Schaufeli et al. (2002). As Schaufeli (2014) noted, Schaufeli et al. (2002)'s definition is closely tied to the roots of the JD-R model and treats work engagement as a related, but independent entity from burnout. Due to the many ways in which work engagement has been referred to in the literature (Saks & Gruman, 2014), I use the terms "work engagement" or "engagement" interchangeably as the author(s) of the respective studies originally referred to it, unless I state otherwise.

Work engagement. Schaufeli et al. (2002) defined work engagement as a "positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption." (p. 74). Rooted in health-occupational psychology, in Schaufeli et al.'s (2002) conceptualization of work engagement, vigor is characterized by high levels of energy and mental resiliency at work, willingness to exert effort into one's work, and perseverance when facing challenges and obstacles. Dedication refers to one's identification with and enthusiasm for one's job, and it involves a strong affective connection with one's job (Schaufeli et al., 2002). Based on in-depth-interviews, absorption was included as the third component, having emerged as an important characteristic among engaged workers (Schaufeli et al., 2002). Absorption refers to fully concentrating on and being happily engrossed in one's work, to the point that time passes quickly, and one has difficulties detaching from work (Schaufeli et al., 2002). Subsequent studies have identified vigor and dedication as the main components of work engagement (Schaufeli, 2014).

Vigor and dedication are considered opposites of exhaustion and cynicism, respectively (Schaufeli et al., 2002; Schaufeli & Taris, 2005). In this view, the vigor-exhaustion continuum is referred to as "activation" or "energy", whereas the dedication-cynicism continuum is referred to as "identification" (González-Romá, Schaufeli, Bakker, & Lloret, 2006). Thus, high levels of energy and a strong identification with one's work characterize work engagement, whereas low levels of energy and poor identification with one's work characterize burnout (González-Romá et al., 2006; see also Demerouti et al., 2010).

Though Schaufeli et al. (2002) agreed that burnout and work engagement were opposites, they disagreed with the practice of assessing work engagement as being the opposite scores of the MBI. Schaufeli et al. (2002) contended that work engagement and burnout were not part of the same continuum and developed the Utrecht Work

Engagement Scale (UWES) to measure the aforementioned components of work engagement. They described work engagement as a concept in its own right, considering it to be the opposite of burnout, but a *distinct* concept nonetheless (Schaufeli et al., 2002). Further, the authors added that work engagement is not a momentary and specific state, but that instead it "…refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior" (Schaufeli et al., 2002, p. 74).

Along with burnout research, Schaufeli et al.'s (2002) conceptualization is the basis for the theory of work engagement within the framework of the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). With their definition of work engagement, Schaufeli et al. (2002) changed the focus of burnout research from one that was exclusively under a negative focus to one that also coincided with the emergence of the positive psychology movement in organizational behavior (Schaufeli et al., 2009; Van den Broeck et al., 2008). Thus, this concept of work engagement clearly fits with the positive trends and complements the health-impairment focus of the study of burnout (Schaufeli et al., 2009).

Given the many conceptualizations of engagement that are available, it is important to distinguish Schaufeli et al.'s (2002) definition from other prominent conceptualizations. Particularly, in the next sub-section I discuss the two main directions of research on engagement: Kahn's (1990) model of personal engagement and Maslach and Leiter's (1997) view of engagement as the direct opposite of burnout.

Investing oneself in a work role: Kahn's model of personal engagement. Credited with introducing the term into the research literature, Kahn (1990, 1992) provided the first influential definition of engagement. In an ethnographic study, Kahn

(1990) interviewed summer-camp counselors and members of an architecture firm about their moments of engagement (and disengagement) at work. Kahn (1990) described engagement in terms of the degree of enthusiasm for ones' job and defined it as "…the harnessing of organizational members' selves to their work roles" (p. 694). Further, Kahn (1990) explained, "…in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (p. 694). He also suggested that engagement captures an employee's psychological presence, or "being there"; therefore, the employee is attentive, connected, and focused in his or her role performance (Kahn, 1992). To Kahn (1990, 1992), engagement is the expression of one's preferred self in task behaviors. Thus, engaged workers' identification with their work is manifested through the great effort they put into it. In turn, through engagement, the employee generates positive outcomes, both at the individual level and at the organizational level (Schaufeli & Bakker, 2010). As Saks (2008) pointed out, Kahn's (1990, 1992) definition of engagement does not necessarily mean that people will do things outside of their role requirements, but rather that engagement has to do with the manner in which people do what they are supposed to do.

Kahn (1990) referred to engagement as moments of personal engagement and personal disengagement that are reflected when employees exhibit observable physical, emotional, and cognitive behaviors while carrying out their roles, either by investing themselves during work roles or by withdrawing from them. Additionally, Kahn (1990) delineated conditions under which employees can become engaged. Specifically, Kahn (1990) explained that employees are likely to become engaged with their work when three conditions are met: a) having work roles that are meaningful (i.e., feeling that one's in-role performance generates a return on investment), b) feeling psychologically safe (i.e., feeling as if one is able to employ one's self without fear of negative consequence), and c) perceiving the availability of resources (i.e., perceiving that one possesses the physical, emotional, and/or psychological resources to engage at a particular moment at work). Kahn's (1990, 1992) and Schaufeli et al.'s (2002) definitions are similar in that they both include cognitive (absorption), emotional (dedication), and behavioral-energetic (vigor) components (Macey & Schneider, 2008; Schaufeli, 2014; Schaufeli & Bakker, 2010). However, they differ in the key referent being used. In Khan's (1990, 1992) definition, the key referent is the work *role*, whereas for the conceptualizations of work engagement that categorize it as the opposite of burnout, the key referent is the work *activity,* or the work itself (Schaufeli, 2014; Schaufeli & Bakker, 2010).

Over the years, some researchers have attempted to build on Kahn's (1990, 1992) conceptualization. Taking a slightly different perspective and focusing on the behavioral aspect, Rothbard (2001) described engagement as "one's psychological presence in or focus on role activities" (Rothbard, 2001, p. 656). Drawing on Kahn's view that engagement and psychological presence involve being attentive, connected, and focused on a role, she examined engagement in two roles (i.e., work and family) and also investigated whether engagement in one role enhanced or depleted engagement in the other role. She described engagement as a two-dimensional motivational construct that includes attention and absorption. Rothbard (2001) defined attention as "a person's cognitive availability and the amount of time one spends thinking about a role" (p. 656) and absorption as "the intensity of one's focus on a role" (p. 656).

Later, May, Gilson, and Harter (2004) noted that, while Kahn's (1990, 1992) conceptualization is important to theoretical thinking, there had been little consideration for rigorously testing the theory. They developed a scale using Kahn's (1990, 1992) conceptualization to assess the expression of oneself physically, emotionally, and cognitively in one's work role. Further, the authors empirically tested Kahn's (1990, 1992) theory in an attempt to clarify the construct. In support of Kahn's (1990, 1992) theory, May et al. (2004) reported that meaningfulness, safety, and availability were significantly related to engagement. Additionally, they reported that job enrichment and role fit were positively related to meaningfulness; the construct for supportive supervisor relations was positively related to safety, but self-consciousness and adherence to co-worker norms were negative predictors; and lastly, the construct for availability of resources was positively related to psychological availability (May et al., 2004). While Kahn's (1990, 1992) focus on engagement was primarily "momentary", May et al. (2004) applied his idea of engagement as a more general stable state.

Saks (2006) also looked to expand on Kahn's (1990, 1992) model of engagement. Saks (2006) argued that a stronger theoretical rationale for explaining employee engagement could be tied to social exchange theory (SET; Homans, 1961). According to SET, social relationships are built within the rules of reciprocity and exchange (Blau, 1964; Homans, 1961). Employees choose the degree of engagement in their work and the organization depending on how they assess the resources the organization provides for them (Blau, 1964; Homans, 1961). According to Saks (2006), an employee's level of engagement is then an attempt to repay the organization. Thus, as suggested earlier by Kahn (1990, 1992), Saks (2006) argued that, the more engaged employees are, the more cognitive, emotional, and physical resources they will devote to perform their tasks.

Both Saks (2006) and Kahn (1990, 1992) focused on role performance in the workplace. However, Saks (2006) built on Rothbard's (2001) notion that employees' degree of engagement varies by the role in question and distinguished between “performing the work role” (job engagement) and “performing the role as a member of the organization” (organizational engagement). Saks (2006) found that the job engagement and organizational engagement were moderately correlated ($r = 0.62$), but they also seem to have different antecedents and consequences. As Saks and Gruman (2014) argued, Saks’s (2006) findings would mean that it is possible for some employees, such as university professors, to be fully engaged with their tasks (e.g., teaching, grading exams), but disengaged when it comes to their role within a department or university setting (e.g., serving on departmental committees, participating in faculty search committees), or vice versa.

Kahn’s (1990, 1992) model of personal engagement remains popular in the academic setting and continues to be praised for having a substantial definition that pertains to placing one’s complete self in a given role (Saks & Gruman, 2014). However, Schaufeli et al. (2002) critiqued Kahn’s (1990, 1992) conceptualization for lacking an appropriate operationalization for the construct. In addition, the model has been criticized for being impractical in nature due to how challenging it can be to record momentary periods of activity (e.g., Schaufeli et al., 2002) and for lacking empirical testing (e.g., Saks & Gruman, 2014; Schaufeli, 2014).

The opposite of burnout: Maslach and Leiter’s (1997) view. An alternative approach conceptualizes engagement as the direct opposite of burnout. Maslach and Leiter (1997) rephrased burnout as an erosion of a positive state of mind, which they called engagement. Their characterization of engagement is one that is at the opposite (positive) end of burnout in a *single continuum*. According to Maslach and Leiter (1997), burnout is a result of the wearing out of engagement, when “...energy turns into exhaustion, involvement turns into cynicism, and efficacy turns into ineffectiveness” (p.

24). As such, the authors contended that engagement is best measured using the opposite pattern scores of the three dimensions in the MBI (Maslach & Leiter, 1997). Consistent with this view, people who are highly engaged exhibit low levels of burnout, and vice versa (Maslach & Leiter, 1997). Additionally, within Maslach and Leiter's (1997) approach, people who suffer from burnout perceive their work as being demanding, whereas people who score high on engagement have a sense of energetic connection with their work and perceive their work as being challenging.

Schaufeli and Bakker (2004) disagreed with the notion that burnout and work engagement are part of a single continuum. They tested a model in which burnout and work engagement had different predictors and different outcomes. According to the authors, burnout and work engagement are not two "perfectly complementary and mutually-exclusive states" (Schaufeli & Bakker, 2004, p. 294). They argued that work engagement and burnout are two independent states of mind, which should be negatively correlated. For instance, a person may feel emotionally drained one day of the week but have a lot of energy another day of the week (Schaufeli & Bakker, 2004). Schaufeli and Bakker (2004) also advocated for the use of Schaufeli et al.'s (2002) conceptualization of work engagement, rather than Maslach and Leiter's (1997). By implication, the authors contented that work engagement and burnout should be assessed using different measures. Later research provided further evidence for the contrast and the independence between burnout and work engagement. For instance, Bakker, Demerouti, and Euwema (2005) showed that organizational resources made unique contributions to explaining variance in burnout over negative demands. Additionally, the reported magnitude of the correlations between the constructs of work engagement and burnout is far from -1 and has ranged between -0.15 and -0.65 (Cole et al., 2012; Hakanen et al., 2006; Halbesleben, 2010). Thus, research evidence supports the idea that work engagement and burnout are different constructs and should be assessed using different measures.

In summary, there are many conceptualizations of work engagement, but in this dissertation, I used the operationalization proposed by Schaufeli et al. (2002). Schaufeli et al.'s (2002) conceptualization characterizes work engagement as a concept in its own right, defined by its components of vigor, dedication, and absorption. This perspective views work engagement as the opposite of burnout and uses an employee's work activities as a reference for work engagement (Schaufeli et al., 2002). However, it assumes that burnout and work engagement are not governed by the same mechanisms (Schaufeli et al., 2002). The perspective declares that burnout and work engagement are negatively correlated constructs that are not at opposite ends of a single continuum (Schaufeli, 2014; Schaufeli & Bakker, 2004). As such, the constructs are best captured using their own individual measures (Bakker et al., 2005; Schaufeli, 2014; Schaufeli & Bakker, 2004; Schaufeli & Taris, 2005).

The Precursors to the Job Demands-Resource Model

The issue of job stress and its consequences on employee wellbeing has received increasing attention among researchers and has given rise to a proliferation of models and theories aimed at buffering job stress and/or improving employee wellbeing (Bakker & Demerouti, 2014). One such model was introduced in the form of the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004), which serves as an alternative to earlier models of employee wellbeing that often ignored the role of demands as stressors and the motivational potential of resources (Bakker & Demerouti, 2014). Before outlining the central tenets of the JD-R model, it is important that I discuss four models that have largely influenced its development: the two-factor theory (Herzberg, 1966; Herzberg, Mausner, & Snyderman, 1959), the job-characteristics model (JCM; Hackman & Oldham, 1975, 1976, 1980), the demand-control model (DCM; Karasek, 1979), and the effort-reward imbalance model (ERI; Siegrist, 1996).

Two-factor theory. Herzberg and colleagues (Herzberg, 1966; Herzberg et al., 1959) proposed the two-factor theory as a way to understand and improve motivation in the workplace. Categorized as a “need-based theory”, the two-factor theory aims to explain the factors that affect people’s attitudes at work by either encouraging or halting employee behavior (Herzberg, 1966). Herzberg and his colleagues (1959) categorized influential factors in two groups: hygiene factors and motivator factors. According to the theory, hygiene factors (e.g., salary, supervision, working conditions) are maintenance factors and their presence is important to avoid dissatisfaction with work – although their presence would not necessarily lead to increased motivation or job satisfaction (Herzberg, 1966; Herzberg et al., 1959). In contrast, motivator factors (e.g., social recognition, responsibility, advancement) are factors that enrich employee’s jobs (Herzberg, 1966; Herzberg et al., 1959). As opposed to hygiene factors, the presence of motivator factors would lead to increased motivation and job satisfaction (Herzberg, 1966; Herzberg et al., 1959). Motivator factors were associated with long-term positive effects in performance, whereas hygiene factors were only associated with short-term positive effects (Herzberg, 1966). Thus, the theory proposes that the presence of motivator factors push employees to, not only perform their jobs as required, but also to increase their efforts and exceed minimum requirements (Herzberg, 1966).

The two-factor theory has been popular over the years and was among the first theories to suggest that job satisfaction is not simply the direct opposite of job dissatisfaction (Hollyforde & Whiddett, 2002). However, empirical support for the two-factor theory has generally failed to confirm its major tenets (Dunnette, Campbell, & Hakel, 1967; Locke & Henne, 1986). For instance, Smerek and Peterson (2007) tested the two-factor theory on a sample of 2,700 employees at a large public university and found support only for the importance of the work itself (e.g., enjoying the type of work one does) on job satisfaction. Critics of the theory have contended that evidence for the validity of the two-factor model is method-bound (Ambrose & Kulik, 1999; Grant, Fried, & Juillerat, 2010). That is, Herzberg et al. (1959) used a critical-incident method to record events and when the same methods are followed, the same general results are obtained; when other methods are followed (e.g., questionnaire), results cannot be consistently replicated (Ambrose & Kulik, 1999; Grant et al., 2010). Additionally, other researchers have faulted the theory for containing the assumption that everyone would be motivated by the same factors (e.g., Hackman & Oldham, 1976). Further, while the two-factor theory considers the importance of both intrinsic and extrinsic job characteristics, Hackman and Oldham (1976) considered the omission of individual differences to be a major disadvantage. Lastly, the theory has generally received limited support for predicting job satisfaction (Ambrose & Kulik, 1999). Nevertheless, the two-factor theory has made an important contribution to the work-motivation literature. It prompted a great deal of research on work redesign (e.g., the JCM) and raised awareness among researchers and practitioners of job enrichment's potential to increase motivation in the workplace (Grant et al., 2010; Sachau, 2007).

Job-characteristics model. Shortly after Herzberg's two-factor theory emerged, Hackman and Oldham (1975, 1976, 1980) introduced a more refined job-based theory of motivation and job enrichment in the form of the JCM. The JCM examines the association between core job characteristics (skill variety, task identity, task significance, autonomy, and feedback) with personal outcomes (e.g., motivation, satisfaction) and work (e.g., job performance, absenteeism, turnover), as mediated by critical psychological states (meaningfulness, responsibility of outcomes, and knowledge of results) (Hackman & Oldham, 1975). The central tenet of the theory is that when employees are provided with sufficient levels of skill variety (the breadth of skills used at work), task identity (the opportunity to complete a task from start to finish), and task significance (the impact the work has on others' lives), they will view their work as being meaningful (Hackman & Oldham, 1975). Moreover, when employees are provided with sufficient levels of autonomy (the degree to which the job provides substantial discretion in determining behavior at work) and feedback (the degree to which the job provides information on effectiveness of job performance), this will inspire a greater sense of personal responsibility for work outcomes and knowledge of results of work activities, respectively (Hackman & Lawler, 1971; Hackman & Oldham, 1975, 1976, 1980).

Hackman and Oldham (1980) also included three moderators in the model, which influence how employees respond to enriched jobs: growth need strength (GNS), knowledge and skills, and context satisfaction. Added in response to the lack of individual differences in Herzberg's (Herzberg et al., 1959; Herzberg, 1966) two-factor theory, GNS refers to the degree to which a person has higher order needs for personal accomplishment, such as learning, development, and self-actualization (Hackman & Oldham, 1975; Oldham & Hackman, 2005). Knowledge and skill refers to the level of relevant job information and the ability to do work that the worker possesses (Hackman & Oldham, 1980). Lastly, context satisfaction refers to the degree to which the worker is satisfied with aspects of the job (satisfaction with compensation, job security, co-workers, and managers) (Hackman & Oldham, 1980).

Most research on the JCM has focused on the direct relationship between the core job characteristics and outcomes, rather than on the mediators or potential moderators (Humphrey, Nahrgang, & Morgeson, 2007). The model has received meta-analytic support for its central tenets (e.g., Fried & Ferris, 1987; Humphrey et al., 2007; Johns, Xie, & Fang, 1992), but research exploring the mediation role of the three psychological states has only been partially supported (e.g., Renn & Vandenberg, 1995; for meta-analyses, see Behson, Eddy, & Lorenzet, 2000; Humphrey et al., 2007). Additionally, empirical support for the moderating role of these constructs, especially for knowledge and skills as well as for context satisfaction, has been inconsistent (e.g., Graen, Scandura, & Graen, 1986; Johns et al., 1992). Despite the limited support for the moderators and mediators (e.g., Fried & Ferris, 1987), the JCM expanded research in job crafting and remains a dominant model in the job design and motivation literatures (Morgeson & Humphrey, 2006; Oldham & Hackman, 2010).

Job demand-control model. For many decades, Karasek's (1979) DCM has been one of the leading frameworks of work stress in occupational psychology (Bakker, Veldhoven, & Xanthopoulou, 2010; De Lange, Taris, Kompier, Houtman, & Bongers, 2003; Taris, Kompier, De Lange, Schaufeli, & Schreurs, 2003). The DCM has been widely used by researchers investigating work-environment influences on employee health to explain how quantitative demands of the work environment (e.g., work load, pace) negatively impact employee wellbeing (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; Van der Doef & Maes, 1999). In the DCM, Karasek (1979) emphasized that ill health does not result from single, isolated influences on the job. Rather, Karasek argued that demands of the work situation (amount of workload) as well as the degree of discretion employees have over their work (job control or decision latitude) act in *combination* to affect employee health (Karasek, 1979, 1985; Karasek & Theorell, 1990). While previous theories of job stress mainly focused on responses to traumatic experiences or events, the DCM was novel in that it explained job strain by focusing on the link between psychological demands and physiological illness and it considered daily stressors that employees encountered in the workplace (Häusser et al., 2010; Karasek & Theorell, 1990).

The DCM also proposes two main hypotheses: the “strain” and the “active-learning” hypotheses (Karasek & Theorell, 1990). The strain hypothesis predicts that high demands and low control lead to job strain, whereas the active-learning hypothesis maintains that a combination of high demands and high control increase work motivation, learning, and personal growth (Karasek & Theorell, 1990). Since the introduction of the model, two main perspectives have been distinguished, known as the “strain hypothesis” and the “buffer hypothesis”, respectively (Van der Doef & Maes, 1999). The strain hypothesis asserts that perception of high demands combined with low control is most detrimental to employee wellbeing and leads to psychological strain (Karasek & Theorell, 1990; Van der Doef & Maes, 1999); the buffer hypothesis states that perceptions of high control can buffer the negative effect of high demands (Karasek & Theorell, 1990; Van der Doef & Maes, 1999). The buffer hypothesis is based on the idea that employees with high job control are able to cope with inevitable strain-inducing situations of the job, which in turn protects them from the effects of excessive strain, and even results in higher levels of productivity (Karasek & Theorell, 1990).

The DCM was expanded years later when social support (from one’s coworkers and/or supervisors) was added to the model, thus forming the Job Demand-Control-Support model (JDC-S; Johnson, 1989). At the time, Johnson (1989), among other researchers (e.g., Baker, 1985; Hobfoll, 1988), argued that the DCM was too simplistic. Johnson (1989) contended that the DCM needed another psychological resource in the form of social support and that the role of social support in moderating the effect of demands in the demands/strain relationship is as important as the role of job control. The JDC-S model introduced the “iso-strain hypothesis”, which stated that the highest strain is expected as a result of the most unfavorable and potentially-stressful environment, characterized by high job demands, low job control, and low social support (Johnson, 1989).

Overall, the DCM (along with the JDC-S model) has been used to predict various psychological and physical health outcomes such as stress, exhaustion, and anxiety (e.g., Chambel & Curral, 2005; Niedhammer, Chastang, & David, 2008), as well as, cardiovascular heart disease (Karasek, 1979; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981). However, despite having acquired a prominent position in the job stress literature and despite having amassed a considerable amount of research, empirical support for the tenets of the DCM (and the JDC-S model) has been mixed (Baker, 1985; Chambel & Curral, 2005; Häusser et al., 2010). In particular, researchers have found unclear results for the buffer hypothesis (Kain & Jex, 2010). In reviewing the DCM, de Jonge and Kompier (1997) concluded that empirical evidence for the DCM is restricted to the strain hypothesis. Furthermore, the authors noted that most studies failed to produce the interaction effects proposed by the model, and that if they revealed the effect, results were often statistically weak or did not occur in the predicted directions. For example, in testing the tenets of the DCM on a sample of over 20,000 Belgium workers, Pelfrene et al. (2002) did not find support for the buffering effect of control or social support on the relationship between demands and feelings of depression; however, they found support for the strain and the iso-strain hypotheses. Similarly, Pomaki and Anagnostopoulou (2003) failed to find evidence of the interaction between demands (e.g., working hours) and control on health outcomes. Among a sample of Greek teachers, the authors reported finding support only for the iso-strain hypothesis.

Other reviews have also confirmed these inconsistent findings. In separate reviews of studies spanning over 30 years of empirical research, De Lange et al. (2003), Häusser et al. (2010), and Van der Doef and Maes (1999) reported generally consistent findings supporting the strain hypothesis and the iso-strain hypothesis; however, overall, they found evidence for the interactive effects as predicted by the buffer hypothesis to be very weak. Furthermore, Taris (2006) reanalyzed the 64 studies meta-analyzed by Van der Doef and Maes (1999) and found that only 9 out of 90 tests provided unqualified support for the demand/control interaction effect. Though these results cast doubt into the hypotheses of the DCM, the model continues to be widely popular in the stress literature (Bakker & Demerouti, 2014; Schaufeli & Taris, 2014).

Effort-reward imbalance. A few years after the inception of the DCM, Siegrist (1996) introduced the ERI model. The ERI model has its origins in medical sociology and focuses on the reward aspects of the work (Marmot, Siegrist, Theorell, & Feeney, 1999; Siegrist, 1996). The ERI model introduced the extrinsic ERI hypothesis, which states that the source of job strain is the disturbance of the equilibrium between effort (extrinsic demands and intrinsic motivation to meet these demands) and rewards (occupational rewards provided by the employer and/or society such as salary, career opportunities, and esteem) (Siegrist, 1996). Thus, the model's claim that work is characterized by high effort and low reward represents a stressful imbalance (Siegrist, 1996). Exerting high effort at work (i.e., working hard) without receiving perceived adequate appreciation for the effort (like being offered a promotion) would instigate this stressful imbalance (de Jonge, Bosma, Peter, & Siegrist, 2000).

Besides efforts and rewards, and unlike the DCM, the ERI model also introduced a personal component in the form of overcommitment (Siegrist, 1996). Overcommitment refers to a set of attitudes, behaviors, and emotions that reflect excessive work effort (Siegrist, 1996; Siegrist et al., 2004). According to the model, overcommitment moderates the effort-balance/employee-wellbeing relationship and can lead to emotional exhaustion and worsen the negative effects of the efforts/rewards imbalance (Siegrist, 1996). Support for the role of overcommitment has been mixed, however. In their review of 45 studies on the ERI model, van Vegchel, de Jonge, Bosma, and Schaufeli (2005) found empirical support for the ERI extrinsic hypothesis but reported inconsistent results for the support of the overcommitment claims. Nonetheless, the ERI model remains popular in the work-stress literature, especially among European researchers (van Vegchel et al., 2005), and offers an alternative view on work stress that emphasizes a personal characteristic (Schaufeli & Taris, 2014; van Vegchel et al., 2005).

Critique on early models. While these early models have acquired a prominent position in occupational psychology, all four have been criticized for being limited in scope (e.g., Baker, 1985; Bakker & Demerouti, 2007, 2014; Bakker, Demerouti, & Schaufeli, 2003). Bakker and Demerouti (2014) outlined four major critiques for these models that the JD-R model looked to address. Next, I expand on these critiques.

First, Bakker and Demerouti (2014) thought that the previous models were simplistic. Both the DCM and the ERI model assume that demands lead to job strain when certain resources are missing (control in the DCM and rewards in the ERI model). But, while Karasek & Theorell (1990) and Siegrist (1996) have argued that the strength of their respective models lies in their simplicity, some researchers view the models' restriction to a particular set of demands and resources as being a major flaw (e.g., Baker, 1985; Bakker & Demerouti, 2007, 2014; Johnson & Hall, 1988). In fact, somewhat contradictorily, Karasek (1979) himself had previously acknowledged the need for researchers to study a wider range of demands and resources. Additionally, in the years after the introduction of the DCM and the ERI model, research on employee wellbeing has generated a large set of other demands (e.g., work overload, emotional demands) and resources (e.g., learning opportunities, social support) that are not addressed by either the DCM or the ERI model (for meta-analyses, see Alarcon, 2011; Lee & Ashforth, 1996). This is concerning, since we know from research that for certain occupations some demands and/or resources are likely to be more important than others (Bickerton, Miner, Dowson, & Griffin, 2015). As such, researchers advocating for the use of the JD-R model to study job stress and employee wellbeing have raised the question of whether these older models are limited to a particular set of jobs and cannot be generalized (e.g., Bakker & Demerouti, 2007; Schaufeli & Taris, 2014).

Second, Bakker and Demerouti (2007, 2014) argued that a major problem with these early models is their narrow focus and that they are one-sided. The work motivation/job design theories (two-factor model and JCM) tend to ignore research on job stress, whereas job-stress theories (DCM and ERI model) often ignore research on motivation (Bakker & Demerouti, 2007, 2014). However, research on both topics points out that these topics are not unrelated. For example, as Bakker, Van Emmerik, and Van Riet (2008) found, exhausted employees may become cynical about their jobs, which causes them to wonder whether their jobs are meaningful, and ultimately affects their performance. Being stressed and burned out brings repercussions in the workplace that could potentially alter people's motivation and their attitudes toward work (Bakker et al., 2008). Thus, the motivation potential of resources can be helpful in ameliorating this problem and enhancing engagement, reduce cynicism, and improve performance (Bakker & Demerouti, 2014).

Third, the models have also been criticized for their static nature – one that ignores the possibility of other work-related factors being important for different occupations (e.g., Bakker et al., 2010). For example, it is unclear why the most-important resources in the DCM and in the JDC-S are autonomy and social support, respectively (Bakker & Demerouti, 2007, 2014). In a similar vein, Hackman and Oldham's (1976, 1980) JCM is limited to five core characteristics, but other studies have shown the potential motivating factor of other resources, such as opportunities for development (e.g., Bakker & Bal, 2010), supervisory coaching (e.g., Bakker & Demerouti, 2007), and spiritual resources (Bickerton et al., 2015). Additionally, the ERI model considers work pressure or intrinsic (or extrinsic) effort to be the most-important demand (Siegrist, 1996), thus disregarding other potential job stressors (Schaufeli & Taris, 2014). However, there is evidence that jobs can have their own set of demands. For example, Bickerton et al. (2015) found that work-home interference and interpersonal conflict were prevalent demands among a sample of religious workers (e.g., clergy, youth workers).

Lastly, the nature of jobs is evolving – constantly changing. Demerouti, Derks, ten Brummelhuis, and Bakker (2014) argued that, partly due to the role information technology plays in the ways in which work is executed, the level of function of contemporary jobs seems to be more complex than in previous decades. As Bakker & Demerouti (2014) explained, contemporary jobs are governed by a set of different working conditions than were those of earlier decades when these models were first introduced. For instance, as technology advances, more employees have the option of some form of decentralized work arrangement, such as telecommuting. Telecommuting gives employees the opportunity to work from home and minimize work-life interference (Gajendran & Harrison, 2007). However, while teleworking has its advantages (e.g., higher job satisfaction, improved performance; Gajendran & Harrison, 2007), this level of isolation from the physical workplace setting could also result in less face-to-face interaction with colleagues (Golden, Veiga, & Dino, 2008). This has the potential to introduce a new potential stressor and a new need for workers – that of trying to initiate contact with coworkers (such as via meetings) to sustain access to social resources (Tims et al., 2013). Because of the nature of today's jobs, Bakker and Demerouti (2014) argued that identifying only a limited set of work characteristics to describe the nature of contemporary jobs is too restrictive.

In summary, influential models of job stress and motivation have typically ignored each other's contributions to the wellbeing literature (Bakker & Demerouti, 2007, 2014). Job stress models have neglected the motivating potential of resources, while job design/motivation models have often overlooked the role of demands or stressors (Bakker & Demerouti, 2014). Bakker and Demerouti (2007, 2014) argued that much can be gained from studying both streams of research simultaneously. Looking to address various shortcomings of the early models, it is possible that the use of a more-comprehensive-yet-flexible model, in the form of the JD-R model, could better explain the job stress/wellbeing relationship (Bakker & Demerouti, 2007, 2014).

The Job Demands-Resources Model

The shortcomings of previous models of employee wellbeing prompted Bakker and colleagues (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003;

Demerouti et al., 2001; Schaufeli & Bakker, 2004) to develop the JD-R model, which expanded on the DCM, particularly, in a number of ways. One of the basic tenets of the JD-R model addresses the criticism of the previous models – the main assumption that every occupation differs in its own set of factors associated with job stress; hence, this constitutes an overarching model that may be applied to various occupational settings (Bakker & Demerouti, 2014; Bakker, Demerouti, & Sanz-Vergel, 2014). These factors can be classified into two broad general categories (i.e., demands and resources; Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Schaufeli & Bakker, 2004). Thus, the scope of the JD-R is much greater than that of the previous four models because it incorporates *any* demand and *any* resource and assumes that they may affect employee wellbeing differently (Bakker & Demerouti, 2007, 2014; Demerouti et al, 2001; Schaufeli & Taris, 2014).

In the JD-R model, demands are defined as “those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and psychological costs” (Bakker & Demerouti, 2007, p. 312). While not inherently negative, when those demands require high effort and thereby deplete employees’ resources, demands (e.g., workload, role requirements, expectations, work pressure) can be detrimental and can lead to psychological strain (Bakker & Demerouti, 2007; Meijman & Mulder, 1998). For instance, Hakanen, Schaufeli, and Ahola (2008) found that increasing dentists’ quantitative workload (i.e., the amount of work required to complete a task; Spector & Jex, 1998) required (understandably) those dentists to increase the level of physical and psychological effort they put forth in order to complete the tasks; this led to an increased sense of being overwhelmed, and subsequently to burnout (Hakanen, Schaufeli, & Ahola, 2008).

Resources, on the other hand, are defined as "physical, psychological, social, or organizational aspects of the job that are…functional in work goals, reduce job demands and the associated physiological and psychological costs, and [serve to] stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, p.312). Resources may be present at the organizational level (e.g., career opportunities, salary), the interpersonal level (e.g., supervisor, coworker support), the job-position level (e.g., participation in decision-making), and/or the task level (e.g., skill variety) (e.g., Bakker & Demerouti, 2007; Bakker et al., 2004; Demerouti & Bakker, 2011). To illustrate, increasing job autonomy gives individuals the capacity to influence decisions over important matters, thus increasing people's willingness to work and their commitment to the organization (Boyd et al., 2011).

In dealing with resources, the JD-R model agrees with Hackman and Oldham's (1980) JCM, which emphasizes the motivational potential of resources at the task level (Bakker & Demerouti, 2007). Similarly, the model also addresses resources within the same framework of Hobfoll's (1989, 2002) Conservation of Resources (COR) theory, which states that people strive to protect, retain, and accumulate resources. According to the COR theory, the potential or actual loss of resources as well as the failure to obtain new resources to cope with demands would result in stress (Hobfoll, 1989). This makes it likely that resources are valued within their own right and are important to protect or accumulate other resources (Bakker & Demerouti, 2007).

The dual process. The main premise of the JD-R model is that demands and resources play a significant role in the development of two psychological processes that explain wellbeing in the workplace: the *health-impairment process* and the *motivational process* (Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Schaufeli & Bakker, 2004). Through the health impairment process, demands (e.g., work overload, emotional demands, work-home interference) deplete employees' mental and physical resources, which in turn lead to health problems (e.g., exhaustion, depression) (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). In contrast, through the motivational process, resources (e.g., family support, rewards) exert a motivational potential (both intrinsic and extrinsic) that leads to high work engagement and improved job performance (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). To explain these processes, JD-R scholars have relied on various theoretical frameworks such as Hockey's (1993, 1997) compensatory regulatory-model, Bandura's (1977) self-efficacy, and Hobfoll's (1989, 2002) COR.

Health-impairment process. Drawing upon Hockey's (1993, 1997) compensatory regulatory-control model, JD-R researchers expect continued exposure to demands to result in negative outcomes (i.e., the health impairment process). Hockey's (1993, 1997) state-regulation model of compensatory control offers a cognitive-emotional framework for understanding performance under demanding conditions. According to Hockey (1993, 1997), when confronted with demanding and/or stressful situations, employees face a trade-off between protecting their primary performance goals (benefits) and the mental effort required to sustain the effort (costs). Thus, when demands increase, regulatory problems occur (Hockey, 1997). That is, continuous compensatory effort has to be mobilized to deal with energy-depleting demands in an effort to maintain performance levels (Hockey, 1997). This continuous mobilization of compensatory efforts exhausts the employee's energy, which in turn, leads to increased psychological and physiological costs (e.g., loss of motivation, fatigue) and might subsequently lead to burnout (exhaustion and cynicism) and ill health (Hockey, 1997; Schaufeli & Bakker, 2004).

Motivational process. In contrast, the motivational process assumes that resources have motivational potential, which through work engagement, promote positive organizational outcomes such as personal initiative and low turnover (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Schaufeli & Bakker, 2004). To explain the motivational process, JD-R scholars have relied on various frameworks, including Bandura's (1977) self-efficacy, Deci and Ryan's (1985, 2000) Self-Determination Theory (SDT), Hackman and Oldham's (1980) JCM, Locke and Latham's (1990) goal-setting theory, and Hobfoll's (1989, 2002) COR theory. For instance, since resources promote employees' growth, learning, and development, they may play an intrinsic motivational role in the motivational process (Bakker & Demerouti, 2007). Additionally, resources may also fulfill basic human needs (e.g., autonomy, competence, relatedness; Deci & Ryan, 1985). For example, drawing on the SDT, Fernet, Austin, Trépanier, and Dussault (2013) tested both processes of the JD-R model and found that resources, such as having clear and adequate information to perform the job properly (i.e., the opposite of role ambiguity), created the platform necessary to fulfill the need for job competence, while job control and social support fulfilled the need for autonomy and relatedness, respectively (see also Van de Broeck et al., 2008).

Resources may also foster an extrinsic motivational role at work necessary for dealing with demands and enabling the achievement of work goals (Bakker & Demerouti, 2007). In line with Meijman and Mulder's (1998) effort-recovery model, work environments that offer many resources offset the consequences of demands and increase employees' level of effort as well as the likelihood that work being accomplished. Due to their motivational potential, resources serve to galvanize employees to meet their goals, and in turn, employees may derive fulfillment from their jobs and become more committed to them (Bakker & Demerouti, 2007; Hackman & Oldham, 1980; Schaufeli & Bakker, 2004).

Overall, the dual process concept of the JD-R model has received empirical support from cross-sectional and longitudinal studies. For instance, in a sample of employees at a Dutch call center, Bakker, Demerouti, and Schaufeli (2003) reported finding support for the dual pathways of the JD-R model. In the study, demands (e.g., work pressure, computer problems) were predictors of health problems, which, in turn, were related to sickness absence. Resources (e.g., social support) were predictors for organizational commitment, which, in turn, were related to lower levels of turnover intentions (Bakker, Demerouti, & Schaufeli, 2003). Recently, Schaufeli and Taris (2014) reviewed the results of 16 cross-sectional studies from seven countries and found support for the mediating effects of work burnout and engagement, with partial mediation observed in 4 of those samples. In 13 studies, significant crosslinks were found, particularly between poor resources and burnout. Moreover, in a cross-lagged analysis based on two waves over a 3-year period with 2,555 Finnish dentists, Hakanen, Perhoniemi, and Toppinen-Tanner (2008) found that, through work engagement, resources predicted that organizational commitment; whereas, through burnout, demands predicted future incidence of depression.

Finally, the dual process notion has also received meta-analytic support. Nahrgang, Morgeson, and Hofmann (2011) used 203 independent samples and the JD-R model to test a model of safety behavior in the workplace. Nahrgang et al. (2011) found support for the dual process, whereby burnout and engagement acted as mechanisms through which demands (i.e., risks and hazards, physical demands, and complexity) and resources (i.e., knowledge, autonomy, and a supportive environment) were related to safety outcomes (i.e., accidents and injuries, adverse events, and unsafe behavior). Taken together, these findings provide support for the JD-R model's claims that demands and resources initiate two different psychological processes (i.e., through burnout and engagement) that can eventually lead to (positive or negative) outcomes.

Job demands/resources interaction. Another proposition put forth by JD-R researchers is that demands and resources interact to predict occupational wellbeing (Bakker & Demerouti, 2007, 2014; Schaufeli & Bakker, 2004). Two possible ways in which demands and resources interact to have a combined effect on wellbeing, and indirectly influence performance, are: 1) resources buffer the impact of demands on strain, and 2) demands intensify the effect of job resources on engagement (Bakker & Demerouti, 2007, 2014). Testing the first proposed interaction, several studies (e.g., Bakker et al., 2005; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007) have shown that resources (e.g., autonomy, support) can mitigate the effect of demands (e.g., work pressure, emotional demands) on job strain, including burnout. For instance, Bakker, Demerouti, Taris, Schaufeli, and Schreurs (2003) reported that the effect of demands on exhaustion was stronger when employees had few resources, whereas the effect of resources on cynicism was stronger when employees had many demands. Bakker, Demerouti, Taris, et al. (2003) reported that employees were better equipped to cope with demands when they have many resources at their disposal.

Testing the second proposed interaction, research has shown that as demands become greater, resources become more salient and can have a greater impact on work engagement (e.g., Bakker & Demerouti, 2007; Bakker et al., 2010). For example, in a study comprising 12,359 employees working in 148 organizations, Bakker et al. (2010) found that task enjoyment and commitment were highest when employees faced challenging and stimulating tasks and had sufficient resources at their disposal (e.g., feedback, colleague support). It is worth noting that these results are in line with Karasek's (1979) active-learning hypothesis, whereby employees do particularly well when high resources are combined with high demands. The JD-R model, then, also expands on the DCM by showing that other resources besides control are also important for determining psychological wellbeing (Bakker & Demerouti, 2007, 2014; Schaufeli & Taris, 2014). In sum, there is evidence to suggest that demands and resources interact and have a multiplicative effect on employee wellbeing.

Differentiating job demands: Challenges and hindrance stressors. One important criticism directed at the JD-R model was that demands were not differentiated according to how employees appraise them (Crawford et al., 2010). Research, however, has suggested that people differ in their evaluation of stressful situations (e.g., demands) and their significance for wellbeing (Lazarus & Folkman, 1984). According to Lazarus and Folkman's (1984) transactional theory of stress, work characteristics can be subjectively perceived and defined by employees as being "good" or "bad." The theory states that people differ in how they perceive stressors as being potentially endangering to one's wellbeing (Lazarus & Folkman, 1984); thus, people appraise stressful situations in two ways or in two stages: as primary appraisals and as secondary appraisals. First, Lazarus and Folkman (1984) posited that as a primary appraisal, people evaluate a particular situation as being positive (i.e., involving challenges), neutral, or negative (i.e., involving potential loss or threat). In particular, if a situation has been evaluated as being negative and therefore deemed as potentially causing future harm of some kind, a secondary appraisal occurs, and people evaluate available resources they can draw upon to deal with perceived threat or loss (Lazarus & Folkman, 1984).

Lazarus and Folkman's (1984) theory explains that people's appraisal of stressors as good or bad will vary as a function of the characteristics of the person who is doing the appraisal for a particular situation. However, in accordance with Brief and George's (1995) argument that people tend to have a fairly consistent appraisal of work-related stressors, and despite individual differences and the perceptions resulting from the appraisal of work-related stressors (i.e., demands), empirical evidence (e.g., Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000; LePine, Podsakoff, & LePine, 2005) supports the notion that, overall, certain types of stressors are likely to be appraised as good stressors, whereas others are likely to be appraised as bad stressors.

Cavanaugh et al. (2000) built upon Lazarus and Folkman's (1984) research and reasoned that not all stress could be considered to be bad stress that leads to negative outcomes; some stress could also have positive effects. On the basis of this, Cavanaugh et al. (2000) proposed a two-dimensional framework of demands, categorized as *hindrances* or *challenges*. The framework has been validated by factor analysis, employee ratings (of job demands hindrances or challenges), critical incident techniques, and meta-analyses (e.g., Cavanaugh et al., 2000; Crawford et al., 2010; LePine, LePine, & Jackson, 2004; Podsakoff, LePine, & LePine, 2007).

Hindrance stressors (e.g., role conflict, role overload, role ambiguity) refer to stressful demands that interfere with an individual's ability to achieve valued goals (Cavanaugh et al., 2000); they trigger negative emotions (e.g., fear, anger) and passive coping styles (e.g., withdrawing from the situation) (Crawford et al., 2010). Conversely, challenge stressors (e.g., high levels of responsibility, high workload, time pressure), refer to demands appraised as having the potential to promote personal and work-related achievement (Cavanaugh et al., 2000); they trigger positive emotions (e.g., eagerness, excitement) and active problem-solving coping styles (e.g., increase in effort) (Crawford et al., 2010). According to this, challenge demands could be considered to be good stressors; thus, they have the potential to be perceived as rewarding work experiences that are worth their associated discomfort (Crawford et al., 2010).

Crawford et al. (2010) refined the demands-resources perspective of the JD-R model by building upon Cavanaugh et al.'s (2010) findings. In a meta-analysis, they posited that all demands, regardless of whether they are perceived to be hindrances or challenges, would be positively related to burnout because the strain resulting from demands and the increased effort to cope with them would leave employees feeling exhausted and worn out (Crawford et al., 2010). Crawford et al. (2010) argued that this would not necessarily mean that when confronted with demands, people who are feeling exhausted would be unwilling to invest themselves (be engaged). Rather, Crawford et al. (2010) reasoned that the relationship between demands and engagement depends on the type of demand, such that challenge demands would be positively related to engagement because people would appraise them as being meaningful and as having the potential to promote personal and work-related achievement; however, they thought that hindrance demands would be negatively related to engagement because these would be appraised as a waste of energy and personal resources (Crawford et al., 2010). Crawford and colleagues (2010) found support for the demand/burnout hypothesis, which is line with findings from other meta-analytic reports by Lee & Ashforth (196) and Alarcon (2011), respectively. They also found that hindrance demands were negatively related to work engagement because of the negative emotions resulting from withdrawal – while challenges were positively related to work engagement (Crawford et al., 2010). Conversely, given the activation of positive emotions and active problem-solving styles, challenge demands were related to work engagement (Crawford et al., 2010). In sum, the influence of the working conditions on burnout and engagement vary with the nature of the demands and with respect to how employees appraise them (Crawford et al., 2010). In this dissertation, I only explored the demand/burnout (exhaustion and disengagement) and resource/engagement relationships; as such, I expected demands to lead to burnout and resources to result in engagement.

Personal resources. An important extension to the original JD-R model was the inclusion of personal resources as predictors of work engagement (Xanthopoulou et al., 2007). Up to this point, studies on the JD-R model were restricted to work characteristics, and as a result, neglected personal resources (Xanthopoulou et al., 2007), which can serve as important determinants of employees' adaptation to work environments (Hobfoll, 1989; Hobfoll, Johnson, Ennis, & Jackson, 2003). Personal resources refer to psychological characteristics or positive aspects of the self that are linked to resiliency and can increase individuals' perceived sense of ability to control and affect the environment successfully, particularly in challenging situations (Hobfoll, 2002; Hobfoll et al., 2003). Like other general resources, personal resources act as motivators and facilitators of goal attainment, while protecting individuals from demands and stimulating personal growth and development (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Xanthopoulou, Bakker, & Fischbach, 2013).

Xanthopoulou et al. (2007) examined the role of three personal resources (self-efficacy, organizational-based self-esteem, and optimism) in predicting work engagement and exhaustion. They found that personal resources did not offset the relationship between demands and exhaustion; however, they did partially mediate the relationship between resources and work engagement. Thus, this suggested that resources act to foster personal resources (Xanthopoulou et al., 2007). In another study spanning over 18 months, Xanthopoulou et al. (2009) found that personal resources (self-efficacy, optimism, and organization-based self-esteem) predicted work engagement, and vice versa. This reciprocal relation suggests the existence of a dynamic interplay of engagement and resources over time and points to a notion of gain cycle – resources foster engagement, which foster resources, etc. (Salanova, Schaufeli, Xanthoupoulou & Bakker, 2010). This agrees with Hobfoll's (1989, 2002) COR theory, which proposes that people strive to accumulate and/or preserve resources of various kinds in order to effectively respond or overcome stress and threats. Overall, JD-R researchers agree that personal resources are an important extension to the JD-R model, but exactly which place they should take is still unclear (Schaufeli & Taris, 2014). Though they are very important for the understanding of the JD-R model, in this dissertation, I did not explore personal resources.

Demands and resources salient to the study. Proponents of the JD-R model (e.g., Bakker & Demerouti, 2007, 2014; Demerouti et al., 2001) have contended that one of the main strengths of the model is its flexibility in accommodating numerous demands and resources that are salient to workers in a particular job. Researchers acknowledge that the inclusion of job-specific demands in addition to generic demands, as well as of job-specific resources is more valuable to the prediction of work-related health and performance outcomes (e.g., Brough, 2004; Brough & Frame, 2004; Tuckey & Hayward, 2011). Therefore, in this study I included demands and resources that have been identified in the literature as being a source of work-related strain and of positive outcomes among the workers that I sampled from (i.e., nurses). Among nurses, demands such as centralization (e.g., Jackson, 1983; Kowalski et al., 2010), role ambiguity (e.g., Jackson, 1983; Rai, 2010; Tunc & Kutanis, 2009), work-life conflict (e.g., Bacharach, Bamberger, & Conley, 1991; Takeuchi & Yamazaki, 2010), perceived workload (e.g., Greenglass, Burke, & Fiksenbaum, 2001; Kowalski et al., 2010; Rai, 2010), and perceptions of distributive injustice (e.g., Greenberg, 2006) have all been related to stress and psychological strain in the past. Similarly, resources such as procedural justice (e.g., Chu, Hsu, Price, & Lee, 2003; Gillet, Colombat, Michinov, Pronost, & Fouquereau, 2013), innovative climate (e.g., Dackert, 2010), rewards and recognition (e.g., Bamford, Wong, & Laschinger, 2013; Laschinger, 2010; Sarti, 2014), and coworker support (e.g., Sarti, 2014; Schaufeli & Bakker, 2004) have been related to positive health and work outcomes among nurses. For instance, Demerouti, Bakker, Nachreiner, and Schaufeli (2000) reported that demands (workload and lack of participation in decision-making) were predictive of emotional exhaustion, while resources (support and rewards) were related to life satisfaction among nurses.

Summary of the JD-R model. In sum, via the study of the demands/burnout and resources/work engagement relationships, the JD-R model offers a comprehensive framework for understanding the effects of stress on employee wellbeing (Bakker & Demerouti, 2007, 2014). The model was introduced as a response to previous theories of job stress and employee wellbeing that were highly limited in scope by a set of predetermined job factors and that at times were not relevant to a particular occupation or the work environment to which they were applied (Bakker & Demerouti, 2007, 2014; Schaufeli & Taris, 2014). Further, with its dual processes, the JD-R model provides a broad understanding of both negative and positive indicators of wellbeing, separating itself from the aforementioned theories that were primarily focused on addressing ill health, and introducing a new process to promote positive organizational outcomes.

The Role of National Culture

In studying different models and theories of organizational behavior, several researchers agree that national-level factors, such as culture, could affect their propositions (Braun & Warner, 2002; Hofstede, 1987, 2001; House et al., 2004; Schein, 2010). In other words, theories are not 'culture free' (Hofstede, 2001; House et al., 2004). As Hofstede (1987) explained, it would be naïve to assume that people can be managed in the same way in all parts of the world. Similarly, it is possible that one could be mistaken to assume that wellbeing theories, such as the JD-R model, would apply in the same manner to different cultures. As such, wellbeing theories may too differ by context of national-level factors such as culture.

For more than a decade, the JD-R model has been a leading framework for explaining the stress-wellbeing relationship through burnout and work engagement. The model has been tested in various countries, but despite its increasing popularity, research exploring the effect that national culture may have on its tenets has been limited (e.g., Brough et al., 2013; Farndale & Murrer, 2015; Liu et al., 2007). Today's globalization has heightened the need to understand the impact of national culture in the workplace (Hofstede et al., 2010). This, coupled with the position of the JD-R model as a comprehensive framework of employee wellbeing, highlights the need to understand the potential impact of national culture on the demands/burnout (exhaustion and disengagement) and resources/work engagement relationships, which could offer great insight into the merits and limitations of the theory as well as expand our general knowledge of employee wellbeing.

Culture defined. Culture is a complex, multidimensional construct, and as a result, many attempts have been made to define it (e.g., Hofstede, 1980; House et al., 2004; Javidan & House, 2001; Kroeber & Kluckhohn, 1952; Triandis, 2007). In fact, as early as the 1950s, Kroeber and Kluckhohn (1952) had already identified over 160 definitions of culture in the academic literature. Because culture is so broad, researchers from various fields such as psychology, sociology, and anthropology have offered various conceptualizations. So far, researchers have had difficulty establishing one main definition (Kroeber & Kluckhohn, 1952; Potter, 1989; Triandis, 2007). Though as Triandis (2007) explained, there is some emerging consensus in what constitute the properties of culture. According to Triandis (2007), culture: a) emerges in adaptive interactions between the person and the environment, b) consists of several shared elements, and c) is passed across time and generations. As Hofstede (1980) suggested decades ago, culture is a complicated subject akin to a "black box" – people are generally aware of it, but not of what it contains inside.

While it is beyond the scope of this dissertation to integrate all the different perspectives of culture or to provide an extensive literature review on culture, two definitions that offer insight into the potential impact of national cultural differences on the tenets of the JDR-model, and by extension on occupational health and wellbeing, were proposed by Hofstede (1980) and Javidan and House (2001), respectively. Hofstede (1980) provided a parsimonious definition of culture, referring to it as a "collective programming of the mind which distinguishes the members of one category of people from another" (p. 25). This collective programming describes a process whereby people absorb their culture through social interactions (e.g., with family, education, or organizations). To Hofstede (1980), culture is learned – not genetic. Later, using an analogy of the way in which computers are programmed and operate, Hofstede (1991) called culture the "software of the mind." This, however, does not necessarily mean that people are programmed in the same way that computers are; rather, it implies that people's behavior and patterns of thinking and feeling are partially predetermined by a specific social context (Hofstede, 1991, 2001). Furthermore, Hofstede (1991) suggested that people carry several layers of mental programming within themselves, which correspond to different layers of culture. Hofstede (1991) outlined six layers of cultural programming that encompass the range of culture's operative on people's behavior: national (country) level; regional, ethnic, religious, or linguistic-affiliation level; gender level; social level (profession); generation level (parents and children); and organizational level (work environment). As he explained, these layers are part of one's learned behavioral patterns regarding their cultural practices and traditions (Hofstede, 1991).

Javidan and House (2001) offered a similar definition. To them, culture is a "set of beliefs and values about what is desirable and undesirable in a community of people, and a set of formal or informal practices to support the values" (Javidan & House, 2001, p. 292). Thus, as organizational-behavior research indicates, people's values and norms have strong influences on their behavior (Hofstede, 2001; House et al., 2004). The definitions put forth by Hofstede (1980) and by Javidan and House (2001) share elements with Triandis's (2007) description of the properties of culture, and also suggest that people's behavioral patterns and feelings are at least partially dictated by their national culture. Though Hofstede's (1980, 1991, 2001) multi-layered view presents the potential to explore culture through several lenses, in this dissertation, the main focus is of culture at a national level. As such, I used the terms culture and national culture interchangeably, unless otherwise specified.

National culture. Interest in culture has led researchers to study it at a national level. Culture at the national level is broad and shapes people's values, beliefs, and assumptions from early childhood (Hofstede, 1983, 1991). Hofstede (1983) suggested that the existence of cultural differences among countries could be due to political, sociological, and psychological reasons. First, Hofstede (1983) explained, nations "are political units, rooted in history, with their own institutions: forms of government, legal systems, educational systems, labor and employer's association systems" (p. 75). Because of this, both formal and informal political realities differ among countries. Second, belonging to a nation has symbolic value to its citizens and shapes part of people's identity. Lastly, people's thinking is in part determined by national factors, from early life experiences to later educational and organizational experiences while growing up.

Inevitably, this interest in national culture has led researchers to try to uncover cultural differences between countries; as a result, various frameworks of national culture have been proposed (Warner & Joynt, 2002). Perhaps the most-influential framework of national culture was introduced by Hofstede. Hofstede (1980) conducted a multinational study examining national cultures within International Business Machines Corporation (IBM). In his first book detailing his research, *Culture's Consequences*, Hofstede (1980) noted that, while IBM had a specific corporate culture, greater cultural differences existed among employees from different countries and regions. Hofstede (1980) explored these differences and presented a statistical analysis of about 116,000 questionnaires collected at two points in time – first around 1968 and in a repeat survey around 1972 – from employees working in numerous IBM subsidiaries in over 40 different countries. By working with the same organization, Hofstede (1980) argued, differences in values or norms would be the result of influences by employees' national culture. His analysis presented a great deal of information about the culture at IBM, but most importantly, it also provided a theoretical formulation of four core dimensions that he claimed represent cultural differences among nations: power distance, uncertainty avoidance, masculinity versus femininity, and individualism versus collectivism (Hofstede, 1980). A few years later, a fifth dimension – long- versus short-term orientation – was added to the framework (Hofstede & Bond, 1988), and more recently, a sixth dimension was introduced in the form of indulgence versus restraint (Hofstede et al., 2010).

Besides Hofstede's, other frameworks for understanding national culture have been prominent over the years (e.g., Hall, 1976; House et al., 2004; Schwartz, 1992; Trompenaars & Hampden-Turner, 1997). Hall (1976) argued that cultures differed in terms of two major aspects: a) the way in which communication is transmitted and its effectiveness, and b) as attitudes toward time orientation. Schwartz (1992) introduced another important framework. Schwartz (1992) developed three bipolar dimensions of culture based on three main problems that he argued societies universally face: a) concerns for the relationship between the individual and the group, b) concerns for the behavior that can best preserve societal structure, and c) concerns for people's relations to the natural and social environment. The theory has been tested in cross-cultural research with more than 60,000 people from over 60 countries (Sagiv & Schwartz, 2000; Schwartz, 1992, 1994; Schwartz & Sagiv, 1995), though most of the respondents in the studies were teachers at universities or schools (Sagiv & Schwartz, 2000).

Trompenaars (Trompenaars, 1993; Trompenaars & Hampden-Turner, 1997) introduced yet another influential framework. Having collected data from more than

15,000 managers from 28 nations, Trompenaars (1993) developed seven dimensions on which cultured diverged. Five of the dimensions pertain to the way in which people relate to one another, and two refer to how societal members deal with concepts of time and the environment. Lastly, more recently, as part of their Global-Leadership and Organizational-Behavior Effectiveness (GLOBE) research program, House and his colleagues (2004) collaborated on an extensive quantitative and qualitative cross-cultural study. Based on responses from more than 17,000 managers from over 60 societies and representing three main areas (telecommunications, food processing, and financial services), they developed nine cultural dimensions, mostly focused on areas of global leadership.

Several of the dimensions from these frameworks have overlaps with some of Hofstede's, particularly with the classification for individualism versus collectivism. Though some of the proponents of these frameworks tend to critique each other's research procedures, they all serve to increase the literature's value (Warner & Joynt, 2002). Additionally, considering the multiple ways of defining culture, it can be argued that there is not one best approach to study culture (or national culture) and that all of these frameworks have their own set of strengths and limitations (Warner & Joynt, 2002).

In fact, over the years, Hofstede's efforts have largely been praised by researchers (e.g., Kirkman, Lowe, & Gibson, 2006; Søndergaard, 1994; Steenkamp, Hofstede, & Wedel, 1999), but his research has also been criticized for various reasons. Many scholars (e.g., Ailon, 2008; Baskerville, 2003; Javidan, House, Dorfman, Hanges, & De Luque, 2006; McSweeney, 2002; Soares, Farhangmehr, & Shoham, 2007; Tung & Verbeke, 2010) have argued that Hofstede's research is outdated and old-fashioned, especially in an era in which work is rapidly changing and increasingly globalized. Ailon (2008) and

McSweeney (2002) criticized Hofstede's research for what they considered was a lack of scientific rigor and proper representativeness of the population from various nations, as well as for basing his work on research from just one company. Given this, some researchers (e.g., Ailon, 2008; Javidan et al., 2006) have argued that Hofstede's dimensions should be used in a more-critical manner. Concerning the criticism, Hofstede (Hofstede, 2002, 2009; Minkov & Hofstede, 2011) has argued that culture is fairly stable over time and that his dimensions were based on centuries-old roots. Hofstede (e.g., Hofstede, 1980, 1983, 2002, 2003; Hofstede et al., 2010; Minkov & Hofstede, 2011) also has argued that basing his research on one corporation was beneficial to the results as this allowed him to distinguish organizational influences. Additionally, as Hofstede (2009) suggested, some of his research has been misinterpreted due to what he considers to be a "non-western style of thinking."

Other scholars (e.g., Kirkman et al., 2006; Søndergaard, 1994) have lauded Hofstede's work for providing valuable insight into the dynamics of cross-cultural differences and for its groundbreaking nature spanning over several decades. Hofstede's framework has been applied in various disciplines, including psychology (e.g., Taras, Kirkman, & Steel, 2010), management (e.g., Robertson & Hoffman, 2000), sociology (e.g, Søndergaard, 1994), and marketing (e.g., Steenkamp et al., 1999). Additionally, the model has been replicated and validated in over 70 countries (Hofstede et al., 2010; Minkov & Hofstede, 2011, 2012). In comparison, earlier cultural frameworks (e.g., Inkeles & Levinson, 1954, 1969; Kluckhohn & Strodtbeck, 1961) were only validated using small sample sizes. Moreover, some reviews have found conceptual overlaps with other theoretical dimensions (Soares et al., 2007). Thus, the high level of support across many fields and the spread of countries in which the dimensions have been studied lend support to Hofstede's dimensions.

In sum, national culture is an elusive and complex multilayered concept that poses considerable difficulties for cross-cultural research (e.g., Hofstede, 1980; Triandis, 2007). Despite the criticisms, Hofstede's research remains the landmark work in national culture and many scholars continue to apply his framework to various disciplines in cross-cultural research. In this dissertation, I used Hofstede's dimensions to investigate the potential effects of national culture on the JD-R model.

Cultural dimensions. Hofstede (1980) based his work on an earlier framework developed by Inkeles and Levinson (1954, 1969) to examine culture among different countries. Initially, Hofstede (1980) proposed four dimensions: power distance, which pertains to the relationship with authority and social inequality; uncertainty avoidance, which relates to the degree of tolerance for uncertainty; masculinity versus femininity, which examines the distribution of roles in society between genders; and individualism versus collectivism, which refers to the degree to which a person is integrated into groups. Later, Hofstede and Bond (1988) added long- versus short-term orientation as a fifth dimension, which is characterized as the preference for instant versus delayed reward. More recently, Hofstede and colleagues (2010) introduced a sixth and final dimension in the form of indulgence versus restraint, which describes differences in hedonistic behaviors and satisfaction of basic needs and desires.

Though Hofstede's dimensions do not necessarily imply that everyone in a particular society is programmed to have the same set of values or act in the same way, given that most people are strongly influenced by social norms/controls, country scores on a given dimension can be used to make inferences about how members of the society interact in organizations (Hofstede, 1980, 1991, 2001; Hofstede et al., 2010). In fact, early on, Hofstede (1980) found that national culture, as defined by the initial four dimensions, accounted for more variance in work-related values and attitudes than did other usually-measured biographical variables, such as profession, position within the organization, age, and gender. Below, I briefly outline the six dimensions:

Power distance. Power distance represents the degree to which the less powerful members of society expect and accept the unequal distributions of social power (Hofstede, 1980). The dimension deals with the fact not everyone in a society is equal in terms of status and with the attitude of the culture toward this inequality (Hofstede, 1980, 2001; Hofstede et al., 2010). The dimension is used to categorize levels of inequality in a society, which depends on the willingness of those who are not in position of power to disagree with those who are (Javidan, Dorfman, Howell, & Hanges, 2010).

In societies characterized by high power distance, people accept hierarchies, there are many layers of management, employees expect to be told what to do, and organizations are more centralized (Hofstede, 1980, 2001; Hofstede et al., 2010). In these societies, inequality is endorsed from both the followers and its leaders. On the contrary, societies with low power distance feature fairly decentralized organizations. In these, people seek equal distribution of power and employees prefer to be consulted with regards to decision-making (Hofstede, 1980, 2001; Hofstede et al., 2010). Additionally, though supervisors technically occupy a higher status role, employees still perceive them to be their equal (Hofstede, 2001). Within this framework, Latin American, African, Arab, and Asian countries display high scores of power distance, whereas Anglo and Germanic countries display lower scores (Hofstede, 2001; Hofstede et al., 2010).

Uncertainty avoidance. Uncertainty avoidance deals with a society's tolerance for ambiguity in unfamiliar situations (Hofstede, 1980, 2001; Hofstede et al., 2010). This dimension suggests that some cultures are more receptive to unstructured and novel situations, while others favor and/or need predictability (Hofstede et al., 2010). In societies characterized by high uncertainty avoidance, hard work and formal business conduct are embraced and people prefer structured environments where rules and policies are set in place (Hofstede, 1980, 2001; Hofstede et al, 2010). Conversely, in societies characterized by low uncertainty avoidance, rules exist only where necessary and tend to create discomfort (Hofstede, 1980, 2001; Hofstede et al., 2010). Given this, people work at a slower pace and tend to be more relaxed (Hofstede, 1980, 2001; Hofstede et al., 2010). These societies are open to novelty in events and value differences (Hofstede et al., 2010). Uncertainty avoidance is highest among Latin American and Eastern European countries and is much lower among Anglo and Nordic countries (Hofstede, 2001; Hofstede et al., 2010).

Masculinity versus femininity. The dimension for masculinity versus femininity pertains to the extent to which dominant values, such as assertiveness, competitiveness, and material achievements are prevalent and preferred in a society (Hofstede, 1980, 2001; Hofstede et al., 2010). The dimension takes its name from the gender-related roles traditionally attached to men (e.g., as hunters) and women (e.g., as caregivers) as well as for being the only dimension with consistent distinctions between genders among the sampled workers at IBM (Hofstede et al., 1998). According to Hofstede (1980, 2001), masculine societies value competitiveness, ambition to power, decisiveness, and rewards. In masculine societies, employees tend to be more assertive and emphatic. In contrast, feminine societies prefer tender values such as quality of life, participation in decisions, and relationships (Hofstede, 1980, 1991). They display a preference for modesty and cooperation and promote emotional relationships between their members (Hofstede, 1980, 1991). Rather than favoring conflict and competition like in masculine societies, feminine societies prefer harmony and cooperation (Hofstede, 1980, 2001; Hofstede et al., 2010). The dimension recognizes a gap between male and female scores, with men displaying more masculine values (Hofstede et al., 1998). Most European and Anglo countries exhibit relatively high masculinity, while Latin American countries tend to exhibit lower scores (Hofstede, 2001; Hofstede et al., 2010).

Individualism versus collectivism. The dimension for individualism versus collectivism addresses people's preferences to either seeing themselves as being separate individuals with primary responsibilities to themselves and to their family or to seeing themselves as being an integral part of the group within organizations and the society (Hofstede, 1980, 2001; Hofstede et al., 2010). In individualistic societies, individuals are concerned with their own success and personal growth, whereas in collectivistic societies they tend to be more cooperative (Hofstede, 2007). In individualistic societies, employees prefer the freedom to work independently and desire challenging work that could help them reach self-actualization. People also prefer rewards for hard work and enjoy respect for privacy (Hofstede, 1991; Hofstede et al., 2010). In contrast, in collectivist societies, employees prefer a cohesive and harmonious environment. People also show a preference for working for collective rewards (Hofstede, 1991; Hofstede et al., 2010). Individualism is more prominent among developed, Anglo, and Western countries, while collectivism is more prominent among less developed and European, Latin American, and Asian countries (Hofstede, 2001; Hofstede et al., 2010).

Long- versus short-term orientation. A fifth dimension was introduced years after the original four dimensions to address East-West differences. Originally labeled "Confucian work dynamism", this fifth dimension was based on answers from student samples across 23 countries on the Chinese Value Survey (CVS), an instrument designed by Chinese scholars (Chinese Culture Connection, 1987) meant to reflect Confucian teachings (Hofstede, 2007; Hofstede & Bond, 1988). The dimension was later integrated into Hofstede's model as long- versus short-term orientation (Hofstede, 1991) and expanded and more-extensively analyzed in subsequent years (Hofstede, 2001; Hofstede & Hofstede, 2005). Long-term orientation refers to how much societies value long-standing – as opposed to short standing – traditions and values (Hofstede, 1991, 2001). Societies with a long-term orientation attach more importance to the future and foster pragmatic values. In short-term oriented societies, people tend to be very practical, prefer individual goals, and value freedom of speech. These societies also place high value on creativity and individualism (Hofstede, 1991, 2001, 2007). Long-term orientation is prominent among most east-Asian countries, while European countries score in the middle, and most Anglo and Latin American countries score on the side of the short-term orientation (Hofstede, 2001, 2007; Hofstede et al., 2010).

Indulgence versus restraint. Recently, using data from the World Values Survey, Hofstede et al. (2010) introduced a sixth dimension in the form of indulgence versus restraint. The new dimension refers to the extent to which members of a society try to control their impulses and desires and focuses on happiness and life control (Hofstede et al., 2010). Indulgent societies tend to allow free gratification of basic human desires, whereas restraint societies control gratification needs by means of strict social norms (Hofstede et al., 2010; Minkov & Hofstede, 2011). Indulgence is highest in Latin

American and Anglo countries, while restraint is most prominent among East Asian and Eastern European countries (Hofstede et al., 2010; Minkov & Hofstede, 2011). While important in the context of national culture, in this research effort, I did not explore the indulgence versus restraint dimension; the limited research available for this dimension did not allow for viable hypotheses within the context of the JD-R model.

The moderating role of national culture. National culture is a driving factor behind people's behaviors (Hofstede, 2001; House et al., 2004). As such, it is possible that national culture could serve as an explanatory tool in understanding the differences in perception of certain demands and resources and how they impact burnout and work engagement. As I stated earlier, the JD-R model has been tested in various cultural contexts; however, research comparing the effect of national culture on its tenets has been limited. Brough et al. (2013) tested the model with Chinese and Australian employees using a longitudinal design. They found support for the motivational process, but only found limited support for the strain process. Brough and colleagues (2013) suggested that this could have been due to the use of generic (rather than specific) variables in their study. Because of this, they recommend using demands and resources that are salient to the sample in question.

Farndale and Murrer (2015) tested the model using a sample of American, Dutch, and Mexican employees from the same organization. The researchers used a combination of three of Hofstede's (1980, 2001) dimensions along with Hall's (1976) and Trompenaars's (1993) frameworks to compare the nations. However, their research also used generic (rather than specific) resources, excluded the health-impairment process of the JD-R model, and was limited to partially testing Hofstede's dimensions. In this research effort I also theorized from a cross-cultural perspective that the tenets of the JD-

R model might differ depending on the societies involved; but in doing so, I looked to expand on the literature by using job-specific demands and resources, by testing the both processes of the JD-R model, and by including the most prominent cultural dimensions from Hofstede's framework.

This study focused on two countries with different cultures, as explored through the lens of Hofstede's dimensions. Namely, I investigated cultural differences between Spain and the United States (see Table 1). With the cultural dimensions, Hofstede and colleagues (Hofstede, 1980, 2001; Hofstede et al., 2010) provided an overview of the driving factors behind employees from one culture relative to other cultures in the world. For instance, Spain exhibits high power distance; thus, the country is considered to be a hierarchical society. In Spain, hierarchy can be reflected in the form of centralization and in how subordinates expect to be told what to do without having too much input (Hofstede et al., 2010). Contrariwise, the United States is a fairly decentralized country and employees expect to have input in decisions that affect them (Hofstede et al., 2010).

While ample research exits exploring the effects of demands and resources among American employees, Spain is a country that traditionally has not been explored in the employee wellbeing literature. In the past, researchers have called for the study of wellbeing theories among non-western employees (e.g., Gelfand, Leslie, & Fehr, 2008; Leung, 2009). By including employees from Spain this study looked to expand our knowledge of the employee wellbeing literature.

Table 1
Dimension Scores by Country

Hofstede's dimensions	*Spain*	*United States*
Power distance	High (57)	Low (40)
Uncertainty Avoidance	High (86)	Low (46)
Masculinity versus Femininity	Femininity (42)	Masculinity (62)
Individualism versus Collectivism	Collectivism (51)	Individualism (91)
Long- versus Short-term orientation	Intermediate (48)	Short term (26)
Indulgence versus restraint	Restraint (44)	Indulgence (68)

Note. Dimension scores for Spain and the United States. Adapted from "*Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival"* (p. 53-258), by G. Hofstede, G. J. Hofstede, and M. Minkov (Eds.), 2010, New York*:* McGraw-Hill. Copyright 2010 by Geert Hofstede BV. Adapted with permission.

Given this, the main question that I looked to address in this dissertation was: Are there cultural differences in how countries respond to the dual processes of the JD-R model?

Hypotheses

Hypotheses concerning power distance. In societies with high power distance, people tend to be deferential to authority figures. Generally, these societies accept unequal distributions of power, and to avoid disagreement, employees behave submissively around managers (Hofstede, 2001). The opposite is true of societies with low power distance; in these societies, employees are more likely to question authority and expect to participate in decisions that affect them (Hofstede, 2001; Javidan & House, 2001). Additionally, in these societies, employees expect power relations to be participatory and consultative and people tend to view their leaders as equals, regardless of formal positions or titles (Hofstede, 2001; Hofstede et al., 2010; Javidan & House, 2001).

These differences make it likely that people in these societies would differ in how they respond to issues with centralization and procedural justice. Centralization refers to the degree to which decision-making is concentrated at the top of the organization and whether employees are able to make relevant decisions about their work (Aiken & Hage, 1966; Hage & Aiken, 1967). In situations where the decision-making is centralized, it is likely that employees may feel greater stress due to having less control over their work (Knudsen, Ducharme, & Roman, 2006). Ample evidence has documented the negative effects of centralization on wellbeing. For example, Lambert, Hogan, and Allen (2006) found centralization to be related to job stress; in addition, in a meta-analytic study, Lee and Ashforth (1996) reported that lower centralization (i.e., participation in decision-making) was negatively related to emotional exhaustion.

Procedural justice, on the other hand, is usually studied as a resource. It describes the processes through which decisions are made and outcomes are allocated in a manner that is perceived as being fair by employees (Greenberg, 1987; Leventhal, 1980). Procedural justice has been found to be positively related to numerous positive organizational outcomes, such as engagement (e.g., Saks, 2006) as well as job satisfaction and organizational commitment (e.g., Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Concerning engagement, Saks (2006) suggested that when employees perceive that high degree of procedural justice in the organization, they likely feel as if they are obligated to behave in a fair manner and give more of themselves by exhibiting higher levels of engagement.

Because societies with low power distance are less likely to accept unequal distributions of power or unfair processes, I expected that power distance would moderate the centralization/burnout (exhaustion and disengagement) and the procedural justice/work engagement relationships. Therefore, I proposed the following hypotheses:

Hypotheses 1a-1b. Centralization is positively related to a) exhaustion and b) disengagement.

Hypotheses 1c-1d. Power distance moderates the relationship between centralization and c) exhaustion and d) disengagement such that there is a stronger positive relationship for low power distance societies.

Hypothesis 2a. Procedural justice is positively related to work engagement.

Hypothesis 2b. Power distance moderates the relationship between procedural justice and work engagement such that there is a stronger positive relationship for low power distance societies.

Hypotheses concerning uncertainty avoidance. Societies scoring high in uncertainty avoidance prefer structure and predictability (Javidan & House, 2001). Ambiguity brings with it feelings of anxiety; therefore, most people prefer certainty (by avoiding the unfamiliar) (Hofstede, 2001; Hofstede et al., 2010; House, Javidan, Hanges, & Dorfman, 2002). Societies scoring high in uncertainty avoidance are intolerant of unorthodox behaviors and/or ideas. In these societies, employees demonstrate an emotional need for rules and information as means to reduce uncertainty in ambiguous situations (Hofstede, 2001; Hofstede et al., 2010). The opposite is true of societies with low uncertainty avoidance where people are more tolerant of unstructured situations, are more open to change and innovation, are more willing to take unknown risks, and are more receptive toward novel and of unknown ideas (Hofstede, 2001; Hofstede et al, 2010).

Given these differences, uncertainty avoidance could potentially impact how employees in different societies react to two key job factors: role ambiguity and innovative climate. Role ambiguity refers to a lack of clarity over the expectations for one's role, which may have not been clearly articulated in terms of expected behaviors or performance level (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). This lack of information leads to uncertainty about one's role, objectives, and responsibilities (Bowling et al., 2017; Naylor, Pritchard, & Ilgen, 1980). As such, role ambiguity is likely to increase job strain (e.g., Cordes & Dougherty, 1993; House & Rizzo, 1972). In fact, in separate meta-analyses, Lee and Ashforth (1996) and Alarcon (2011) reported that role ambiguity was positively related to the core dimensions of burnout.

Innovative climate, however, has been studied as a resource. Innovative climate refers to an employee's perceptions concerning features that accept and support new ideas and innovative initiatives (West & Richter, 2008). When innovative climate is high people perceive that innovative ideas are appreciated, especially when there is tolerance for change (Shane, 1995). Inherently, innovative behaviors involve unpredictability and taking risks (Janssen, Van de Vliert, & West, 2004); as such, support of an innovative climate might be indicative of support for more-risky decisions. In past research, innovative climate has been related to various positive outcomes, such as greater cohesion, performance improvement, and increased work engagement (e.g., Janssen et al., 2004; Seppälä et al., 2015). For instance, Hakanen et al. (2006) found that among other resources, innovative climate led to work engagement, which in turn led to organizational commitment.

Given that societies with high uncertainty avoidance tend to be more apprehensive toward ambiguous and uncertain situations, I expected that uncertainty avoidance would moderate the role ambiguity/burnout (exhaustion and disengagement) relationship. Similarly, in these societies, people tend to be apprehensive toward novelty and have preference for the predictable. As such, in societies characterized by high uncertainty avoidance, individuals may perceive an innovative climate as being threatening and fostering uncertainty. Therefore, I proposed the following hypotheses:

Hypotheses 3a-3b. Role ambiguity is positively related to a) exhaustion and b) disengagement.

Hypotheses 3c-3d. Uncertainty avoidance moderates the relationship between role ambiguity and c) exhaustion and d) disengagement such that there is a stronger positive relationship for high-uncertainty-avoidance societies.

Hypothesis 4a. Innovative climate is positively related to work engagement.

Hypothesis 4b. Uncertainty avoidance moderates the relationship between innovative climate and work engagement such that there is a stronger positive relationship for low-uncertainty-avoidance societies.

Hypotheses concerning masculinity versus femininity. Masculine societies emphasize competition, material rewards, and performance (Hofstede, 1980, 2001). Feminine societies, conversely, emphasize relationships and quality of life (Hofstede, 1980, 2001). In distributing rewards in the workplace, feminine societies favor equality and solidarity, whereas masculine societies favor equity – that is, pay according to merit and performance (Hofstede, 1980, 2001; Hofstede et al., 2010). These relationships are likely to carry over to the workplace (Farndale & Murrer, 2015).

Because of these differences, I expected that people in different societies would differ in how they respond to work-life conflict and to rewards and recognition. Work-life conflict is a form of conflict in which one's role at work interferes with and/or affects one's non-work life (Greenhaus & Beutell, 1985). Thus, pressures from work create an inner conflict that is incompatible with other roles in people's lives (Thomas & Ganster, 1995) and can lead to an eventual state of breakdown (Demerouti, Bakker, & Bulters, 2004) and/or other negative personal and organizational outcomes (Siegel, Post, Brockner, Fishman, & Garden, 2005). For instance, Demerouti et al. (2004) found that work-life conflict was positively related to exhaustion among Dutch employees in an employment agency.

As opposed to work-life conflict, rewards and recognition have been linked to positive outcomes. Rewards and recognition refer to the various outcomes provided by the organization in exchange for work input (e.g., Maslach et al., 2001; Saks, 2006). Though the presence of rewards and recognition can serve as a motivator (Demerouti, 1999; Maslach et al., 2001), the lack of these can serve as the opposite, devaluing both the work and the worker (Maslach et al., 2001). Recently, Farndale and Murrer (2015) provided an example of rewards and recognition's role as a resource; they found financial rewards to be a strong driver of engagement among workers in a financial-services company across three different countries. Additionally, as Kahn (1990) reported, employees' level of engagement can vary depending on their perception of the benefits they receive from their role.

Consequently, I expected that the dimension for masculinity versus femininity would moderate the work-life conflict/burnout (exhaustion and disengagement) relationship, and that, due to their preference for quality of life values, this relationship would be stronger for members of feminine societies. Conversely, I expected that the dimension would also moderate the rewards and recognition and work engagement relationship so that it would be stronger in masculine societies, due to their preference for material incentives. Therefore, I proposed the following hypotheses:

Hypotheses 5a-5b. Work-life conflict is positively related to a) exhaustion and b) disengagement.

Hypotheses 5c-5d. Masculinity versus femininity moderates the relationship between work-life conflict and c) exhaustion and d) disengagement such that there is a stronger positive relationship for feminine societies.

Hypothesis 6a. Rewards and recognition is positively related to work engagement.

Hypothesis 6b. Masculinity versus femininity moderates the relationship between rewards and recognition and work engagement such that there is a stronger positive relationship for masculine societies.

Hypotheses concerning individualism versus collectivism. Individualistic societies generally encourage loose social frameworks that highlight individual priorities. In these societies, consideration of personal loss (and personal gains) and prioritization of personal goals over group goals prevail – especially when they are in conflict (Hofstede, 2001; Javidan & House, 2001). In addition, in individualistic societies, employees are generally more self-centered and expect the environment to be sensitive to their own needs. As such, when they encounter high demands, employees in individualistic societies perceive that these interfere with their own agenda (Yang et al., 2012). Conversely, collectivistic societies emphasize the display of social interdependence, following norms, and sacrificing personal goals – especially when they are in conflict with group goals (Hofstede et al., 2010). In these societies, individual goals are based on group goals or norms and relationships prevail over tasks (Hofstede, 1980; 2001; Triandis, 1994, 1995). Collectivistic societies emphasize maintaining social harmony and concern for members of the in-group (Hofstede et al., 2010; Triandis, 1994, 1995).

These differences make it likely that people in these societies would differ in how they respond to perceived workload and to coworker support. Perceived workload refers to the volume of work reported by employees (Spector & Jex, 1998). High workload consumes employees' time and energy and can interfere with their personal needs and goals (Yang et al., 2012). Certainly, this can lead to numerous strain-related outcomes (e.g., Alarcon, 2011). For instance, Greenglass et al. (2001) found that high workload was positively related to emotional exhaustion in nurses. Subsequently, this led to cynicism and was negatively related to professional efficacy.

Conversely, coworker support leads to positive organizational outcomes (e.g., Crawford et al., 2010; Lee & Ashforth, 1996). Coworker support represents the extent to which employees can rely on their colleagues for help and support when needed (Haynes, Wall, Bolden, Stride, & Rick, 1999). Having the support of one's coworkers can be vital to the accomplishment of one's tangible objectives, such as work-related tasks (Susskind, Kacmar, & Borchgrevink, 2003). As such, coworker support helps employees cope with different job stressors and can help them remain engaged with their work (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007).

In accordance with the tenets of Hofstede's theory, in individualistic societies, employees value individual autonomy and personal achievement (Hofstede et al., 2010). Because of this, it is possible that they may become frustrated by high workload and may perceive high workload to be an obstacle that is in the way of their own personal goals. Contrariwise, employees in collectivistic societies generally foster and value interdependence and social harmony (Hofstede et al., 2010). As such, they believe that it is expected of them to support other colleagues without being concerned for their own goals.

Therefore, under circumstances of high workload, one would expect higher levels of burnout among those in individualistic societies. However, when assessing coworker support, employees in collectivistic societies emphasize care for other coworkers, value their contributions, and help them in work-related issues. Because of this, they place more value to coworker support in the workplace. Given this, I expected that the dimension for individualism versus collectivism would moderate the perceived workload/burnout (exhaustion and disengagement) and the coworker support/work engagement relationships. Therefore, I proposed the following hypotheses:

Hypotheses 7a-7b. Perceived workload is positively related to a) exhaustion and b) disengagement.

Hypotheses 7c-7d. Individualism versus collectivism moderates the relationship between perceived workload in the workplace and c) exhaustion and d) disengagement such that there is a stronger positive relationship for individualistic societies.

Hypothesis 8a. Coworker support is positively related to work engagement.

Hypothesis 8b. Individualism versus collectivism moderates the relationship between coworker support and work engagement such that there is a stronger positive relationship for collectivistic societies.

Hypotheses concerning long- versus short-term orientation. Hofstede (2001) describes long- versus short-term orientation as “the choice of focus for people’s efforts: the future or the present” (p. 29). Societies with a long-term orientation foster values oriented toward the future, such as perseverance and thrift. These societies tend to value virtues oriented toward future rewards and expectations and are concerned with the development and maintenance of social relationships (Hofstede et al., 2010). The opposite is true of societies with a short-term orientation, which foster values related to tradition (Hofstede, 1991, 2001; Hofstede et al., 2010). In these societies, the fulfillment of social obligations and the reciprocation of greetings, favors, and gifts play a greater role (Hofstede, 1991). People tend to draw less satisfaction from daily human relations, placing less emphasis on the family-business dynamic and instead focusing on short-term returns (Hofstede, 1983; Hofstede & Hofstede, 2005).

This dynamic makes it likely that people in these societies would differ in how the they respond to issues of distributive justice, particularly as they relate to current situations. Distributive justice refers to the perceived fairness of the allocation of resources (Adams, 1965; Colquitt, 2001; Homans, 1961). Distributive justice has been related to a myriad of positive organizational outcomes, such as pay and job satisfaction, organizational commitment, trust in the organization, and citizenship behavior (Cohen-Charash & Spector, 2001; Colquitt et al., 2001; Saks, 2006). However, when employees perceive distributive injustice they regard it as a stressor. This in turn produces psychological distress, which could be in the form of emotional exhaustion, anxiety, and/or depression (Moliner, Martínez-Tur, Peiró, Ramos, & Cropanzano, 2005; Tepper, 2001). As Janssen, Lam, and Huang (2010) suggested, it is possible that employees in long-term oriented societies are less concerned with the imbalance resulting from their investment in their jobs and the rewards that they get in exchange interactions; they posited that, in societies with long-term orientation, people have an expectation that in the future, the organization will take care of any possible distributive unfairness experienced in the current exchange relationship. As such, people would perceive that the organization would work to bring the perceived ratio of distributive unfairness to a fairer level of investment-reward (Janssen et al., 2010).

Because of this, it is likely that when distributive justice is low, societies with long-term orientation would perceive this to be less important than societies with short-term orientation. As such, societies with short-term orientation are likely to experience higher levels of burnout when they perceive low distributive justice. Therefore, I expected that societies with short-term orientation would place more importance in current levels of distributive justice. When distributive justice is low, short-term oriented societies will experience greater burnout. Thus, I hypothesized the following hypothesis:

Hypotheses 9a-9b. Distributive justice is negatively related to a) exhaustion and b) disengagement.

Hypotheses 9c-9d. Long- versus short-term orientation moderates the relationship between distributive justice and c) exhaustion and d) disengagement such that there is a stronger negative relationship for short-term-oriented societies.

CHAPTER 2

METHOD

Procedures

Participants in the study were nurses from two countries: Spain and the United States. Following approval from the Institute Review Board (IRB; see Appendix A), I created two separate online surveys (one in Spanish and one in English) containing various scales to measure the proposed hypotheses. I administered the surveys using the Qualtrics survey platform and asked participants to complete an informed-consent form. If the participants agreed to continue in the study, they were asked to complete the demographics form as well as all of the measures. In the informed-consent form, I informed participants that the measures were developed by multiple researchers and that the statements in the measures were not necessarily meant to relate to one another. I did this in an effort to reduce the influence of common-method variance via hypothesis guessing (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The survey took approximately 15 minutes to complete.

I distributed the surveys through various nursing groups via social media outlets (i.e., Facebook and LinkedIn). Some of the nursing groups also shared the survey links among the group members. In addition, using LinkedIn's search feature, I searched for people who indicated that they were nurses in Spain or in the United States and emailed them individually using LinkedIn's "messaging" feature. This messaging feature acts as a proxy for email within the LinkedIn website; overall, I sent over 2,500 messages. In an effort to ensure that respondents were truly from Spain or from the United States, I only distributed the Spanish survey among Spanish-speaking nursing groups/people and the English survey among English-speaking nursing groups/people. I also used the location data that Qualtrics provides for each respondent to ensure that the participants in the study were truly taking the survey from Spain or from the United States. According to Qualtrics, they use Internet Protocol (IP) addresses of the participants to pinpoint their locations. Qualtrics indicates that the location data are an approximation determined by comparing the participant's IP address to a location database; in the United States, their location data are accurate at the city level; internationally, their location data are accurate at the country level.

Participants

Participants were presented with the opportunity to win the equivalent to one of four $50.00 gift cards. To determine the necessary sample size for the study, I used the software G*Power (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007, 2009) to conduct an *a priori* power analysis. The results indicated a minimum of 89 participants would be needed to detect a medium-sized effect of $f^2 = 0.15$ with a power level of $\beta = 0.95$. I expected a medium-sized effect based on previous meta-analytic results which showed medium-sized correlations between burnout and various demands (e.g., Alarcon, 2011; Lee & Ashforth, 1996) and between work engagement and various resources (e.g., Crawford et al., 2010). The final sample of participants consisted of 450 nurses (250 from Spain and 200 from the United States). Overall, the sample included 17.3% male respondents and 82.7% female respondents. When designing the survey, I mistakenly forgot to add a question asking about the respondents' age. As a result, age data are missing for 56.7% of the respondents (i.e., those who completed the survey before the question was later added to the surveys). The age groups for participants for whom age data were available are as follows: 22.0% were under 30 years, 14.0% were 30 to 39 years, and 7.3% were 40 years or older. Overall, about 9.8% of the participants had the equivalent of an Associate's degree, 58.4% had the equivalent of a Bachelor's degree, and 29.8% had an advanced degree (e.g., Master's degree); about 2.0% of the participants reported having another type of degree. As indicated by the Spanish census website (Instituto Nacional de Estadística), Spain does not collect, nor does it classify race demographics in the same or in a similar manner like the United Sates does; Spain considers residents who are born in Spain as being “Spanish” and those who are not born in Spain as being “immigrants”. Thus, race data were not collected for Spain. For the United States, the majority of participants were White/Caucasian (84.5%) although a diverse mix of minorities also took part in the study (3.0% Black/African-American, 1.0% Asian, 1.0% American Indian, 1.0 Native Hawaiian %, 6.5% Hispanic, and 3.0% Two or More Races). I present descriptive statistics of the demographic measures (overall and by country) in Table 2 below.

Table 2
Frequency Distribution of Age, Gender, Race/Ethnicity, Shift, and Job Tenure

Variable	N^1	%	N^2	%	N^3	%
Age						
21-29	99	22.0	71	28.4	28	14.0
30-39	63	14.0	44	17.6	19	9.5
40 or older	33	7.3	22	8.8	11	5.5
Missing	255	56.7	113	45.2	142	71.0
Gender						
Female	372	82.7	192	76.8	180	90.0
Male	78	17.3	58	23.2	20	10.0
Race/Ethnicity						
African American / Black	6	1.3	-	-	6	3.0
Asian	2	0.4	-	-	2	1.0
Caucasian / White	169	37.6	-	-	169	84.5
American Indian / Alaska Native	2	0.4	-	-	2	1.0
Native Hawaiian / Other Pacific Islander	2	0.4	-	-	2	1.0
Hispanic / Latino	13	2.9	-	-	13	6.5
Two or More Races	6	1.3	-	-	6	3.0
Missing	250	55.6	250	100.0	0	0.0
Education						
Associate's degree	44	9.8	0	0.0	44	22.0
Bachelor's degree or equivalent (e.g., BSN)	263	58.4	135	54.0	128	64.0
Advanced degree (e.g., ANP, Master's, Ph.D.)	134	29.8	112	44.8	22	11.0
Other	9	2.0	3	1.2	6	3.0

Note. N^1 indicates frequencies for the combined sample, N^2 indicates frequencies for Spain, and N^3 indicates frequencies for the United States.

Ensuring Similarity Between Nursing Jobs

Due to social, political, and cultural factors, the nursing profession is implemented differently across the world. Nonetheless, the profession shares common themes (e.g., standards to ensure safe practice) that confirm that the job is *the same* regardless of location (see Evers, 2004; Nichols, Davis, & Richardson, 2010). Because of the cross-cultural nature of this study, however, I took steps to evaluate the similarity of the nursing profession in the two countries in the study.

I searched the literature for best practices in assessing the similarity of professions in research; however, I did not find a proper method to compare the jobs given the scope of this study. Therefore, I proposed and utilized the following method: I used the list of tasks for the nursing occupation from the National Center for O*NET Development (O*NET) as an anchor to compare them against tasks in Spain. The O*NET database contains information about a wide range of occupations in the United States; however, no similar database exists for Spain. Because of this, I extracted and compiled task statements from job descriptions and job ads in Spain. Subsequently, I enlisted the help of a physician and a nurse to help merge repetitive task statements. Next, I enlisted the help of one Industrial/Organizational doctoral student (with a Master's degree), one Industrial/Organizational professional (with a Ph.D.), and one physician to serve as judges in comparing and evaluating the similarity of O*NET task statements against tasks statements of the nursing job in Spain. Each rater decided whether the O*NET task statement (i.e., the task statement from the United States) matched a task statement from Spain. When at least 2/3 of the raters agreed that the O*NET task matched a task from Spain, the task statement was deemed as having displayed similarity.

In total, I took 28 task statements from O*NET and 32 task statements from job descriptions and job ads in Spain. Then, I included the task statements that were rated as having overlap and classified them as a match. Subsequently, I used the total number of matches to calculate a percentage of agreement in which I divided the number of tasks that show overlap by the total number of O*NET tasks. Overall, the percentage of agreement was high at 93% (26/28). While this procedure did not follow a typical process for linking tasks between jobs like in a traditional job analysis, when compared to other methods, the overlap between jobs was high. Thus, based on these results, I determined that the jobs were the same. In Appendix B, I included the list of all tasks and indicated which tasks were a match.

Measures

The measures I used in the study are available in English; thus, given that English is the most commonly used language in the United States, no translation was necessary for the United States. In Spain, however, the official language is Spanish. Thus, I used a modified version of the combined translation technique (Jones, Lee, Phillips, Zhang, & Jaceldo, 2001) to translate scales that were not available in Spanish. Specifically, I translated the scales for centralization, role ambiguity, work-life conflict, perceived workload, rewards and recognition, coworker support, innovative climate, and burnout from English to Spanish. I included a copy of the scales (along with the translated versions of the scales) used in the study in Appendices D-N.

Though there is no gold standard of translation techniques, Jones et al.'s (2001) combined technique has received support in the literature (Cha, Kim, & Erlen, 2007). Using Jones et al.'s (2001) translation method, I first provided two bilingual individuals (speakers of English and Spanish) with the English version of the instruments and each prepared a Spanish version (resulting in two translated versions). Second, I provided two additional bilingual individuals with the Spanish versions (translated in the first step). Each person inspected the Spanish versions and the four bilingual speakers met and had a group discussion to identify any discrepancies between the Spanish and the original English version until they reached consensus. Third, they combined the Spanish versions of the instruments into one final Spanish version. Fourth, two additional bilingual speakers inspected the translated Spanish version. Each person prepared an English version (from the translated, Spanish version) and the two met and combined their versions, resulting in one back-translated English version. Fifth, a mono-lingual person (who speaks and writes in English only), compared the original and the back-translated English versions for linguistic congruence, meaning, and ambiguity. The mono-lingual person reported any issues back to the original teams from the first steps and the process continued until there were no further issues.

In cross-cultural research, having a proper translation method is important to ensure that participants are interpreting measures in the same manner (Spector, Liu, & Sanchez, 2015). Thus, for this study, bilingual translators also reviewed the measures that already had an available Spanish version to ensure that nurses in Spain would interpret the items in those scales appropriately. The feedback I received from the bilingual translators about these measures was positive; they indicated that no further changes would be necessary for proper understanding.

Demographics. I included a demographics questionnaire in the survey (see Appendix C). Participants answered questions related to their age, race, gender, nationality, occupation, and education.

Antecedents of Job Burnout. I measured five demands: centralization, role ambiguity, work-life conflict, perceived workload, and distributive justice.

Centralization. I measured centralization using Aiken and Hage's (1968) five-item scale. The scale measures whether someone agrees that decision-making is concentrated at the top of the organization's hierarchy. Participants responded to the scale using 4-point Likert-type anchors, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). I generated the scores by averaging ratings of levels of agreement; higher scores were indicative of higher levels of centralization. A sample item from this scale is "There can be little action taken here until a supervisor approves a decision." Dewar, Whetten, and Boje (1980) validated the scale with multiple samples and the scale demonstrated acceptable reliability with a Cronbach's alpha that ranged from .70 to .85. In this study, the Cronbach's alpha for the centralization scale was .84 for the combined sample. Note that I included all scale reliabilities in Table 5 and the list of items for centralization in Appendix D.

Role Ambiguity. I measured role ambiguity using Rizzo, House, and Lirtzman's (1970) scale. The scale consists of six items and measures whether people perceive a high or low level of ambiguity within their jobs. Participants responded using 7-point Likert-type anchors, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Consistent with previous research and the conceptualization of the construct (e.g., Yun, Takeuchi, & Liu, 2007), I reverse-coded the items such that higher scores meant greater levels of role ambiguity. I averaged the scores to yield a summary score. A sample item from the scale is "I feel certain about how much authority I have." Rizzo et al. (1970) tested the scale with two separate samples and the scale demonstrated acceptable internal consistency with Cronbach's alpha at .78 and .81, respectively. In this study, the Cronbach's alpha for the role ambiguity scale was .79 for the combined sample. I included the list of items for role ambiguity in Appendix F.

Work-life Conflict. I measured work-life conflict using Netemeyer, Boles, and McMurrian's (1996) five-item Work-Family Conflict scale. The scale measures whether people agree that inter-role conflict exists between their work roles and their life roles (i.e., family). Participants responded using 5-point Likert-type anchors to indicate the extent to which they agreed or disagreed with the items. The anchors ranged from 1

(Strongly Disagree) to 5 (Strongly Agree). I generated the scores by averaging the ratings across items; higher scores indicated high level of work-family conflict, while lower scores indicated low levels of work-family conflict. A sample item from the scale is "The demands of my work interfere with my home/family life." The scale has demonstrated good internal consistency with coefficient alpha levels ranging from .83 to .89, and with an average Cronbach's alpha at .88 (Netemeyer et al., 1996). In this study, the Cronbach's alpha for the work-life conflict scale was .88 for the combined sample. I included the list of items for work-life conflict in Appendix H.

Perceived Workload. I measured perceived workload using Spector and Jex's (1998) five-item Quantitative Workload Inventory. The measure is used to assess an employee's perception of their workload at work. Participants responded using 5-point Likert-type anchors, ranging from 1 (Less than once per month or never) to 5 (Several times per day). I used the average score of the five items to indicate the level of perceived workload, with higher scores indicating higher perceived workload. A sample item from this scale is "How often does your job require you to work very fast?" The scale has demonstrated good internal consistency with Cronbach's alpha at or over .82 (Spector & Jex, 1998). In this study, the Cronbach's alpha for the perceived workload scale was .84 for the combined sample. I included the list of items for perceived workload in Appendix J.

Distributive Justice. For the English sample, I measured distributive justice using Colquitt's (2001) four-item scale. For the Spanish Sample, I used the adapted version of the scale from Díaz-Gracia, Barbaranelli, and Moreno-Jiménez (2014). Both the English and the Spanish versions of the scale measure whether people agree that the outcomes they receive reflect the effort they put into their work. Participants responded using 5-

point Likert-type anchors, ranging from 1 (To a small extent) to 5 (To a large extent). I averaged the scores of the four items to indicate the level of distributive justice, with higher scores for this scale indicating higher levels of distributive justice. A sample item from this scale is “Does your (outcome) reflect the effort you have put into your work?” Both the English (.92; Colquitt, 2001) and the Spanish version (.95; Díaz-Gracia et al., 2014) of the scale have demonstrated high internal consistency. In this study, the Cronbach’s alpha for the distributive justice scale was .94 for the combined sample. I included the list of items for distributive justice in Appendix L.

Antecedents of Job Engagement. I measured four resources: procedural justice, financial rewards and recognition, coworker support, and innovative climate.

Procedural Justice. For the English sample, I measured procedural justice using Colquitt’s (2001) four-item scale. For the Spanish Sample, I used the adapted version of the scale from Díaz-Gracia et al. (2014). Participants responded using 5-point Likert-type anchors, ranging from 1 (To a small extent) to 5 (To a large extent). I used the average score of the seven items to indicate the level of procedural justice, with higher scores for this scale indicating higher levels of procedural justice. A sample item from this scale is “To what extent have you been able to express your views and feelings?” Both the English version of the scale (.78; Colquitt, 2001) and the Spanish version (.88; Díaz-Gracia et al., 2014) have demonstrated acceptable or good internal consistency with Cronbach’s alpha. In this study, the Cronbach’s alpha for the procedural justice scale was .87 for the combined sample. I included the list of items for procedural justice in Appendix E.

Innovative Climate. I measured innovative climate using an adapted version of a 4-item scale used by Van Der Vegt, Van De Vliert, and Huang (2005). Participants answered questions regarding their organization's environment to promote innovation using 5-point Likert-type anchors ranging from 1 (Disagree) to 5 (Agree). I used the average score of the four items to indicate the level of innovative climate, with higher scores for this scale indicating higher levels of innovative climate. A sample item from this scale is "Our location has established a climate where employees can challenge our traditional way of doing things." The scale has demonstrated good internal consistency with Cronbach's alpha at .86 (Van Der Vegt et al., 2005). In this study, the Cronbach's alpha for the innovative climate scale was .86 for the combined sample. I included the list of items for innovative climate in Appendix G.

Rewards and Recognition. I used Saks's (2006) 10-item scale of rewards and recognition to assess the extent to which employees received various outcomes (e.g., pay raise, praise from a supervisor). Participants responded to the items using 5-point Likert-type anchors, ranging from 1 (To a small extent) to 5 (To a large extent). I generated scores by averaging ratings of levels of agreement; higher scores were indicative of higher rewards and recognition. A sample item from this scale is "A promotion." The scale demonstrated good internal consistency with Cronbach's alpha at .80 (Saks, 2006). In this study, the Cronbach's alpha for the perceived workload scale was .86 for the combined sample. I included the list of items for rewards and recognition in Appendix I.

Coworker Support. I used Haynes et al.'s (1999) four-item scale of coworker support to measure whether people perceive that their coworkers care about them or that they can rely on their coworkers. Participants responded to the items using 5-point Likert-type anchors ranging from 1 (Not at all) to 5 (Completely). I generated scores by averaging ratings of levels of agreement; higher scores were indicative of higher coworker support. A sample item from the scale is "I can really count on my colleagues to help me in a crisis situation at work, even though they would have to go out of their way to do so." The scale has demonstrated good internal consistency with Cronbach's alpha at .86 (Haynes et al., 1999). In this study, the Cronbach's alpha for the coworker support scale was .89 for the combined sample. I included the list of items for coworker support in Appendix K.

Outcomes. I assessed the outcomes using measures of burnout and work engagement.

Burnout. I assessed the two factors of burnout using the Oldenburg Burnout Inventory (OLBI: Demerouti et al., 2003). The OLBI contains 16 items measuring exhaustion and disengagement – 8 items for each of the factors. The instrument includes affective, physical, and cognitive work aspects, and extends the concept of depersonalization beyond emotionally distancing oneself from a recipient to the work content and the work object. Sample items from the scale include: "I can tolerate the pressure of my work very well" (exhaustion) and "I always find new and interesting aspects in my work" (disengagement). I scored all items using 4-point Likert-type anchors, ranging from 1 (Strongly Agree) to 4 (Strongly Disagree) and generated scores by averaging the items; higher scores indicated higher levels of disengagement or exhaustion. The OLBI's two-factor model (i.e., exhaustion and disengagement) has demonstrated good stability over a wide range of populations (Demerouti & Bakker, 2008).

Some studies, however, have reported issues with a few items of the OLBI for having a) poor factor loadings (i.e., having loadings of .32 or less using factor analysis; Comrey & Lee, 1992; Tabachnick & Fidell, 2013), b) items cross-loading on both factors (i.e., having loadings with .32 or higher on more than one factor; Comrey & Lee, 1992;

Tabachnick & Fidell, 2013), or c) items loading on the 'wrong' factor (i.e., having items loading on the factor that was not proposed by the researcher; Comrey & Lee, 1992; Tabachnick & Fidell, 2013). For example, Hamblin (2014) removed item 13 because it had poor factor loadings, while Estévez-Mujica and Quintane (2018) removed items 7 and 13 from the disengagement factor and item 5 from the exhaustion factor because they loaded on the opposite factor. In the present study, I used item-total statistics, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) to explore and confirm the OLBI's two-factor model. Following these analyses, I removed five items (3, 5, 9, 14, and 16) in an effort to improve the scales' psychometric properties; ultimately, I confirmed the two-factor structure of the OLBI. I expand on the steps I took to remove the five items as well as on the reasoning for the items' removal in the section "Confirming Burnout's Two-factor Model, Testing Hypotheses, and Assessing Bias". The two-factor scale (using 8 items per factor) has demonstrated acceptable and often good internal consistency with Cronbach's alpha ranging from .73 to .87 for exhaustion and from .76 to .83 for disengagement (Demerouti et al., 2010; Halbesleben & Demerouti, 2005). In this study, following the removal of the aforementioned items, the Cronbach's alpha for the combined sample was .73 for exhaustion and .71 for disengagement. I included the list of items for the burnout factors in Appendix M.

Work Engagement. I used Schaufeli et al.'s (2002) Utrecht Work Engagement Scale to assess the three dimensions of work engagement (vigor, dedication, and absorption). The UWES includes items for the assessment of each dimension. The UWES is available in both a 17- and 9-item formats. Both versions of the UWES have been validated in several countries and using various occupations (Salanova, Agut, & Peiró, 2005; Schaufeli & Bakker, 2003, 2010; Schaufeli, Bakker, & Salanova, 2006; Seppälä et al., 2015). To reduce the number of items of the final questionnaire, I used the shorter version of the work engagement scale (UWES-9). Sample items from the scale include: "At my job, I feel strong and vigorous" (vigor); ''My job inspires me" (dedication); and ''I feel happy when I am working intensely" (absorption). For the Spanish sample, I used Schaufeli and Bakker's (2003) Spanish version of the scale. I scored all items using 7-point Likert-type anchors, ranging from 0 (Never) to 6 (Every day) and averaged them to form a composite score; higher scores were indicative of higher levels of work engagement. The scale's dimensions have demonstrated high internal consistency with Cronbach's alpha exceeding .90 for the composite score across a variety of countries (Schaufeli & Bakker, 2010). In this study, the Cronbach's alpha for the combined work engagement scale was .91. I included the list of items for work engagement in Appendix N.

Moderator. I indexed cultural dimensions at the country level by using Hofstede et al.'s (2010) most-recent country information (see Table 1 for scores).

Data Screening

Prior to screening the data, the sample consisted of 510 respondents. I screened surveys for completion and kept participant information confidential, only retaining ID numbers and IP addresses. Note that I only kept IP addresses during the data screening process to confirm that the same respondent was not taking the survey multiple times; I deleted them once I had confirmed this. I screened the dataset for missing responses on the measures and only retained surveys that were 100% completed. I omitted 36 respondents (7.1%) because their answers were indicative of inattentive responding. To detect inattentive responding, I used variations of the item "I am being attentive, therefore I select A" throughout the questionnaire. I removed five respondents (1.0%)

because they did not complete the work engagement scale. I removed nine respondents (1.8%) because they had the same IP address; the rationale for their removal was that it was not possible to discern whether responses coming from the same IP address were being reported by the same respondent. I omitted five respondents (1.0%) because their locations were not based in Spain or in the United States (as indicated by Qualtrics's location data). Lastly, I removed an additional five respondents (1.0%) because their scores indicated that they had univariate outliers.

I identified univariate outliers using standardized deviation units (z-scores) larger than ± 3.29 (i.e., falling outside of the 99.9% of where z-scores lie in the distribution). As Field (2017) and Tabachnick and Fidell (2013) warned, such extreme scores could have undue influence on the data. To be certain that these respondents warranted removal, I inspected all raw and standardized values of the outlying cases; then, I compared them to the rest of the data. The outlying cases that I removed had multiple instances of outlying scores for multiple variables. I expand more on how I dealt with outliers later in this chapter and in the subsequent Results chapter. The final sample consisted of 450 nurses (88.2%) – 250 from Spain and 200 from the United States. I also detected a few multivariate outliers; for each hypothesis, I discuss how I dealt with them along with the rationale that I used to do this.

Confirming Burnout's Two-factor Model, Testing Hypotheses, and Assessing Bias

Main analyses of the data included means, standard deviations, Cronbach's coefficient alpha, correlational analysis, hierarchical multiple-regression analysis, measurement invariance test (viz., configural), and Fisher's (1915, 1921) *r*-to-*Z* transformation. In addition, as I previously indicated when discussing the OLBI's two-factor model, I also analyzed the burnout items using item-total statistics, EFA, and CFA.

I present means, standard deviations, and Cronbach's coefficient alpha in the next chapter. I discuss results for the analysis of the OLBI's two factors and key assumptions of correlational analyses and hierarchical multiple-regression analyses in the next section and discuss results for each hypothesis in the study in the next chapter. I discuss results and implications for the measurement invariance test along with *r*-to-*Z* transformations (where applicable) in the Discussion chapter.

Confirming Burnout's Two-factor Model

As I previously stated, a few researchers (e.g., Estévez-Mujica & Quintane, 2018; Hamblin, 2014) reported having encountered issues (i.e., poor factor loadings, cross-loadings, items loading in the wrong factor) with some of the items used in the two factors of the OLBI. Thus, I decided to explore the items in the OLBI to confirm the two-factor structure of the measure in these data. For this, I ran item-total statistics, EFA with a principal axis factoring (PAF) and oblique rotation (promax), and CFA. The results of the item-total statistics indicated that the reliability of the measures could be improved by removing a few items (9 and 13 for disengagement and 14 for exhaustion) – though the improvement was minimal. In the EFA, the Kaiser-Meyer-Olkin (KMO) measure verified sampling adequacy for the analysis, KMO = .84, which is categorized as "meritorious" and is higher than the threshold of .60, thus making it adequate for factor analysis (Hutcheson & Sofroniou, 1999). In addition, all the KMO values for individual items were greater than the recommended threshold of .50 (Field, 2017). The results of the EFA suggested that the structure of the two factors would improve following the removal of five items. Four of these items had poor factor loadings or loaded in the wrong factor – items 5, 14, and 16 for exhaustion and item 9 for disengagement. I also removed item 3 because it cross-loaded similarly for both factors.

While EFA can be useful to explore factor structure (how the variables relate and group), with CFA researchers can actually confirm the factor structure extracted in an EFA (Hair, Black, Babin, Anderson, & Tatham, 2010; Tabachnick & Fidell, 2013). Performing CFA is useful when researchers have a clear hypothesis about a scale (e.g., the number of items per factor or the number of factors in a scale; Hair et al., 2010; Kline, 2010; Tabachnick & Fidell, 2013). In other words, using knowledge of the theory and/or empirical research, the researchers can postulate the established relationship pattern a priori and test it statistically (Hair et al., 2010; Kline, 2010; Tabachnick & Fidell, 2013). CFA relies on various statistical tests (either absolute or relative fit indices) to determine the adequacy of model fit (how well the proposed model accounts for correlations between variables in the data; Hair et al., 2010). Absolute fit indices (e.g., chi-square test or χ^2, root mean square error of approximation or RMSEA, standardized root mean square residual or SRMR, goodness of fit index or GFI) determine how well the a priori model fits, while relative (or incremental) fit indices (e.g., comparative fit index or CFI) compare the chi-square for the model tested to a "null model" (a model that specifies that the variables tested are uncorrelated; Hair et al., 2010; Hooper, Coughlan, & Mullen, 2008; Kline 2005, 2010).

As Hooper et al. (2008) explained, initially, researchers relied mostly on the use of the chi-square test to determine model fit (the chi-square test indicates the amount of difference between the expected and the observed covariance matrices, with values close to zero indicating little difference between the two; Hu & Bentler, 1999). However, chi-square is very sensitive to sample size (with larger sample sizes of 200 or more being rejected more easily), usually resulting in a *p*-value that is very small and likely to be significant, thus rejecting the null hypothesis for model fit (Hooper et al., 2008; Kline, 2005, 2010). Because of this, researchers no longer rely solely upon chi-square as a basis for acceptance or rejection of model fit (Barrett, 2007; Hair et al. 2010; Hooper et al., 2008; Hu & Bentler, 1999; Tabachnick & Fidell, 2013; Vandenberg, 2006).

As a result of the problems associated with the chi-square test, researchers proposed a number of alternative models (as listed above) that did not rely as much on sample size to help in determining model fit, each with a number of guidelines. While there is no consensus on cutoffs for these tests, researchers have proposed some general guidelines: a) for chi-square, a few researchers hold strongly to the view that significant chi-square values indicate unacceptable fit (e.g., Barrett, 2007; see also Hayduk, Cummings, Boadu, Pazderka-Robinson, & Boulianne, 2007, for an introduction to this viewpoint), but most researchers disagree with this view (e.g., Hair et al., 2010; Hooper et al. 2008; Kline, 2005, 2010); b) relative/normed chi-square is obtained by dividing the chi-square by the degrees of freedom (χ^2/df) and while no general consensus on the threshold exists, some researchers have recommended the cutoff to be as high as 5.0 (Wheaton, Muthén, Alwin, & Summers, 1977) to a conservative 3.0 (Kline, 2005) to as low as 2.0 (Tabachnick & Fidell, 2007); c) RMSEA, with initial values for recommending fair fit being as high as .10 for (MacCallum, Browne, & Sugawara, 1996), but more recently maximum values of .06 to .08 have become the norm (Hooper et al., 2008); d) SRMR, with values of .08 or less indicating acceptable model fit (Hu & Bentler, 1999; Tabachnik & Fidell, 2013); e) GFI, with values of .90 generally indicating adequate fit and .95 indicating excellent fit (which is more accepted presently; see Hooper et al., 2008); and CFI, which was initially expected to be at .90 or larger for adequate fit, but has a guideline of .95 as a more generally accepted index (Hooper et al., 2008; Hu & Bentler, 1999) – though some researchers recommend looking at .92 as indicative of fair fit with larger sample sizes (e.g., Hair et al., 2010). In addition, Hu and Bentler (1999) recommended using a two-index approach to determine model fit with a combination of either a) CFI of .96 or higher and SRMR of 0.09 or lower or b) RMSEA of 0.06 or lower and SRMR of 0.09 or lower. Importantly, some researchers (e.g., Crowley & Fan 1997; Hair et al., 2010; Kline, 2005; Tabachnick & Fidell, 2007) caution, that one should not be too reliant on stringent cutoffs to determine model fit and should instead evaluate the entire model from different angles.

Overall, though some researchers (e.g., Barrett, 2007) adopt a hard line and advocate for the use chi-square as the only measure of fit or contend that having multiple fit indices (with multiple cutoffs) allows for inadequate models to pass as good models (e.g., Barrett, 2007; Hayduk et al., 2007), most researchers (e.g., Hair et al., 2010; Hooper et al., 2008; Hu & Bentler, 1999; Kline, 2010; Tabachnick & Fidell, 2013) agree that using multiple fit indices is acceptable to determine model fit. As Hooper et al. (2008) explained, most researchers view the use of various fit indices to evaluate adequate model fit as an appropriate course of action because they reflect a different aspect of model fit. In terms of which fit indices one should report, some researchers (e.g., Hooper et al., 2008; Kline, 2005, 2010) recommended reporting chi-square, RMSEA, CFI, and SRMR. For this study, I confirmed the results of the EFA after conducting a CFA, $\chi^2(113) = 39$, RMSEA = .06, SRMR = .06, CFI = .93, GFI = .96. Chi-square is significant, but normed chi-square/df is below 3, both RMSEA and SRMR are below .06, CFI is above .92 (with a relatively large sample), and GFI is over .95. In addition, the results meet one of the two-index approaches recommended by Hu and Bentler (1999). Taken together, these indices suggest adequate fit and confirm the two-factor structure of the OLBI using the 11 items.

Tests used for Hypothesis Testing

To examine the correlational Hypotheses (e.g., 1a, 1b, 2a), I conducted a series of one-tailed Pearson product-moment correlations. To test the moderated Hypotheses (e.g., 1c, 1d, 2b), I used hierarchical multiple-regression analysis and the steps recommended in the literature (e.g., Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003; Frazier, Tix, & Barron, 2004), which I outline next: First, I dummy-coded the categorical moderator variables (either as 0 or 1). Then, I standardized the continuous predictor (mean of 0 and standard deviation of 1) to account for multicollinearity and for easier interpretation of the data. Next, I created interaction terms to represent the interaction between the predictor and the moderator. To perform the analyses, I then regressed the outcome (burnout factors or work engagement) on the moderator and the standardized predictor measure in the first step and the interaction term in the second step. I inspected the unstandardized (*b*) regression coefficients for the interaction terms in Step 2 to test the moderation hypotheses. If a significant moderator effect existed, I inspected its particular form by plotting the slopes of the simple regression lines representing relations between the predictor and the outcome. Doing so provides information regarding the magnitude of the relation between the predictor and the outcome at the different levels of the moderator. Moderation occurs if there is a significant change in the relationship between the predictor and the outcome once national culture is taken into consideration.

Because I ran a total of fourteen correlations and fourteen moderation analyses, I also used a Bonferroni adjustment to control for multiple comparisons with the critical *p*-value. This resulted in a criterion of $p < .004$ (α/k: .05/14; Feller, 1968; Field, 2017; Mundfrom, Perrett, Schaffer, Piccone, & Roozeboom, 2006). The Bonferroni adjustment reduces the chances of obtaining false-positive results (family-wise Type-I error rate) when multiple pairwise tests are performed on a single set of data (Field, 2017; Mundfrom et al., 2006). Simply put, the probability of identifying at least one significant result due to chance increases as more hypotheses are tested; this adjustment provides a way to control for that. Of note, the Bonferroni adjustment has been criticized for being too conservative, which may result in diminished power to detect effects (Field, 2017; Narum, 2006).

Assessing Bias

Prior to conducting the statistical analyses needed to test the hypotheses in the study, I examined the data to reduce potential biases that could result in misleading or erroneous conclusions. In this section I describe what those biases and key assumptions are for the correlational and the hierarchical multiple-regression analyses that I conducted. However, note that I provide the results of each of these assumption assessments for each hypothesis (for both correlational and hierarchical multiple-regression analyses) in the next chapter.

Assessing Bias in the Correlation Models. To avoid bias in the correlational analyses (e.g., for hypotheses 1a, 1b, 2a), I evaluated the data and examined key assumptions of correlational analysis. As Field (2017) indicated, these key assumptions are: levels of measurement, pair observations, linearity, homoscedasticity, and normality. Various researchers (e.g., Aguinis, Gottfredson, & Joo, 2013; Fidell & Tabachnick, 2003; Field, 2017; Iglewicz & Hoaglin ,1993; Orr, Sackett, & DuBois, 1991; Osborne & Overbay, 2004; Rousseeuw & Hubert, 2011; Tabachnick & Fidell, 2013) also recommended that scholars examine the data to detect unusual cases that could potentially exert undue influence over the parameters of the models, thus influencing the overall correlational results.

The levels of measurements for each variable involved in the correlational analysis are continuous and on the interval scale. Thus, the data met the level of measurement assumption (Field, 2017). Having related paired of observations means that every data point must be in pairs with another variable; that is, each observation of the independent variable must have a corresponding observation of the dependent variable (Field, 2017).

Linearity and homoscedasticity refer to the shape of the values formed by a scatterplot (Field, 2017). Accordingly, I assessed linearity and homoscedasticity via visual inspection of the scatterplots (Field, 2017; Tabachnick & Fidell, 2013). The assumption of linearity was met if the data points for each variable approximated a linear pattern (and not a curve). Homoscedasticity refers to the distance between the data points to the straight line (Field, 2017). The shape of the scatterplot should be tube-like (as opposed to cone-like) (Field, 2017; Tabachnick & Fidell, 2013).

I assessed the assumption of normality with the Kolmogorov-Smirnov test (where non-significant results are indicative of normality; Field, 2017; Tabachnick & Fidell, 2013). As Tabachnick and Fidell (2013) and Field (2017) indicated, however, while the Kolmogorov-Smirnov test provides a quick way to test normality, it can also be sensitive to larger sample sizes; thus, various researchers (e.g., Field, 2017; Osborne, 2002; Tabachnick & Fidell, 2013) have recommended that researchers also visually inspect Q-Q plots and histograms with a normal curve to determine normality. In addition, Tabachnick and Fidell (2013) and Field (2017) recommended that researchers inspect the data in terms of their skewness (i.e., asymmetry of the distribution) and kurtosis (i.e., measure of whether the data are heavy-tailed or light-tailed) values. Negative values for skewness indicate scores piled-up on the right side of the distribution, whereas positive values indicate scores piled-up of on the left side (Field, 2017). Distributions with no excess of kurtosis, like a normal distribution, are called mesokurtic, while negative values of kurtosis (also called platykurtic) indicate a flat and light-tailed distribution; positive values (also called leptokurtic) indicate a heavy-tailed and pointy distribution (Field, 2017).

Hair et al. (2010), Tabachnick and Fidell (2013), and Field (2017) recommended using the z-score for skewness (Z_{skewness}) and kurtosis (as determined by dividing the statistic by the standard error) to further inform decision-making during the inspection of normality. The z-scores can be compared against values that one would expect to get by chance alone (i.e., known values for a normal distribution). For skewness and kurtosis, an absolute value greater than ±1.96 is significant at $p < .05$, above ±2.58 is significant at $p < .01$, and greater than ±3.29 is significant at $p < .001$ (Field, 2017; Hair et al., 2010; Tabachnick & Fidell, 2013). Since the standard errors for both skewness and kurtosis decrease with larger sample sizes, significant values for the Kolmogorov-Smirnov test and for skewness and kurtosis arise from even small deviations from normality (Field, 2017; Tabachnick & Fidell, 2013); thus, for larger sample sizes (i.e., 200 or more), statistically significant skewness and/or kurtosis often do not deviate enough from normality to influence analysis results. Because of this, for larger samples, Field (2017) recommended looking at the z-score cutoff for skewness of ± 2.58. For kurtosis, Curran, West, and Finch (1996), Byrne (2009), and Hair et al. (2010) argued that values within ± 7 could be considered as being normal. While these guidelines provide a quick way to examine normality, as Hair et al. (2010), Tabachnick and Fidell (2013), and Field (2017) recognized, the process is not quite as cut and dry as these test statistics would make it seem; thus, they all agreed that it is important to pay close attention to the shape of the distribution and holistically examine all information available when determining if a distribution is normally distributed. It is certainly possible to have seemingly-conflicting information regarding the normality results, with the Kolmogorov-Smirnov test indicating non-normality, for example, while the visual inspection of the scatterplot and the skewness and kurtosis indicate that the data appear normal.

One important note is that when skewness and/or kurtosis issues are present in the data, Hair et al. (2010), Tabachnick and Fidell (2013), and Field (2017) recommended transforming the affected variables to try to repair normality. A data transformation is an application of a mathematical modification to a variable which alters the relative distance between data points (Field, 2017; Osborne, 2002). As Micceri (1989) pointed out, normality can be rare in psychological science; thus, the use of data transformations can help researchers with normalizing the data. Notably, the approach has its detractors; for example, some researchers (e.g., Grayson, 2004) argue that the approach changes the nature of the variable being transformed.

Tabachnick and Fidell (2013) and Field (2017) provided guidelines to help determine the severity of particular problems with normality and recommended common data transformations (e.g., square-root, logarithmic, inverse) designed to improve skewness and/or kurtosis. As I mentioned above, though it is also important to look at the histogram to inspect normality, various researchers (Field, 2017; Hair et al., 2010; Tabachnick & Fidell, 2013) agree that a good guideline to use to determine whether data have a normal distribution and no issues with normality is to inspect that the Z_{skewness} is within a ±1.96 range (and within a ±2.58 range for larger samples). When the histogram looks non-normal and/or when Z_{skewness} falls outside the aforementioned range, it is likely that the distribution is skewed and has taken one of three shapes: moderate, substantial, or severe (Tabachnick & Fidell, 2013).

Though Tabachnick and Fidell (2013) do not provide definitions for these three shapes, they do provide descriptions for them. When a variable is moderately skewed it has scores slightly piled up on the right or the left side of the distribution; for moderately skewed data, Tabachnick and Fidell (2013) and Field (2017) recommended using a square-root transformation to correct normality. Substantial skewness is indicative of data with a pointy tail where most of the scores are concentrated on either the right tail or on the left tail of the distribution and Tabachnick and Fidell (2013) and Field (2017) recommended using a logarithm transformation to correct normality. With severe skewness, the bell-shaped curved becomes more “L-shaped” (for positive skewness) or “J-shaped” (for negative skewness) with the vast majority of the scores being piled on the tails of the distribution; for these, Tabachnick and Fidell (2013) and Field (2017) recommended using an inverse transformation. After every transformation, they advised that researchers re-inspect the data to ensure that the transformation did not cause unwanted issues (e.g., problems with other assumptions, worsen normality).

Transforming variables has implications – it changes the variables’ units of measurement because it changes the difference between different variables; however, the relative distance between people for a given variable does not change, which means that the researcher can still quantify those relationships (Field, 2017; Osborne, 2002). Thus, when looking at the difference between variables (e.g., any change within a variable over a period of time), one needs to transform all the variables for a given hypothesis (Field, 2017; Tabachnick & Fidell, 2013). But, when looking at the relationship between variables (e.g., regression), one can just transform the problematic variable(s) (Field, 2017; Tabachnick & Fidell, 2013).

Tabachnick and Fidell (2013) strongly advocated for the use of data transformations to achieve normality and even to deal with outliers. Reviewing the practice of data transformations, they concluded that data transformations almost always serve to substantially improve the results of analyses or meet assumptions (Tabachnick & Fidell, 2013). Though a little more conservative than Tabachnick and Fidell (2013), Field (2017) also agreed that the use of data transformations can improve results and often times help with interpreting results, particularly when normality is expected in the population.

However, as I briefly mentioned above, other researchers have advised that caution be exercised when using data transformations. In reviewing commonly-used data transformation methods, Osborne (2002) concluded that, while they can be valuable tools, data transformations can fundamentally change the nature of a variable. As such, they can potentially make interpretation more complex (Osborne, 2002; see also Micceri, 1989). In addition, Games (1984) argued that when one transforms data, one can potentially change the hypothesis that is being tested; for instance, using logarithmic transformation changes a variable from comparing arithmetic means (which use the sum of scores divided by *n* of scores) to comparing geometric means (which use the *n*th root of the product of *n* scores). Grayson (2004) agreed with this and called into question the interpretability of results using transformed data; he also argued that data transformations also imply that one may now be addressing a different construct than what was intended in the first place. Given the share of subjectivity in the process of evaluating normality, Games (1984) also argued that a researcher could potentially apply the wrong transformation – one that could cloud the results of the analysis, even more so than just analyzing untransformed data. In addition, as Osborne (2002) warned, it is possible that non-normality could be due to real observable data points being the way they are for a particular variable. For example, non-normality is frequently observed in self-report ratings of performance (Berry, Carpenter, & Barratt, 2012; O'Boyle & Aguinis, 2012).

Based on this, it seems that though data transformations could solve potential issues with normality, it is important to understand the data *prior* to performing the transformations – one could be dealing with variables with meaningful skewness and/or kurtosis that, as such, are not likely to follow a normal distribution, like the aforementioned self-reported performance. Not understanding the shape of the distribution that a variable usually takes could lead to unnecessary steps (e.g., outlier deletion) or incorrect conclusions about the data (Grayson, 2004; O'Boyle & Aguinis, 2012; Osborne, 2002); thus, it is important to understand the characteristics of the construct and the scales at hand before applying data transformations (Field, 2017; Tabachnick & Fidell, 2013). For instance, in the case of self-reported performance, O'Boyle and Aguinis (2012) argued that researchers should switch focus from finding proof that an outlier should be retained to providing proof that the data should be normalized (either by outlier removal or by data transformation); they also recommended using different statistical tools that do not rely too much on normality to address the hypothesis, when possible.

Given this, I opted to exercise caution when inspecting the assumptions for each hypothesis. As recommended in the literature by advocates of data transformations to deal with normality (e.g., Field, 2017; Orr et al., 1991; Tabachnick & Fidell, 2013) – and even by those who warn of the potential pitfalls of using data transformations (e.g., Grayson, 2004; Osborne, 2002) – data transformations can be a valuable tool for dealing with issues of normality, but it is important that one uses a holistic approach to make decisions about what variables would need to be transformed. When addressing each hypothesis, I inspected normality by using the approaches I previously described (e.g., Kolmogorov-Smirnov test, skewness and kurtosis). I also searched the literature to understand if any of the scales I used in the study usually have issues with normality (like supervisory or peer ratings scales have been shown to have; Berry et al., 2012; O'Boyle & Aguinis, 2012) or if there were potential reasons inherent to the nursing sample that would lead to non-normality.

Notably, when I transformed variables in the data, the results were practically the same as when using non-transformed variables. That is, the magnitude of the correlations when using transformed variables was similar to the magnitude of correlations when using non-transformed variables and there were no changes in error rates. I provide results for the analyses in the next chapter and provide more details of such results in the Discussion chapter.

Lastly, as I mentioned briefly in the previous chapter, I inspected univariate outliers using a conservative cut-off of z-score larger than ± 3.29 (as recommended by various researchers, such as Fidell & Tabachnick, 2003; Field, 2017; Tabachnick & Fidell, 2013). Outliers are deviant observations that are distinct from most of the data points in the sample and can potentially cause undue impact on the results of analysis (Aguinis et al., 2013; Ben-Gal, 2005; Fidell & Tabachnick, 2003; Field, 2017; Tabachnick & Fidell, 2013). Outliers can be univariate (i.e., a data point that consists of an extreme value in a single variable) or multivariate (i.e., a combination of unusual or extreme values on at least two variables) (Ben-Gal, 2005; Field, 2017; Tabachnick &

Fidell, 2013). As various researchers have stressed (e.g., Aguinis et al., 2013; Ben-Gal, 2005; Tabachnick & Fidell, 2013), the detection of univariate outliers should be the first step in the detection of multivariate outliers. I expand more on multivariate outliers in the next section.

As a whole, there are various reasons for the presence of univariate (and multivariate) outliers. For instance, as various researchers (e.g., Aguinis et al., 2013; Fidell & Tabachnick, 2003; Field, 2017; Osborne & Overbay, 2004; Rousseeuw & Hubert, 2011; Tabachnick & Fidell, 2013) have pointed out, while some outliers could be legitimate cases sampled from a population, others could be caused by clerical errors (e.g., when data are copied from a source to a dataset) or by the researcher's failure to correctly code missing values in a dataset. In addition, it is possible that some outliers did not come from the intended sample or that they are the result of measurement error (a mistake in the process of measuring the data, like a flaw in an instrument) (Fidell & Tabachnick, 2003; Field, 2017; Osborne & Overbay, 2004; Tabachnick & Fidell, 2013).

Outliers can either raise or lower means. By doing this, they can bring about several problems with statistical analyses by a) increasing error variance and reducing the power of statistical tests, b) decreasing normality and altering the odds of having both Type I and Type II errors, and c) introducing bias or influencing estimates that may be of substantive interest (Aguinis et al., 2013; Fidell & Tabachnick, 2003; Field, 2017; Osborne & Overbay, 2004; Tabachnick & Fidell, 2013). As Fidell and Tabachnick (2003) warned, inclusion of outliers can potentially make the outcome of analyses unpredictable and not generalizable.

Osborne and Overbay (2004) provided a practical example of the problems associated with outliers; using a population of more than 20,000 participants, they randomly selected 100 samples of 52, 104, and 416 people each. Each set of samples included random outliers (identified as having z-scores higher ±3) – 2 random outliers for the samples of 52, 4 for the samples of 104, and 16 for the samples of 416. The authors compared two sets of population correlations (between locus of control and family size and between composite achievement test scores and socioeconomic status) with averages of the sample correlations in terms of accuracy (i.e., whether the original correlation or the cleaned correlation – following the removal of the outliers – was closer to the population correlation) and error rate (i.e., whether a particular sample yielded different outcome conclusions than what was warranted by the population). The authors found that the removal of outliers had significant effects upon the magnitude of the correlations, wherein the cleaned correlations were more accurate 70-100% of the time than the original correlations (i.e., the ones with the outliers included). In addition, the incidence of errors of inference was lower with cleaned samples than with the original, uncleaned samples. The authors also provided practical examples using t-test and ANOVA statistical analyses and reported finding similar results. Thus, keeping a close eye on influential cases could yield more accurate results.

Overall, when data points are suspected of being univariate outliers, some researchers (e.g., Iglewicz & Hoaglin, 1993; Orr et al., 1991) argue that these should be kept if they are suspected of being legitimate or if it is hard to determine whether the outlier is more representative of the population. Most researchers, however, seem to err on the side of caution and suggest that univariate outliers be removed (e.g., Fidell & Tabachnick, 2003; Field, 2017; Osborne & Overbay, 2004; Tabachnick & Fidell, 2017), especially when they are extreme outliers or when they bring about problems with assumptions. For this study, I followed that conservative recommendation; when I encountered univariate outliers (with a z-score larger than ±3.29), I decided to remove them. Such a large z-score would only cut off 0.1% of the distribution.

Assessing Bias in the Regression Models. Prior to conducting each moderation hypothesis (e.g., 1c, 1d, 2b), I evaluated the data to reduce bias in the regression models. First, as Tabachnick and Fidell (2013) and Field (2017) recommended, I assessed the data to ensure that key assumptions of linear regression were met: linearity, homoscedasticity, independence of errors, the use of quantitative or categorical variables, multicollinearity, and normality. In addition, as with univariate outliers, I examined the data to detect unusual cases that could potentially exert undue influence over the parameters of the models, thus influencing the overall regression results.

I assessed linearity and homoscedasticity by visually inspecting the residual scatterplots, with rectangular plots indicating homoscedasticity (Field, 2017; Tabachnick & Fidell, 2013). The assumption of linearity was met if the standardized residuals among the continuous predictors on the outcome variable approximated a linear pattern. For homoscedasticity, the assumption was met if the scatterplots revealed that the residuals at each level of the predictor had the same variance.

Next, I used the Durbin-Watson test to determine whether adjacent residuals were correlated or independent (Durbin-Watson, 1951; Field, 2017; Tabachnick & Fidell, 2013). Values close to 2 are indicative of uncorrelated values. In addition, for the assumption of variable types, all data were either categorical or quantitative, which satisfied the assumption (Field, 2017; Tabachnick & Fidel, 2013).

I assessed multicollinearity using various methods, including visual inspection of correlation matrices, the variance inflation factor (VIF), and the tolerance statistic. Correlations above .80 would be cause for concern and indicative of predictors that are correlated too highly (Field, 2017; Tabachnick & Fidel, 2013). Though no hard rules of VIF and tolerance values are defined (Field, 2017), researchers have proposed some general guidelines: a) all VIF values should be under 10 (Myers, 1990); b) the tolerance values should above 0.2 (Menard, 1995); and c) the average VIF should be close to 1 (Bowerman & O'Connell, 1990).

I assessed the assumption of normally distributed residuals by visually inspecting P-P plots and histograms with a normal curve; in addition, I relied on the Kolmogorov-Smirnov test (where non-significant results are indicative of normality; Field, 2017; Tabachnick & Fidell, 2013) and on the z-score for skewness and kurtosis (as determined by dividing the statistic by the standard error; Field, 2017; Tabachnick & Fidell, 2013). As I indicated above in the previous section, there are various z-score cutoffs from which to choose when assessing skewness and kurtosis. As Tabachnick & Fidell (2013) and Field (2017) recommended for sample sizes of this magnitude, I used a tentative z-score cutoff of ± 2.58 for skewness, but also used a holistic approach and paid close attention to the shape of the distribution to determine if there were problems with normality.

Researchers use several methods to identify and deal with multivariate outliers (Aguinis et al., 2013; Field, 2017; Tabachnick & Fidell, 2013). Aguinis et al. (2013) reviewed the literature for methods of outlier detection and compiled 39 different outlier-identification techniques (e.g., standardized residuals, Cook's distance, Mahalanobis distance, stem and leaf plots, box plots, p-p plots, centered leverage values) and 20 different ways of dealing with outliers (e.g., modification, removal, retention, truncation, transformation). For regression, Aguinis et al. (2013) recommend using a combination of these methods to identify influential cases not caused by erroneous data entry (e.g., Cook's distance, z-scores); they also recommended that researchers thoroughly inspect flagged cases and review whether removal or inclusion of data points changes the coefficient of determination (R^2).

Because of this, I assessed potential influential cases by evaluating several methods, including the Mahalanobis distance, centered leverage value, Cook's distance, and standardized residuals (Aguinis et al., 2013; Field, 2017; Tabachnick & Fidell, 2013). Mahalanobis distance measures the distance of cases from the mean(s) of the predictor variable(s) (Field, 2017; Tabachnick & Fidell, 2013). For these analyses, I used Tabachnick and Fidell's (2013) Mahalanobis distance table to determine the correct cutoff necessary to flag multivariate outlier cases that would warrant further inspection. Given that each moderation hypothesis in this study contains the same number of predictors, I found that a cutoff of 16.27 [by using the formula provided by Tabachnick and Fidell (2013), chi-square table; df = number of predictors] would work for all the moderation hypotheses.

Centered leverage value and Cook's distance measure the overall influence of a case on the model and are measured on the outcome variables rather than the predictors (Field, 2017). As a result, as Field (2017) indicated, cases with large centered leverage values do not necessarily have a large influence on the regression coefficients. For centered leverage, using the formula recommended by Stevens (2002) [$(3(k+1)/n)$], values greater than the cutoff level (0.027) warrant further inspection. For Cook's distance, Cook and Weisberg (1982) suggested that values greater than 1 may be a cause for concern and require further examination. Lastly, standardized residuals are the residuals of the model expressed in standardized deviation units; residuals z-scores larger than ± 3 may be cause for concern and require further inspection (Field, 2017; Tabachnick & Fidell, 2013).

Of note, various researchers (e.g., Ben-Gal, 2005; Egan & Morgan, 1998; Hadi, 1992; Orr et al., 1991; Rousseeuw & Hubert, 2011; Tabachnick & Fidell, 2013) have warned that, under some conditions, multivariate outlier detection techniques can result in masking (creating false negatives) or swamping effect (creating false positive) issues. Masking effect occurs when an outlier masks a second outlier, resulting in the second outlier being considered as an outlier only when the outlier is by itself, but not in the presence of the first outlier; thus, if the first outlier is removed, the second outlier will now emerge as a new outlier. Swamping effect, on the other hand, occurs when an outlier is considered to be an outlier only when it is in the presence of another outlier; thus, when the first outlier is removed, the second outlier no longer appears to be an outlier. Because of this, some researchers (e.g., Field, 2017; Tabachnick & Fidell, 2013) have indicated that, while helpful in determining potential sources of bias, these techniques should be used with caution and cases flagged as being potential outliers should be further examined. In addition, inspecting flagged cases and data points is important because there may be cases that could be influencing the results of the analysis and be legitimate cases that are part of the population (e.g., Fidell & Tabachnick, 2003; Osborne & Overbay, 2004; Tabachnick & Fidell, 2013); hence, some researchers (e.g., Orr et al., 1991) have argued that data are more likely to be representative of the population as a whole if outliers are not removed. Thus, one should not simply remove an observation before a thorough examination of the data.

Given this, when I flagged a value for being a potential multivariate outlier, I evaluated the participant’s raw and standardized responses to ensure that his or her results were not the result of response bias. In most cases that I further inspected, the participants’ other responses were variable (e.g., not all 1’s, etc.) and consistent (e.g., most items were consistently rated on a low end of rating scales); thus, generally, the participant's responses did not seem to be a result of response bias. I expand on this discussion in the next chapter.

CHAPTER 3

RESULTS

To test the correlational hypotheses in the study, I conducted a series of one-way Pearson product-moment correlations. Table 3 includes an intercorrelation matrix of all variables in the correlational hypotheses, whereas Table 4 includes an intercorrelation matrix of all measures, by country (including dimensions for burnout and work engagement). Table 5 includes means, standard deviations, and Cronbach's coefficient alpha of all measures in the study, using the combined sample, the Spanish sample, and the American sample. Tables 6-14 include regression results specific to the moderation hypotheses. Lastly, table 15 includes an intercorrelations matrix of all variables used in the moderation hypotheses.

Prior to conducting the analyses for each correlational hypothesis, I evaluated the data to ensure that the assumptions of Pearson product-moment correlations were met. For each one of the correlational hypotheses, the initial results indicated that the assumptions of levels of measurement, pair observations, linearity, and homoscedasticity were met. I had already cleaned the data for univariate outliers during the data screening, so I found no further problems related to univariate outliers.

However, some of the variables had problems with the assumption of normality; thus, I present the results for each correlational hypothesis along with a description of the normality results, when appropriate. Importantly, while exhaustion and disengagement had no issues with normality, I needed to transform work engagement to improve skewness. Initially, the results of the Kolmogorov-Smirnov test of normality was significant, thus indicating non-normality. In addition, the skewness z-score and the visual inspection of the Q-Q plots and of the histogram indicated that work engagement was moderately negatively skewed, $D(450) = .60$, $p <.001$, $Z_{skewness} = -3.35$, $Z_{kurtosis} = -1.60$. To improve skewness, I transformed the variable using a square-root transformation and subsequently reanalyzed the variable for normality; the Kolmogorov-Smirnov test of normality was still significant, $D(450) = .08$, $p <.001$, but as Field (2017) indicated, sample sizes larger than 200 are likely to present problems for the Kolmogorov-Smirnov test. Visual inspection of the Q-Q plots and the z-scores for skewness showed improvement, $Z_{skewness} = .04$, $Z_{kurtosis} = -2.74$. Because of this, I opted to use the transformed variable for further correlational analyses involving work engagement.

Testing Correlational Hypotheses

As I indicated in the previous chapter, I used a Bonferroni-adjusted *p*-value level of .004 as a significance cutoff to correct for multiple comparisons. In Hypotheses 1a-1b, I theorized that centralization would be positively related to exhaustion and disengagement; the hypotheses were supported ($r = .19$ and .14, respectively, $p <.004$). With Hypothesis 2a, I expected procedural justice to be positively related to work engagement. This hypothesis was also supported ($r = .20$, $p < .004$). Of note, the results for the correlation between procedural justice and the non-transformed work engagement variable would also support the hypothesis ($r = .22$, $p <.004$).

With Hypotheses 3a-3b, I hypothesized that role ambiguity would be positively related to exhaustion and disengagement. The initial results for Hypotheses 3a-3b revealed that the assumption of normality for role ambiguity was not met. The results of the Kolmogorov-Smirnov test of normality was significant and the skewness z-score and the visual inspection of the histogram indicated that role ambiguity was substantially positively skewed, $D(450) = .14$, $p <.001$, $Z_{\text{skewness}} = 7.04$, $Z_{\text{kurtosis}} = 1.36$. To improve skewness, I transformed the variable using a logarithmic transformation and subsequently reanalyzed the variable for normality; though the Kolmogorov-Smirnov test of normality was still significant, $D(450) = .08$, $p <.001$, a visual inspection of the Q-Q plots and the histogram as well as the z-scores for skewness and kurtosis showed improvement over the non-transformed variable, $Z_{\text{skewness}} = -.48$, $Z_{\text{kurtosis}} = -.88$. Thus, I re-ran the analyses for Hypotheses 3a-3b using the transformed role ambiguity variable; the results indicated that the hypotheses were supported ($r = .25$ and .28, respectively, $p <.004$). Notably, using the non-transformed role ambiguity variable also provides support for the hypotheses ($r = .25$ for exhaustion and .28 for disengagement, $p <.004$).

With Hypothesis 4a, I hypothesized that innovative climate would be positively related with work engagement. The initial results for the hypothesis revealed that the assumption of normality for innovative climate, as indicated by the Kolmogorov-Smirnov test of normality, was significant. The skewness z-score and the visual inspection of the histogram indicated that innovative climate was moderately negatively skewed, $D(450) = .88$, $p <.001$, $Z_{\text{skewness}} = -2.16$, $Z_{\text{kurtosis}} = -3.56$. Though the skewness for the variable met the z-score cutoff of ±2.58, the visual inspection of the Q-Q plots and the histogram did not look normal and data points were not close to the straight line. Thus, exercising caution, and to improve skewness and/or kurtosis, I transformed the variable using a square-root transformation and subsequently reanalyzed the variable for normality. Following the transformation, the Kolmogorov-Smirnov test of normality was still significant, $D(450) = .65$, $p <.001$, but a visual inspection of the Q-Q plots and of the histogram as well as the z-scores for skewness and kurtosis showed improvement over the non-transformed variable, $Z_{skewness}$ = -1.00, $Z_{kurtosis}$ = -3.20. I re-ran the analysis for the hypothesis using the transformed variables, which indicated that the hypothesis was supported (r = .29, p <.004). Notably, using the non-transformed variables would also provide support for the hypothesis (r = .31, p <.004).

With the next set of hypotheses (5a-5b), I expected that work-life conflict would be positively related to exhaustion and disengagement; the hypotheses were also supported (r = .47 and .13, respectively, p <.004). In the next hypothesis, however, there were issues with normality. With Hypothesis 6a, I tested whether rewards and recognition was positively related with work engagement. The initial results for the hypothesis revealed that the assumption of normality for rewards and recognition was not met, as indicated by the Kolmogorov-Smirnov test of normality, which was significant. The skewness z-score and the visual inspection of the histogram indicated that rewards and recognition was moderately positively skewed, D(450) = .90, p <.001, $Z_{skewness}$ = 2.10, $Z_{kurtosis}$ = -3.35. As with innovative climate (Hypothesis 4a), the skewness for the variable met the z-score cutoff of ±2.58, but the visual inspection indicated that the variable was non-normal and data points were not too close to the straight line. Thus, exercising caution, and to improve skewness and/or kurtosis, I transformed the variable using a square-root transformation and subsequently reanalyzed the variable for normality; following the transformation, the Kolmogorov-Smirnov test of normality was still significant, D(450) = .657, p <.001, but a visual inspection of the Q-Q plots and of the histogram and the z-scores for skewness were much improved when compared to the non-transformed variable, $Z_{skewness}$ = -.27, $Z_{kurtosis}$ = -3.62. I re-ran the analysis for the hypothesis using the transformed variable, which indicated that the hypothesis was supported (r = .32, p <.004). Of note, results using the non-transformed variables indicated that the hypothesis would still be significant (r = .34, p <.004)

With Hypotheses 7a-7b, I hypothesized that workload would be positively related with exhaustion and disengagement. The initial results for the hypotheses revealed that the assumption of normality for workload was not met. The results of the Kolmogorov-Smirnov test of normality was significant and the visual inspection of the histogram as well as the z-score for skewness indicated that the variable was substantially negatively skewed, $D(450) = .13$, $p < .001$, $Z_{\text{skewness}} = -5.71$, $Z_{\text{kurtosis}} = 1.67$. To improve skewness and/or kurtosis, I transformed the variable using a logarithmic transformation and subsequently reanalyzed the variable for normality; though the Kolmogorov-Smirnov test of normality was still significant, $D(450) = .90$, $p < .001$, visual inspection of the Q-Q plots and of the histogram as well as the z-scores for skewness showed improvement over the non-transformed variable, $Z_{\text{skewness}} = .15$, $Z_{\text{kurtosis}} = -4.56$. Hence, I re-ran the analysis for the hypotheses using the transformed workload variable. The results of the correlations indicated that Hypothesis 7a was supported (r = .36, p <.004), but Hypothesis 7b was not (r = .12, *ns*). Notably, the results for the correlations between the non-transformed workload variable with exhaustion would also provide support for Hypothesis 7a (r = .36, p <.004), but the results for the correlation between the non-transformed workload variable with disengagement (Hypothesis 7b) would not be significant using the Bonferroni-corrected p-level value of .004 (r = .10, *ns*).

In Hypothesis 8a, I theorized that coworker support would be positively related with work engagement. The initial results for the hypothesis revealed that the assumption of normality for coworker support was not met. The results of the Kolmogorov-Smirnov test of normality was significant and the skewness z-score and the visual inspection of the histogram indicated that the variable was substantially negatively skewed, $D(450) = .15$,

p <.001, Z_{skewness} = -5.66, Z_{kurtosis} = -1.39. To improve skewness, I transformed the variable using a logarithmic transformation and subsequently reanalyzed the variable for normality; though the Kolmogorov-Smirnov test of normality was still significant, D(450) = .12, p <.001, visual inspection of the Q-Q plot and of the histogram as well as the z-scores for skewness showed improvement over the non-transformed variable, Z_{skewness} = -.29, Z_{kurtosis} = -4.20. Hence, I re-ran the analysis for the hypothesis using the transformed coworker support variable. The results indicated that the hypothesis was supported (r = .19, p <.004), even when using the non-transformed variables (r = .21, p <.004).

Lastly, with Hypotheses 9a-9b, I expected distributive justice to be negatively related to exhaustion and disengagement. The initial results for the hypotheses revealed that the assumption of normality for distributive justice was not met. The results of the Kolmogorov-Smirnov test of normality was significant and the skewness z-score and the visual inspection of the histogram indicated that the variable was moderately positively skewed, D(450) = .12, p <.001, Z_{skewness} = 2.97, Z_{kurtosis} = -3.51. To improve skewness, I transformed the variable using a square-root transformation and subsequently reanalyzed the variable for normality; though the Kolmogorov-Smirnov test of normality was still significant, D(450) = .18, p <.001, visual inspection of the Q-Q plot and of the histogram as well as the z-score for skewness showed improvement over the non-transformed variable, Z_{skewness} = .22, Z_{kurtosis} = -5.00. Hence, I re-ran the analysis for the hypothesis using the transformed distributive justice variable. The results indicated that the hypotheses were not supported (r = -.11, and -.10, *ns*, respectively). The correlations between the non-transformed distributive justice variable with exhaustion and disengagement were not significant either (r = -.10, and -.10, *ns*, respectively).

Table 3

Intercorrelation Matrix for the Predictors and Dependent Variables for the Correlational Hypotheses

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Centralization	-											
2. Procedural Justice	-.10	-										
3. Role Ambiguity	.14*	-.40*	-									
4. Innovative Climate	-.16*	.52*	-.35*	-								
5. Work-life Conflict	.07	-.21*	.37*	-.18*	-							
6. Rewards & Rec	-.15*	.64*	-.40*	.58*	.18*	-						
7. Perceived Workload	.12*	-.15*	.18*	-.07	.40*	-.16*	-					
8. Coworker Support	-.22*	.32*	-.30*	.42*	-.02	.34*	.00	-				
9. Distributive Justice	.00	.61*	-.28*	.45*	-.19*	.58*	-.19*	.19*	-			
10. Exhaustion	.19*	-.12*	.25*	-.13*	.47*	-.12*	.36*	-.06*	-.11	-		
11. Disengagement	.14*	-.14*	.28*	-.24*	.13*	-.22*	.12	-.19*	-.10	.20*	-	
12. Work Engagement	-.10	.20*	-.33*	.29*	-.20*	.32*	-.05	.19*	.17*	-.33*	-.60*	-

Note: One-tailed correlations adjusted for directionality due to transformations; role ambiguity, innovative climate, rewards and recognition, workload, coworker support, distributive justice, and work engagement were transformed.

$N = 450$. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Table 4

Bivariate Correlations for all Measures

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Centralization	-	-.11	.14	-.10	-.05	-.07	.01	-.30*	.13	.13	.18	-.12	.00	-.25*	-.07
2. Procedural Justice	-.15	-	-.45*	.52*	-.29*	.67*	-.28*	.31*	.50*	-.17	-.26*	.45*	.42*	.46*	.28*
3. Role Ambiguity	.14	-.37*	-	-.39*	.41*	-.46*	.23*	-.32*	-.29*	.27*	.27*	-.33*	-.34*	-.33*	-.15
4. Innovative Climate	-.25*	.46*	-.31*	-	-.21*	.61*	-.16	.39*	.36*	-.17	-.32*	.42*	.33*	.39*	.35*
5. Work-life Conflict	.18*	-.19*	.34*	-.18*	-	-.29*	.40*	-.08	-.24*	.39*	.12	-.24*	-.30*	-.19*	-.09
6. Rewards and Recognition	-.27*	.56*	-.35*	.49*	-.12	-	-.25	.36*	.54*	-.17*	-.28*	.55*	.51*	.50*	.38*
7. Workload	.21*	-.12	.15	-.04	.40*	-.13	-	-.07	-.17	.20*	.19	-.14	-.18	-.13	.04
8. Coworker Support	-.17*	.31*	-.27*	.42*	.02	.31*	.04	-	.09	-.04	-.31*	.29*	.21*	.43*	.12
9. Distributive Justice	-.15	.59*	-.27*	.43*	-.20*	.52*	-.27*	.22*	-	-.11	-.15	.36*	.33*	.31*	.28*
10. Exhaustion	.23*	-.21*	.27*	-.20*	.55*	-.19*	.48*	-.11	-.27*	-	.00	-.24*	-.30*	-.17	-.12
11. Disengagement	.09	-.21*	.33*	-.30*	.14	-.33*	.05	-.14	-.27*	.32*	-	-.40*	-.30*	-.47*	-.29*
12. Work Engagement	-.07	.25*	-.39*	.36*	-.18*	.38*	.02	.19*	.29*	-.34*	-.69*	-	.86*	.86*	.82*
13. Vigor	-.11	.22*	-.35*	.29*	-.22*	.32*	-.04	.18*	.30*	-.39*	-.58*	.89*	-	.64*	.53*
14. Dedication	-.07	.25*	-.39*	.36*	-.19*	.39*	.01	.23*	.28*	-.34*	-.71*	.91*	.75*	-	.60*
15. Absorption	.01	.19*	-.30*	.30*	-.07	.29*	.11	.11	.18*	-.17	-.59*	.87*	.62*	.72**	-

Note: Two-tailed correlations in the lower diagonal are for the Spanish sample (N=250). Two-tailed correlations in the upper diagonal are for the American sample (N=200). Correlations are adjusted for directionality because of transformed variables. Role ambiguity, innovative climate, rewards and recognition, workload, coworker support, distributive justice, work engagement, vigor, dedication, and absorption were transformed.

* Significant *p*-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Table 5
Means, Standard Deviations, and Reliabilities for Scales Variables

	Combined Sample			Spanish Sample			American Sample		
Variable	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α
1. Centralization	2.28	0.57	.84	2.24	0.55	.82	2.31	0.59	.88
2. Procedural Justice	2.65	0.92	.87	2.37	0.93	.87	2.99	0.78	.86
3. Role Ambiguity	2.47	0.88	.79	2.54	0.92	.80	2.40	0.81	.80
4. Innovative Climate	3.13	1.09	.86	2.89	1.08	.85	3.43	1.03	.86
5. Work-life Conflict	3.00	0.90	.88	3.00	0.89	.86	3.01	0.91	.90
6. Rewards and Recognition	2.54	0.78	.86	2.34	0.74	.86	2.81	0.76	.84
7. Workload	3.91	0.88	.84	3.86	0.91	.86	3.98	0.83	.83
8. Coworker Support	3.97	0.83	.89	3.90	0.85	.88	4.06	0.80	.89
9. Distributive Justice	2.32	1.05	.94	1.94	0.94	.94	2.80	0.99	.91
10. Exhaustion	2.69	0.55	.73	2.60	0.52	.75	2.80	0.57	.70
11. Disengagement	2.14	0.48	.71	2.05	0.47	.72	2.27	0.48	.68
12. Work Engagement	4.14	1.03	.91	4.38	1.05	.92	3.84	0.91	.87
13. Vigor	3.82	1.28	.87	4.21	1.24	.90	3.34	1.16	.80
14. Dedication	4.58	1.12	.85	4.74	1.17	.87	4.38	1.02	.82
15. Absorption	4.02	1.11	.73	4.19	1.14	.75	3.81	1.04	.69

Note: Role ambiguity, innovative climate, rewards and recognition, workload, coworker support, distributive justice, work engagement, vigor, dedication, and absorption were transformed. The combined Cronbach's alpha for each measure is also listed in the "Measures" portion of the method section. *N* =450.

Testing Moderation Hypotheses

In the next section, I present the results for each moderation analysis. In addition, I discuss any issues I encountered with key assumptions and the procedures I used to resolve them. As with the correlational hypotheses, I also used a Bonferroni-adjusted *p*-value level of .004 as a cutoff for significance to correct for multiple comparisons.

Hypothesis 1c. Power distance moderates the relationship between centralization and exhaustion such that there is a stronger positive relationship for societies with low power distance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results of the analysis indicated that the assumptions for linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. I inspected the data, which revealed no real concern for multivariate outliers; though 12 cases had centered leverage values slightly larger than the cutoff level (including one of those cases with a standardized residual that was slightly below -3), further inspection revealed that these cases had values lower than the cutoffs for Mahalanobis distance and Cook's distance. In addition, I inspected all raw and standardized values of the flagged cases and compared them to the rest of the data; I determined that the values of these cases were not too different from the rest of the data. To discern whether their inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without these cases. Once I removed the flagged cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged cases had no impact on any of the results; hence, I did not remove them from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I proceeded to test the hypothesis. I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of exhaustion after adding the interaction term between centralization and the dummy-coded moderator variable (i.e., low versus high power distance). I present the results of this analysis in Table 6. The overall regression model was significant, $R^2 = .06$, $R^2_{adj} = .06$, $F(3, 446) = 9.94$, $p < .004$. The results of step one indicated that centralization and the moderator predicted exhaustion, $R^2 = .06$, $R^2_{adj} = .06$, $F(2, 447) = 14.33$, $p < .004$. In the second step, the interaction between centralization and power distance did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .002$, $F_{change}(1, 446) = 1.15$, $p = .284$. Overall, these findings suggest that the dummy-coded power distance variable did not moderate the relationship between centralization and exhaustion. Therefore, Hypothesis 1c was not supported.

Hypothesis 1d. Power distance moderates the relationship between centralization and disengagement such that there is a stronger positive relationship for societies with low power distance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. As with hypothesis 1c, the initial results of the analysis indicated that the assumptions for linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. I inspected the data, which revealed no real concern for multivariate outliers; though 12 cases had centered leverage values slightly larger than the cutoff level (including a case with a standardized residual value that was slightly larger than +3), further inspection revealed that these cases had values lower than the cutoffs for Mahalanobis distance and

Cook's distance. In addition, I inspected all raw and standardized values of the flagged cases and compared them to the rest of the data; I determined that the values of the flagged cases were not too different from the rest of the data. To discern whether their inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without these cases. Once I removed flagged cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged cases had no major impact on the results; hence, I did not remove them from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I proceeded to test the hypothesis. I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of disengagement after adding the interaction term between centralization and the dummy-coded moderator variable (i.e., low versus high power distance). I present the results of this analysis in Table 6. The overall regression model was significant, $R^2 = .07$, $R^2_{\text{adj}} = .06$, $F(3, 446) = 10.84$, $p < .004$. The results of step one indicated that the combination of centralization and the moderator predicted disengagement, $R^2 = .07$, $R^2_{\text{adj}} = .06$, $F(2, 447) = 15.90$, $p < .004$. In the second step, the interaction between centralization and power distance did not significantly contribute to the amount of variance explained in disengagement and the coefficient for centralization was not significant, $\Delta R^2 = .002$, $F_{change}(1, 446) = .725$, $p = .395$. Thus, these findings suggest that the dummy-coded power distance variable did not moderate the relationship between centralization and disengagement. Therefore, Hypothesis 1d was not supported.

Table 6

Hierarchical Multiple Regression: Examining Power Distance as a Moderator of the Relationship between Centralization and c) Exhaustion and d) Disengagement

Variable	R^2	ΔR^2	B	SE B	β	t	95% CI
Exhaustion							
Step 1	.06*	.06*					
Centralization			.10	.03	.18*	3.84	.05, .15
PD – Moderator			.18	.05	.16*	3.50	.08, .28
Step 2	.06	.00					
Centralization			.12	.04	.22*	3.51	.05, .19
PD – Moderator			.18	.05	.16*	3.51	.08, .28
PD x Centralization			-.05	.05	-.07	-1.07	-.15, .05
Disengagement							
Step 1	.07*	.06*					
Centralization			.06	.02	.13*	2.84	.02, .11
PD – Moderator			.21	.05	.22*	4.69	.12, .30
Step 2	.07	.00					
Centralization			.05	.03	.09	1.46	-.02, .11
PD – Moderator			.21	.05	.22*	4.68	.12, .30
PD x Centralization			.04	.04	.05	.85	-.05, .13

Note = Power Distance was dummy-coded with high (Spain) being coded as 0 and serving as the reference group.
N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 2b. Power distance moderates the relationship between procedural justice and work engagement such that there is a stronger positive relationship for societies with low power distance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions for linearity, independence of errors, homoscedasticity, and multicollinearity were met, and no outliers were identified. However, while the results of the Kolmogorov-Smirnov test of normality was not significant, the skewness z-score and the visual inspection of the P-P plots and of the histogram indicated that the standardized residuals were moderately negatively skewed, $D(450) = .04$, $p = .083$, $Z_{\text{skewness}} = -4.19$, $Z_{\text{kurtosis}} = .43$. Therefore, I examined the normality assumption for individual variables in the model; as expected (from analyzing this variable before for the correlational analyses), I found work engagement to be moderately negatively skewed, $Z_{\text{skewness}} = -3.35$, $Z_{\text{kurtosis}} = -1.60$. To improve skewness, I transformed work engagement using a square-root transformation, which had worked for the correlational analysis. Subsequently, I reanalyzed the variable for normality; the square-root transformation improved skewness, $Z_{\text{skewness}} = 0.04$, $Z_{\text{kurtosis}} = -2.74$, and I included it in the following analysis.

I conducted the analysis again; the results indicated that the assumption of normality was now met using the Kolmogorov-Smirnov test, the visual inspection of the P-P plots and of the histogram, and the skewness/kurtosis z-scores, $D(450) = .30$, $p <$ $.200$, $Z_{\text{skewness}} = .97$, $Z_{\text{kurtosis}} = -1.27$. In addition, the results indicated that the other assumptions were also met and that no potential outliers were identified. To discern whether the transformation had a major influence on the results of the regression, I ran the analysis once again with and without the transformed-work engagement variable. I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that could impact any of the other assumption conclusions and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the transformation of the variable had no major impact on any of the results; as such, I used the transformed variable during the hierarchical multiple-regression analysis.

Having examined the assumptions, I proceeded to conduct a hierarchical multiple-regression analysis to test the hypothesis and to examine whether there was a significant change in variation of work engagement after adding the interaction term between procedural justice and the dummy-coded moderator variable (i.e., low versus high power distance). I present the results in Table 7. The overall regression model was significant, $R^2 = .18$, $R^2_{adj} = .18$, $F(3, 446) = 32.98$, $p < .004$. The results of step one indicate that procedural justice predicted work engagement, $R^2 = .17$, $R^2_{adj} = .17$, $F(2, 447) = 47.03$, $p < .004$. In the second step, the interaction between procedural justice and power distance did not significantly contribute to the amount of variance explained in work engagement, $\Delta R^2 = .008$, $F_{change}(1, 446) = 4.21$, $p = .041$. Using the corrected criterion of $p < .004$ to control the family-wise Type-I error rate, these findings suggest that the dummy-coded power distance variable did not moderate the relationship between procedural justice and work engagement. Therefore, Hypothesis 2b was not supported.

Table 7
Hierarchical Multiple Regression: Examining Power Distance as a Moderator of the Relationship between Procedural Justice and Work Engagement

Variable	R^2	ΔR^2	*B*	SE *B*	β	*t*	95% CI
Step 1	.17*	.17*					
Procedural Justice			-.10	.01	-.33*	-7.27	-.13, -.07
PD – Moderator			.24	.03	.39*	8.48	.18, .29
Step 2	.18	.00					
Procedural Justice			-.08	.02	-.26*	-4.62	-.12, -.05
PD – Moderator			.25	.03	.40*	8.71	.19, .30
PD x Procedural Justice			-.06	.03	-.12	-2.05	-.12, -.00

Note = Power Distance was dummy-coded with high (Spain) being coded as 0 and serving as the reference group. Work engagement was negatively skewed and was transformed with a square-root transformation.
N= 450. * Significant *p*-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 3c. Uncertainty avoidance moderates the relationship between role ambiguity and exhaustion such that there is a stronger positive relationship for societies with high uncertainty avoidance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. However, while Cook's distance did not flag potential outliers, the Mahalanobis distance and the centered leverage tests indicated that there were five cases with values slightly over the cutoff and the standardized residuals indicated that there were two potential outliers with values slightly below -3.

I inspected all raw and standardized values of the flagged cases and compared them to the rest of the data; I determined that the values of these cases were not too different from the rest of the data. To discern whether the inclusion of the flagged cases in the original analysis had a large influence on the results of the regression, I ran the analysis with and without these cases. The second run excluded the five cases previously flagged by Mahalanobis distance and centered leverage in the first run; however, a new case with a high Mahalanobis distance value surfaced and the two cases previously I identified as having high standardized residuals were still being flagged; it is worth noting that this could be the result of masking effect.

I attempted a third run – this time excluding all seven cases previously flagged in the first run. Once I removed the flagged cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged cases had no major impact on any of the results; therefore, I kept them in the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I proceeded to test the hypothesis. I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of exhaustion after adding the interaction term between role ambiguity and the dummy-coded moderator variable (i.e., low versus high uncertainty avoidance). I present the results of the analysis in Table 8. The overall regression model was significant, $R^2 = .10$, $R^2_{adj} = .09$, F (3, 446) = 16.59, $p < .004$. The results of step one indicated that role ambiguity and the moderator predicted exhaustion, $R^2 = .10$, $R^2_{adj} = .10$, $F(2, 447) = 24.71$, $p < .004$. In the second step, the interaction between role ambiguity and uncertainty avoidance did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .001$, $F_{change}(1, 446) = .426$, $p = .514$. These findings suggest that the dummy-coded uncertainty avoidance variable did not moderate the relationship between role ambiguity and exhaustion. As a result, Hypothesis 3c was not supported.

Hypothesis 3d. Uncertainty avoidance moderates the relationship between role ambiguity and disengagement such that there is a stronger positive relationship for societies with high uncertainty avoidance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions for linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. While Cook’s distance did not flag potential outliers, the tests for Mahalanobis distance and the centered leverage indicated that there were five cases with values slightly over the cutoff and the standardized residuals indicated that there were two potential outliers with values slightly above +3.

I inspected all raw and standardized values of the flagged cases and compared them to the rest of the data; I determined that the values of these cases were not too different from the rest of the data. To discern whether their inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without these cases. The second run excluded the five cases flagged by Mahalanobis distance and centered leverage in the first run; however, a new case with a high Mahalanobis distance value surfaced (likely due to masking effect) and the two cases previously identified as having high standardized residuals were still being flagged. I attempted a third run – this time excluding the seven cases previously flagged in the first run. Once I removed the flagged cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged cases had no major impact on any of the results; thus, I kept them in the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I proceeded to test the hypothesis. I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of disengagement after adding the interaction term between role ambiguity and the dummy-coded moderator variable (i.e., low versus high uncertainty avoidance). I present the results of the analysis in Table 8. The overall regression model was significant, $R^2 = .14$, $R^2_{\text{adj}} = .14$, F (3, 446) = 24.28, $p < .004$. The results of step one indicated that role ambiguity and the moderator predicted disengagement, $R^2 = .14$, $R^2_{\text{adj}} = .14$, $F(2, 447) = 36.49$, $p < .004$. In the second step, the interaction between role ambiguity and uncertainty avoidance did not significantly contribute to the amount of variance explained in disengagement, $\Delta R^2 = .000$, $F_{change}(1, 446) = .009$, $p = .925$. These findings suggest that the dummy-coded uncertainty avoidance variable did not moderate the relationship between role ambiguity and disengagement. Therefore, Hypothesis 3d was not supported.

Table 8

Hierarchical Multiple Regression: Examining Uncertainty Avoidance as a Moderator of the Relationship between Role Ambiguity and c) Exhaustion and d) Disengagement

Variable	R^2	ΔR^2	B	SE B	β	t	95% CI
Exhaustion							
Step 1	.10*	.09*					
Role Ambiguity			.15	.03	.27*	5.90	.10, .19
UA – Moderator			-.21	.05	-.19*	-4.27	-.31, -.11
Step 2	.10	.00					
Role Ambiguity			.17	.04	.30*	4.16	.09, .24
UA – Moderator			-.21	.05	-.19*	-4.29	-.31, -.12
UA x Role Ambiguity			-.03	.05	-.05	-.65	-.13, .07
Disengagement							
Step 1	.14*	.14*					
Role Ambiguity			.15	.02	.30*	6.87	.11, .19
UA – Moderator			-.24	.04	-.25*	-5.61	-.33, -.16
Step 2	.14	.00					
Role Ambiguity			.14	.04	.30*	4.17	.08, .21
UA – Moderator			-.24	.04	-.25*	-5.59	-.33, -.16
UA x Role Ambiguity			.00	.04	.01	.09	-.08, .09

Note = Uncertainty Avoidance was dummy-coded with low (United States) being coded as 0 and serving as the reference group.

N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 4b. Uncertainty avoidance moderates the relationship between innovative climate and work engagement such that there is a stronger positive relationship for societies with low uncertainty avoidance. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, and homoscedasticity, and multicollinearity were met, and no potential outliers were identified. However, while the result of the Kolmogorov-Smirnov test of normality was non-significant, the visual inspection of the P-P plots and of the histogram as well as the skewness z-score indicated that the standardized residuals were moderately negatively skewed, $D(450) = .04$, $p = .117$, $Z_{\text{skewness}} = -2.77$, $Z_{\text{kurtosis}} = -1.24$. Therefore, I examined the normality assumption for individual variables in the model; I found both innovative climate and work engagement to be moderately negative skewed, $Z_{\text{skewness}} = -2.16$, $Z_{\text{kurtosis}} = -3.56$ and $Z_{\text{skewness}} = -3.35$, $Z_{\text{kurtosis}} = -1.60$, respectively. To improve skewness, I transformed both variables using a square-root transformation and subsequently reanalyzed the variables for normality. As I found in previous analyses (from Hypothesis 4a), a square-root transformation improved the skewness of both variables, $Z_{\text{skewness}} = -1.00$, $Z_{\text{kurtosis}} = -3.20$ for innovative climate and $Z_{\text{skewness}} = 0.04$, $Z_{\text{kurtosis}} = -2.74$ for work engagement; thus, I included the square-root-transformed variables in the subsequent analysis.

I proceeded to conduct the analysis again; the results indicated that the assumption of normality was now met using the Kolmogorov-Smirnov test, the visual inspection of the P-P plots and of the histogram, and the skewness and kurtosis z-scores, $D(450) = .03$, $p < .200$, $Z_{\text{skewness}} = .03$, $Z_{\text{kurtosis}} = -2.07$. In addition, the results indicated that the other assumptions were also met, and no potential outliers were identified. To discern whether the transformation had a large influence on the results of the regression, I ran the analysis once again with and without the transformed variables. I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the other assumption conclusions and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the transformation of the variables had no major impact on any of the results. Therefore, I used the transformed variables during the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to determine whether there was a significant change in variation of work engagement after adding the interaction term between innovative climate and the dummy-coded moderator (i.e., low versus high uncertainty avoidance). I present the results of the analysis in Table 9. The overall regression model was significant, $R^2 = .21$, $R^2_{adj} = .21$, F (3, 446) = 39.68, $p < .004$. The results of step one indicated that innovative climate and the moderator predicted work engagement, $R^2 = .21$, $R^2_{adj} = .21$, $F(2, 447) = 59.62$, $p < .004$. In the second step, the interactions between innovative climate and uncertainty avoidance did not significantly contribute to the amount of variance explained in work engagement, $\Delta R^2 = .000$, $F_{change}(1, 446) = .04$, $p = .850$. These findings suggest that the dummy-coded uncertainty avoidance variable did not moderate the relationship between innovative climate and work engagement. As a result, Hypothesis 4b was not supported.

Table 9
Hierarchical Multiple Regression: Examining Uncertainty Avoidance as a Moderator of the Relationship between Innovative Climate and Work Engagement

Variable	R^2	ΔR^2	B	SE B	β	t	95% CI
Step 1	.21*	.21*					
Innovative Climate			.12	.01	.38*	8.73	.09, .14
UA – Moderator			.23	.03	.37*	8.50	.18, .28
Step 2	.21	.00					
Innovative Climate			.12	.02	.39*	6.63	.08, .15
UA – Moderator			.23	.03	.37*	8.47	.17, .28
UA x Innovative Climate			-.01	.03	-.01	-.19	-.06, .05

Note = Uncertainty Avoidance was dummy-coded with high (Spain) being coded as 0 and serving as the reference group.
Innovative climate and work engagement were negatively skewed and were transformed with square-root transformations.

N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 5c. Masculinity versus femininity moderates the relationship between work-life conflict and exhaustion such that there is a stronger positive relationship for feminine societies. I evaluated the data to ensure the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions for linearity, independence of errors, homoscedasticity, and multicollinearity were met, but there were some issues with normality. The visual inspection of the P-P plots and of the histogram looked normal, but the result of the Kolmogorov-Smirnov test of normality was significant and the skewness z-score indicated that the standardized residuals were moderately negatively skewed, $D(450) = .05$, $p = .018$, $Z_{\text{skewness}} = -2.82$, $Z_{\text{kurtosis}} = 3.45$. In addition, while Cook's distance and Mahalanobis distance were within their respective cutoff levels and did not flag any potential outliers, the standardized residuals and the centered leverage both flagged two cases with relatively large values as being causes for concern.

Upon further inspection, I compared all raw and standardized values of the flagged cases to the rest of the data and determined that the values of these cases did not seem to be different from the rest of the data. To discern whether the inclusion of these cases in the original analysis had a large influence on the results of the regression, I ran the analysis with and without the flagged cases. Once I removed the flagged cases, I inspected the scatterplots to compare the slopes in the regression lines, examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality), and examined the regression equation and the coefficient of determination. In addition, I re-examined normality. The results indicated a slight increase in the coefficient of determination; for normality, the results indicated that by removing the two potential outliers, the assumption of normality was now met, $D(450) = .04$, $p = .200$, $Z_{\text{skewness}} = -1.32$, $Z_{\text{kurtosis}} = 1.12$. Because of the influence on normality that the two flagged cases had, I decided to continue the analysis without the two flagged cases. Note that I also present the results including the two outliers in the table below.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of exhaustion after adding the interaction term between work-life conflict and the dummy-coded moderator variable (i.e., masculinity versus femininity). The results of the analysis are presented in Table 10. For the analysis I conducted excluding the two flagged cases (to fix normality issues), the overall regression model was significant, $R^2 = .28$, $R^2_{\text{adj}} = .27$, F (3, 444) = 57.17, $p < .004$. The results of step one indicated that work-life conflict and the moderator predicted exhaustion, $R^2 = .28$, $R^2_{\text{adj}} = .27$, $F(2, 445) = 85.20$, $p < .004$. In the second step, the interactions between work-life conflict and masculinity versus femininity did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .002$, $F_{change}(1, 444) = 1.09$, $p = .297$. For the analysis I conducted including the two flagged cases, the overall regression model was significant, $R^2 = .25$, $R^2_{\text{adj}} = .24$, F (3, 446) = 49.69, $p < .004$. The results of step one indicated that work-life conflict and the moderator predicted exhaustion, $R^2 = .25$, $R^2_{\text{adj}} = .24$, $F(2, 447) = 73.05$, $p < .004$. In the second step, the interactions between work-life conflict and masculinity versus femininity did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .004$, $F_{change}(1, 446) = 2.48$, $p = .116$. The results for both analyses suggest that the dummy-coded masculinity versus femininity variable did not moderate the relationship between work-life conflict and exhaustion. Therefore, Hypothesis 5c was not supported.

Hypothesis 5d. Masculinity versus femininity moderates the relationship between work-life conflict and disengagement such that there is a stronger positive relationship for feminine societies. I evaluated the data to ensure the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions for linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. Additionally, there were no potential outliers.

Having inspected the assumptions, I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of disengagement after adding the interaction term between work-life conflict and the dummy-coded moderator variable (i.e., masculinity versus femininity). The results of the analysis are presented in Table 10. The overall regression model was significant, $R^2 = .07$, $R^2_{\text{adj}} = .06$, F (3, 446) = 10.47, $p < .004$. The results of step one indicated that work-life conflict and the moderator predicted disengagement, $R^2 = .07$, $R^2_{\text{adj}} = .06$, $F(2, 447) = 15.70$, $p < .004$. In the second step, the interactions between work-life conflict and masculinity versus femininity did not significantly contribute to the amount of variance explained in disengagement and only the moderator predicted disengagement, $\Delta R^2 = .000$, $F_{change}(1, 446) = .07$, $p = .798$. These findings suggest that the dummy-coded masculinity versus femininity variable did not moderate the relationship between work-life conflict and disengagement. As such, Hypothesis 5d was not supported.

Table 10
Hierarchical Multiple Regression: Examining Masculinity versus Femininity as a Moderator of the Relationship between Work-life Conflict and c) Exhaustion and d) Disengagement

Variable	R^2	ΔR^2	B	SE B	β	t	95% CI
Exhaustion (excluding outliers)							
Step 1	.28*	.27*					
Work-life Conflict			.27	.02	.49*	12.20	.23, .31
MF – Moderator			-.20	.04	-.19*	-4.64	-.29, -.12
Step 2	.28	.00					
Work-life Conflict			.24	.03	.45*	7.38	.18, .31
MF – Moderator			-.20	.04	-.19*	-4.61	-.29, -.12
MF x Work-life Conflict			.05	.04	.06	1.04	-.04, .13
Exhaustion (including outliers)							
Step 1	.25*	.24*					
Work-life Conflict			.26	.02	.47*	11.34	.21, .30
MF – Moderator			-.18	.05	-.17*	-4.08	-.27, -.10
Step 2	.25	.00					
Work-life Conflict			.22	.03	.40*	6.49	.15, .28
MF – Moderator			-.19	.05	-.17*	-4.09	-.27, -.10
MF x Work-life Conflict			.07	.05	.10	1.58	-.02, .16
Disengagement							
Step 1	.07*	.06*					
Work-life Conflict			.06	.02	.13*	2.77	.02, .11
MF – Moderator			-.22	.05	-.22*	-4.84	-.30, -.13
Step 2	.07	.00					
Work-life Conflict			.06	.03	.11	1.67	-.01, .12
MF – Moderator			-.22	.05	-.22*	-4.84	-.30, -.13
MF x Work-life Conflict			.01	.05	.02	.26	-.08, .10

Note = Masculinity versus femininity was dummy-coded with masculine (United States) being coded as 0 and serving as the reference group.
N= 448 for the analysis excluding outliers and 450 for the analysis including outliers.
* Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 6b. Masculinity versus femininity moderates the relationship between rewards and recognition and work engagement such that there is a

stronger positive relationship for masculine societies. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, homoscedasticity, and multicollinearity were met; in addition, no outliers were identified. However, while the result of the Kolmogorov-Smirnov test of normality was non-significant, the visual inspection of the P-P plots and of the histogram as well as the skewness z-score indicated that the standardized residuals were moderately negatively skewed, $D(450) = .03$, $p = .200$, $Z_{\text{skewness}} = -3.44$, $Z_{\text{kurtosis}} = .59$. Therefore, I examined the normality assumption for individual variables in the model. As I found in previous analyses (from Hypothesis 6a), both rewards and recognition and work engagement had issues with normality; rewards and recognition was moderately positively skewed, $Z_{\text{skewness}} = 2.10$, $Z_{\text{kurtosis}} = -3.35$, while work engagement was moderately negatively skewed, $Z_{\text{skewness}} = -3.35$, $Z_{\text{kurtosis}} = -1.60$. In an attempt to improve skewness, I transformed both variables using a square-root transformation, and subsequently reanalyzed them for normality. The transformation improved the skewness of both variables, for rewards and recognition, $Z_{\text{skewness}} = -.27$, $Z_{\text{kurtosis}} = -3.62$, and for work engagement, $Z_{\text{skewness}} = 0.04$, $Z_{\text{kurtosis}} = -2.74$.

I conducted the analysis again using the transformed variables and the results indicated that the assumption of normality was now met using the Kolmogorov-Smirnov test, the visual inspection of the P-P plots and of the histogram, and the skewness/kurtosis z-scores, $D(450) = .03$, $p < .200$, $Z_{\text{skewness}} = .30$, $Z_{\text{kurtosis}} = -.60$. In addition, the results indicated that the other assumptions were also met, and I found no potential outliers. To discern whether the transformations had a major influence on the results of the regression, I ran the analysis once again with and without the transformed variables. I inspected the scatterplots to compare the slopes in the regression lines, examined the data for any changes that would impact any of the other assumption conclusions, and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the transformation of the variables had no major impact on any of the results. Therefore, I used the transformed variables during the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to determine whether there was a significant change in variation of work engagement after adding the interaction term between rewards and recognition and the dummy-coded moderator variable (i.e., masculinity versus femininity). I present the results of the analysis in Table 11. The overall regression model was significant, $R^2 = .26$, $R^2_{\text{adj}} = .25$, F (3, 446) = 52.01, $p < .004$. The results of step one indicated that rewards and recognition and the moderator predicted work engagement, $R^2 = .26$, $R^2_{\text{adj}} = .25$, F(2, 447) =77.30, $p < .004$. In the second step, the interactions between rewards and recognition and masculinity versus femininity did not significantly contribute to the amount of variance explained in work engagement, $\Delta R^2 = .002$, $F_{change}(1, 446) = 1.30$, p = .255. These findings suggest that the dummy-coded masculinity versus femininity variable did not moderate the relationship between rewards and recognition and work engagement. Therefore, Hypothesis 6b was not supported.

Table 11

Hierarchical Multiple Regression: Examining Masculinity versus Femininity as a Moderator of the Relationship between Rewards and Recognition and Work Engagement

Variable	R^2	ΔR^2	B^a	SE B	β^b	t	95% CI
Step 1	.26*	.25*					
Rewards and recognition			-.14	.01	-.45*	-10.43	-.16, .11
MF – Moderator			.25	.03	.41*	9.59	.20, .31
Step 2	.26	.00					
Rewards and recognition			-.12	.02	-.40*	-7.18	-.16, -.09
MF – Moderator			.26	.03	.41*	9.66	.20, .31
MF x Rewards-recognition			-.03	.03	-.06	-1.14	-.08, .02

Note = Masculinity versus femininity was dummy-coded with femininity (Spain) being coded as 0 and serving as the reference group.
Rewards and recognition was positively skewed and work engagement was negatively skewed; both variables were transformed with square-root transformations.
N= 450. * Significant *p*-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 7c. Individualism versus collectivism moderates the relationship between perceived workload in the workplace and exhaustion such that there is a stronger positive relationship for individualistic societies. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, and homoscedasticity, multicollinearity, and normality were met. However, while Cook's distance did not flag any cases as being potential outliers, the standardized residuals, Mahalanobis distance, and centered leverage flagged two potential outliers. Furthermore, one more case was flagged by both Mahalanobis distance and centered leverage; in addition, four more cases were flagged by centered leverage alone. In total, seven unique cases were flagged by at least one of the methods to identify multivariate outliers.

Upon further inspection, I compared all raw and standardized values of the flagged cases to the rest of the data. I determined that the flagged cases were not too different from the rest of the data. To discern whether their inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without the flagged cases. Once I removed these cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of these cases did not have a major impact on any of the results; hence, I did not remove them from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-multiple regression analysis to determine whether there was a significant change in variation of exhaustion after adding the interaction term between perceived workload and the dummy-coded moderator variable (i.e., individualism versus collectivism moderator). I present the results of the hierarchical-regression analysis in Table 12. The overall regression model was significant, $R^2 = .15$, $R^2_{\text{adj}} = .15$, $F\ (3, 446) = 28.71$, $p < .004$. The results of step one indicated that perceived workload and the moderator predicted exhaustion, $R^2 = .16$, $R^2_{\text{adj}} = .16$, $F(2, 447) = 39.33$, $p < .004$. In the second step, the interactions between perceived workload and individualism versus collectivism did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .012$, $F_{change}(1, 446) = 6.51$, $p = .011$. Using the corrected criterion of $p < .004$ to control the family-wise Type-I error rate, these findings suggest that the dummy-coded individualism versus collectivism variable did not moderate the relationship between perceived workload and exhaustion. Thus, Hypothesis 7c was not supported.

Hypothesis 7d. Individualism versus collectivism moderates the relationship between perceived workload in the workplace and disengagement such that there is a stronger positive relationship for individualistic societies. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, and homoscedasticity, multicollinearity, and normality were met. However, while Cook's distance and the standardized residuals did not flag any cases as being potential outliers, the tests for centered leverage and Mahalanobis distance both flagged three cases. Furthermore, centered leverage also flagged an additional four cases. In total, seven unique cases were flagged by at least one of the methods to identify multivariate outliers.

Upon further inspection, I compared all raw and standardized values of the flagged cases to the rest of the data. I determined that the cases were not too different from the rest of the data. To discern whether their inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without the flagged cases. Once I removed these cases, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing cases there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged cases had no major impact on any of the results; hence, I did not remove them from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-multiple regression analysis to determine whether there was a significant change in variation of disengagement after adding the interaction term between perceived workload and the dummy-coded moderator variable (i.e., individualism versus collectivism moderator). I present the results of the hierarchical-regression analysis in Table 12. The overall regression model was significant, $R^2 = .06$, $R^2_{\text{adj}} = .06$, F (3, 446) = 9.67, $p < .004$. The results of step one indicated that perceived workload and the moderator predicted disengagement and only the dummy-coded moderator was significant, $R^2 = .06$, $R^2_{\text{adj}} = .05$, $F(2, 447) = 13.60$, $p < .004$. In the second step, the interactions between perceived workload and individualism versus collectivism did not significantly contribute to the amount of variance explained in disengagement and only the dummy-coded moderator was significant, $\Delta R^2 = .004$, $F_{change}(1, 446) = 1.82$, $p = .179$. These findings suggest that the dummy-coded individualism versus collectivism variable did not moderate the relationship between perceived workload and disengagement. As a result, Hypothesis 7d was not supported.

Table 12
Hierarchical Multiple Regression: Examining Individualism versus Collectivism as a Moderator of the Relationship between Perceived Workload and c) Exhaustion and d) Disengagement

Variable	R^2	ΔR^2	B^a	SE B	β^b	t	95% CI
Exhaustion							
Step 1	.15*	.15*					
Perceived Workload			.19	.02	.35*	7.95	.14, .24
IC – Moderator			.16	.05	.15*	3.42	.07, .26
Step 2	.16	.01					
Perceived Workload			.24	.03	.44*	7.81	.18, .30
IC – Moderator			.17	.05	.15*	3.49	.07, .26
IC x Perceived Workload			-.12	.05	-.14	-2.55	-.22, -.03
Disengagement							
Step 1	.06*	.05*					
Perceived Workload			.04	.02	.09	1.91	-.00, .09
IC – Moderator			.21	.05	.22*	4.72	.12, .30
Step 2	.06	.00					
Perceived Workload			.02	.03	.04	.62	-.04, .08
IC – Moderator			.21	.05	.22*	4.70	.12, .30
IC x Perceived Workload			.06	.05	.08	1.35	-.03, .15

Note = Individualism versus collectivism was dummy-coded with collectivism (Spain) being coded as 0 and serving as the reference group.
N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 8b. Individualism versus collectivism moderates the relationship between coworker support and work engagement such that there is a stronger positive relationship for collectivistic societies. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, homoscedasticity, and multicollinearity were met, and there were no potential outliers. However, the results of the Kolmogorov-Smirnov test of normality was significant and the data were moderately negatively skewed, $D(450) = .05$, $p = .008$, $Z_{\text{skewness}} = -4.27$, $Z_{\text{kurtosis}} = .47$. Therefore, I examined the normality assumption for individual variables in the model; as I found in previous analyses (from Hypothesis 8a), both coworker support and work engagement were moderately negatively skewed, $Z_{\text{skewness}} = -5.66$, $Z_{\text{kurtosis}} = -1.39$ and $Z_{\text{skewness}} = -3.35$, $Z_{\text{kurtosis}} = -1.60$, respectively. In an attempt to improve skewness, I transformed coworker support using a logarithmic transformation, $Z_{\text{skewness}} = -.29$, $Z_{\text{kurtosis}} = -4.20$, and transformed work engagement using a square-root transformation, $Z_{\text{skewness}} = 0.04$, $Z_{\text{kurtosis}} = -2.74$.

Subsequently, I conducted the analysis again. The results indicated that the assumption of normality was now met using the Kolmogorov-Smirnov test, the visual inspection of the P-P plots and of the histogram, and the skewness and kurtosis z-scores, $D(450) = .04$, $p = .184$, $Z_{\text{skewness}} = 1.16$, $Z_{\text{kurtosis}} = -1.36$. In addition, the results indicated that the other assumptions were also met and that no potential outliers were identified. To discern whether the transformations had a large influence on the results of the regression, I ran the analysis once again with and without the transformed variables. I inspected the scatterplots to compare the slopes in the regression lines, examined the data for any changes that would impact any of the other assumption conclusions, and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the transformation of the variables had no major impact on any of the results; as such, I used the transformed variables during the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to determine whether there was a significant change in variation of work engagement after adding the interaction term between coworker support and the dummy-coded moderator (i.e., individualism versus collectivism). I present the results of the analysis in Table 13. The overall regression model was significant, $R^2 = .13$, $R^2_{adj} = .12$, F $(3, 446) = 21.40$, $p < .004$. The results of step one indicated that coworker support and the dummy-coded moderator predicted work engagement, $R^2 = .13$, $R^2_{adj} = .12$, $F(2, 447) = 32.02$, $p < .004$. In the second step, the interactions between coworker support and individualism versus collectivism did not significantly contribute to the amount of variance explained in work engagement, $\Delta R^2 = .001$, $F_{change}(1, 446) = .275$, $p = .600$. These findings suggest that the dummy-coded individualism versus collectivism variable did not moderate the relationship between coworker support and work engagement. Therefore, Hypothesis 8b was not supported.

Table 13
Hierarchical Multiple Regression: Examining Individualism versus Collectivism as a Moderator of the Relationship between Coworker Support and Work Engagement

Variable	R^2	ΔR^2	B^a	SE B	β^b	t	95% CI
Step 1	.13*	.12*					
Coworker Support			.07	.01	.22*	5.02	.04, .10
IC – Moderator			-.18	.03	.30*	-6.69	-.24, -.13
Step 2	.13	.00					
Coworker Support			.08	.02	.22*	3.72	.04, .12
IC – Moderator			-.18	.03	.30*	-6.69	-.24, -.13
IC x Coworker Support			-.01	.03	-.04	-.53	-.07, .04

Note = Individualism versus collectivism was dummy-coded with individualism (United States) being coded as 0 and serving as the reference group.
Coworker support was negatively skewed and was transformed with a logarithmic transformation; work engagement was negatively skewed and was transformed with a square-root transformation.
N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Hypothesis 9c. Long- versus short-term orientation moderates the relationship between distributive justice and exhaustion such that there is a stronger negative relationship for societies with short-term orientation. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. However, while Cook's distance yielded no potential outliers, results for the Mahalanobis distance, standardized residuals, and centered leverage flagged one case as being a potential outlier.

Upon further inspection, I compared all raw and standardized values of the flagged case to the rest of the data. I determined that the case was not too different from the rest of the data. To discern whether its inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without the flagged case. Once I removed the flagged case, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing case there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged case had no impact on any of the results; hence, I did not remove it from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of exhaustion after adding the interaction term between distributive justice and the dummy-coded moderator variable (i.e., long- versus short-term orientation). I present the results of the hierarchical multiple-regression analysis in Table 14. The overall regression model was significant, $R^2 = .07$, $R^2_{adj} = .06$, F (3, 446) = 11.24, $p < .004$. The results of step one indicated that distributive justice and the moderator predicted exhaustion, $R^2 = .07$, $R^2_{adj} = .06$, $F(2, 447) = 15.56$, $p < .004$. In the second step, the interactions between distributive justice and long- versus short- term orientation did not significantly contribute to the amount of variance explained in exhaustion, $\Delta R^2 = .005$, $F_{change}(1, 446) = 2.50$, $p = .115$. These findings suggest that the dummy-coded long- versus short-term orientation variable did not moderate the relationship between distributive justice and exhaustion. As a result, Hypothesis 9c was not supported.

Hypothesis 9d. Long- versus short-term orientation moderates the relationship between distributive justice and disengagement such that there is a stronger negative relationship for societies with short-term orientation. I evaluated the data to ensure that the assumptions of hierarchical multiple-regression analysis were met. The initial results indicated that the assumptions of linearity, independence of errors, homoscedasticity, multicollinearity, and normality were met. However, while Cook's distance and standardized residuals yielded no potential outliers, centered leverage and Mahalanobis distance flagged one case as being a potential outlier.

Upon further inspection, I compared all raw and standardized values of the flagged case to the rest of the data. I determined that the case was not too different from the rest of the data. To discern whether its inclusion in the original analysis had a large influence on the results of the regression, I ran the analysis with and without the flagged case. Once I removed the case, I inspected the scatterplots to compare the slopes in the regression lines. I also examined the data for any changes that would impact any of the assumption conclusions (e.g., if by removing influencing case there would be changes in residual normality) and examined the regression equation and the coefficient of determination. Upon inspection, I determined that the removal of the flagged case did not have a major impact on any of the results; hence, I did not remove it from the final run of the hierarchical multiple-regression analysis.

Having examined the assumptions, I conducted a hierarchical multiple-regression analysis to examine whether there was a significant change in variation of disengagement after adding the interaction term between distributive justice and the dummy-coded moderator variable (i.e., long- versus short-term orientation). I present the results of the hierarchical multiple-regression analysis in Table 14. The overall regression model was significant, $R^2 = .10$, $R^2_{\text{adj}} = .09$, $F\ (3, 446) = 15.97$, $p < .004$. The results of step one indicated that distributive justice and the dummy-coded moderator predicted disengagement, $R^2 = .10$, $R^2_{\text{adj}} = .09$, $F(2, 447) = 22.98$, $p < .004$. In the second step, the interactions between distributive justice and long- versus short- term orientation did not significantly contribute to the amount of variance explained in disengagement, $\Delta R^2 = .004$, $F_{change}(1, 446) = 1.86$, $p = .174$. These findings suggest that the dummy-coded long- versus short-term orientation variable did not moderate the relationship between distributive justice and disengagement. Therefore, Hypothesis 9d was not supported.

Table 14
Hierarchical Multiple Regression: Examining Long- versus Short-term Orientation as a Moderator of the Relationship between Distributive Justice and c) Exhaustion and d) Disengagement

Variable	R^2	ΔR^2	B	SE B	β	t	95% CI
<u>Exhaustion</u>							
Step 1	.07*	.06*					
Distributive Justice			-.11	.03	-.21*	-4.13	-.17, -.06
LTO – Moderator			.28	.06	.26*	5.10	.17, .39
Step 2	.07	.00					
Distributive Justice			-.15	.04	-.28*	-4.10	-.23, -.08
LTO – Moderator			.27	.06	.25*	4.98	.17, .38
LTO x Distributive Justice			.09	.06	.11	1.58	-.02, .19
<u>Disengagement</u>							
Step 1	.10*	.09*					
Distributive Justice			-.11	.02	-.23*	-4.64	-.16, -.06
LTO – Moderator			.31	.05	.32*	6.40	.21, .40
Step 2	.10	.00					
Distributive Justice			-.14	.03	-.29*	-4.32	-.21, -.08
LTO – Moderator			.30	.05	.31*	6.29	.21, .40
LTO x Distributive Justice			.07	.05	.09	1.36	-.03, .16

Note = Long- versus short-term orientation was dummy-coded with intermediate (Spain) being coded as 0 and serving as the reference group.
N= 450. * Significant p-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

Table 15
Correlations among Variables Involved in the Moderation Hypotheses.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. C	-																					
2. PJ	-.10	-																				
3. RA	.13*	-.40*	-																			
4. InnC	.16*	-.52*	.36*	-																		
5. WLC	.07	-.21*	.35*	.18*	-																	
6. R&R	-.15*	.64*	-.40*	-.58*	-.18*	-																
7. W	.12*	-.13*	.14*	.05	.39*	-.12*	-															
8. CS	.22*	-.32*	.29*	.42*	.02	-.34*	.00	-														
9. DJ	.01	.62*	-.29*	-.45*	-.19*	.59*	-.15*	-.19*	-													
10. EE	.19*	-.12*	.25*	-.13*	.47*	-.12*	.36*	.06	-.11*	-												
11. D	.14*	-.14*	.28*	.24*	.13*	-.22*	.12*	.19*	-.10*	.20*	-											
12. WE	.10	-.20*	.33*	.29*	.20*	-.32*	.03	.19*	-.17*	-.33*	-.60*	-										
13. M	.06	.33*	-.08	-.24*	.01	.30*	.06	-.10	.40*	.17*	.22*	.28*	-									
14. C x PD	.07	.03	-.02	-.07	-.11*	.10	-.10*	.07	.13*	.09	.13*	.02	.01	-								
15. PJ x PD	.04	-.14*	.02	.00	-.03	.01	-.03	.02	-.05*	-.06	-.09	-.01	.08	-.13*	-							
16. RA x UA	.02	-.02	.13*	-.03	-.01	.03	-.01	-.01	.00	.18*	.23*	.10	.02	-.13*	.41*	-						
17. InnC x UA	-.07	.00	.03	.01	.01	-.06	.02	-.01	.01	.08	.16*	-.02	-.06	.16*	-.49*	-.36*	-					
18. WLCx MF	.11*	.03	-.01	-.01	-.02	.08	.03	-.05	.03	.39*	.10	-.01	.00	-.04	.24*	.36*	-.19*	-				
19. R&R x MF	.10	.01	-.03	-.06	-.08	-.02	-.02	-.02	.03	-.07	-.12	-.01	.07	-.16*	.62*	.41*	-.56*	.21*	-			
20. W x IC	-.10	-.03	.01	.02	-.03	-.02	-.09	.03	.07	.14*	.12	.05	.01	.10	-.17*	-.15*	.07	-.39*	-.15*	-		
21. CS x IC	-.07	-.02	-.01	.01	-.05	.02	-.03	.01	-.05	.07	-.09	-.02	.02	-.24*	.31*	.30*	-.40*	.03	.34*	-.01	-	
22. DJ x LTO	.14*	-.05	.00	.01	-.03	.04	.08	.05	.08*	-.01	-.02	.02	.10	.02	.55*	.29*	-.39*	.22*	.54*	-.17*	.15*	-

Note: One-tailed correlations. C = Centralization; PJ = Procedural Justice; RA = Role Ambiguity; InnC = Innovative Climate; WLC = Work-life Conflict; R&R = Rewards & Recognition; W = Workload; CS = Coworker Support; DJ = Distributive Justice; EE =

Emotional Exhaustion; D = Disengagement; WE = Work Engagement; M = Moderator; PD = Power Distance; UA = Uncertainty Avoidance; MF = Masculinity vs. Femininity; IC = Individualism vs. Collectivism; LTO = Long- vs. Short-term Orientation. Standardized versions of the independent variables are included with their respective transformations (as described above in the results section for each moderation hypothesis). Only two countries are included in the study – due to concerns with space, the Moderator variable represents all moderators for the dimensions and uses Spain as the reference group and was coded as 0.
Interaction variables were computed using dummy-coded moderator variables (from each dimension) where the reference group (coded as 0) was the end of the dimension hypothesized as having the weaker relationship with the independent variable (see specific results for each moderation hypothesis above); for example, for Hypothesis 9c, the reference group was the intermediate society (Spain).
N= 450. * Significant *p*-value corrected for multiple testing using the Bonferroni adjustment method (α/k: .05/14=.004).

CHAPTER 4

DISCUSSION

Occupational health researchers have long been interested in studying the link between job stress and employee wellbeing (Bakker & Demerouti, 2017; Beehr & Franz, 1987; Jex, 1998; Jex & Britt, 2014; Sparks et al., 2001). In their search to understand factors that could enrich employee wellbeing, over the years, researchers have relied on workplace stress models, such as the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). Within the framework of the JD-R model, demands expend employees' resources and lead to workplace stress, while resources promote work engagement (Bakker & Demerouti, 2007). The JD-R model is unique from previous models of employee wellbeing in that it examines both positive and negative aspects of work (Bakker & Demerouti, 2007). More recently, occupational health researchers (e.g., Schaufeli & Taris, 2014; Van den Broeck et al., 2008) have called for studies that expand the model and explore potential effect of moderating variables.

This is the novel contribution of this study – it explored the role of national culture as a moderator in the demands/burnout (exhaustion and disengagement) and resources/work engagement relationships. To better understand this topic, I proposed and tested nine sets of hypotheses. However, findings generally indicated that national culture did not alter the hypothesized demands/burnout (exhaustion and disengagement) and resources/work engagement relationships – though, this could be partly due to the limitations in the study, which I address later in this chapter.

Power Distance as a Moderator

Hypotheses 1a-2b mainly dealt with power distance as a potential moderator of the relationships between centralization and the burnout factors and between procedural justice and work engagement. With Hypotheses 1a-1b, I expected that centralization would be positively related to exhaustion and disengagement, respectively. In other words, an employee's inability to make critical decisions about their work could be stressful, which may eventually lead the employee to experience cognitive strain (exhaustion) and to distance from work (disengagement). Consistent with prior studies (e.g., Gray-Stanley & Muramatsu, 2011; Kowalski et al., 2010; Lambert et al., 2006), the hypotheses were supported. These findings are also consistent with previous meta-analytic results; Lee and Ashforth (1996) found that participation in decision making was negatively related to the dimensions of burnout (exhaustion and depersonalization). From the employees' perspective, it is likely that when their inputs are not taken into consideration for areas that directly affect them, employees may feel powerless and would be less inclined to get involved or committed in their work (Schwab, Jackson, & Schuler, 1986). Thus, in situations where decision-making is centralized, employees may feel more stress because they have less control over their work.

Hypotheses 1c-1d predicted that power distance would moderate the effect of centralization on exhaustion and on disengagement, respectively. Specifically, I expected that those in societies with low power distance would exhibit a stronger positive relationship with exhaustion and disengagement, respectively. According to Hofstede et al. (2010), these societies expect power relations to be participatory and consultative, with little regard for inequality. As such, I expected that, in societies with low power distance, not being able to participate in decisions that affect one's work would lead to higher exhaustion and disengagement. The hypotheses, however, were not supported. This is interesting in light of how centralization's definition goes hand-in-hand with Hofstede's conceptualization of low power distance. Centralization mainly refers to whether decision-making is concentrated at the top of the organization and employees are able to participate in the decision-making process about their work (Knudsen et al., 2006), while low power distance refers to a society's consultative handling of power (Hofstede et al., 2010). One possible explanation for the non-significant results of the hypotheses may be that extraneous variables (e.g., age) could have confounded the true interaction effects on the burnout factors. For instance, age might be an interesting variable to control for in future studies as it may be related to participants' career stages and the extent to which an employee would consider certain demands or resources as being salient enough to be a source of concern or a positive motivator (e.g., Liebermann, Wegge, & Müller, 2013).

The next set of hypotheses (2a-2b) dealt with procedural justice's relationship with work engagement. Importantly, while procedural justice was normally distributed, work engagement was not. There may be many reasons for the lack of normality of work engagement; for example, a possibility for this may be that some participants could be inflating their scores slightly in an effort to reflect that they are very engaged in their work, or it could simply be that nurses are unusually connected and engaged with their work. Since work engagement is a dependent variable in this study (for the even-numbered hypotheses, such as 2a, 2b, 4a, 4b), however, issues with normality affects assumptions for multiple hypotheses. Because of this, I searched the literature to understand whether a) other studies using the scale I used for work engagement, the UWES-9 scale (or the 17-item version of the scale, for that matter), exhibited similar issues with normality, b) there were potential reasons inherent to the nursing sample or population that would result in a non-normal distribution, or c) the variable needed to be transformed to resolve the issue with non-normality. In this review, I found no evidence that the variable should have a non-normal distribution, either for the general population or among nurses; though a handful of studies using the scale, including some that used data transformations, reported issues with normality (e.g., Fountain, 2016; Lu, Samaratunge, & Härtel, 2011), the majority of them, including some with nursing samples, did not (e.g., Chapman, 2017; Fong & Ho, 2015; Mercado, 2014; Muilenburg-Trevino, 2009; Schaufeli et al. 2006). Schaufeli et al. (2006) conducted what is perhaps the most notable of these studies; using the UWES-9 and data from over 14,000 participants spanning 10 countries (including Spain), the authors reported no issues with normality for any of the samples. Following this review, I concluded that there was a need to transform work engagement to normalize it, so I proceeded to apply a square-root transformation.

Having transformed the work engagement variable, I proceeded to test Hypotheses 2a-2b. As stated in Hypothesis 2a, I expected that procedural justice would be positively related to work engagement. In other words, the idea of having fair processes and balance in how outcomes are allocated is appealing enough for employees that it would lead to them becoming more engaged in their work. The hypothesis was supported. Furthermore, the strong correlations observed in this study are consistent with prior studies (e.g., Lyu, 2016; Saks, 2006). Thus, from the perspective of Schaufeli et al.'s (2002) conceptualization of work engagement, when employees perceive that their managers act in a fair and transparent manner regarding to how they process and allocate outcomes, in return, employees a) are more willing to exert effort into their work, b) feel more connected to their work, and c) feel more engrossed in their work.

With Hypothesis 2b, I predicted that that power distance would moderate the effect of procedural justice on work engagement, such that the relationship would be stronger for societies with low power distance. As Hofstede et al. (2010) explained, people in societies with low power distance are less accepting of unfair processes and are instead more concerned with equal distributions of power. Given that people in societies with low power distance expect fair processes and allocations of outcomes (Hofstede et al., 2010), I expected that, in these societies, the procedural justice/work engagement relationship would be stronger. However, Hypothesis 2b was not supported.

To further understand the moderation results and to inspect whether the difference in magnitude between the zero-order correlations was statistically significant, I conducted an *r*-to-*Z* transformation by comparing the correlations from both societies. The results were in line with the non-significant results of the moderation ($z = 2.40$, $SEM = 0.10$, *ns;* using a Bonferroni corrected *p*-value of .004). There are a few possible explanations for these findings. One possibility pertains to the use of the Bonferroni correction for the *p*-value threshold in an effort to prevent Type-I error. The method for the Bonferroni correction is often considered to be too conservative and may result in diminished power to detect effects (Field, 2017; Narum, 2006). Both the moderation and the z-test results would be significant using a .05 *p*-level.

Another possible explanation for these results may be that extraneous variables (e.g., salary, negative affectivity, justice sensitivity) may have confounded the true interaction effects on work engagement. For instance, in a meta-analysis, Cohen-Charash and Spector (2001) found salary and negative affectivity to be strongly related to procedural justice; therefore, the higher the salary (or lower for negative affectivity), the more (less) likely it is that employees would perceive organizational practices as being fair. Additionally, in the case of negative affectivity, as Wanberg, Bunce, and Gavin (1999) indicated, people high in negative affectivity are likely to perceive events in a more negative way, which in turn could make them more disposed to perceive higher levels of injustice than people low in negative affectivity. Lastly, Schmitt and Dörfel (1999) found that justice sensitivity (i.e., a personality trait that describes people's predispositions to perceive procedures or distributions as being unfair) moderated the relationship between procedural injustice with satisfaction and wellbeing. Hence, it is possible that controlling for these variables in the study could have allowed for a more accurate interpretation of the results.

Uncertainty Avoidance as a Moderator

Hypotheses 3a-4b mainly dealt with uncertainty avoidance's potential role as a moderator of the relationships between role ambiguity and the burnout factors and between innovative climate and work engagement. Notably, the scale for role ambiguity demonstrated a positively skewed distribution, which was an issue for the assumption of normality in the correlational hypotheses (i.e., 3a-3b). As with work engagement, I searched the literature to understand potential reasons for the normality issues with role ambiguity. I found that in past studies that used the scale, both with non-nursing samples (e.g., Jex, Adams, Bachrach, & Sorenson, 2003; Yun et al., 2007) and with nursing samples (e.g., Iacobellis, 2015; Tunc & Kutanis, 2009), researchers generally reported no issues with normality. To my knowledge, only in a recent study has the variable exhibited issues with normality. Lalonde and McGillis Hall (2017) sampled a group of newly-graduated nurses to study, among other things, role ambiguity's relationship with burnout; the authors reported having problems with skewness for role ambiguity, which they ultimately corrected by applying a logarithmic transformation.

The results in this study and in Lalonde and McGillis Hall's (2017) are interesting because, though the similarities they share are mainly limited to the use of a nursing sample, their issues with the normality assumption for role ambiguity (and the scale) contradict previous, consistent normality results. Even so, in this study, raw means and standard deviations for the variable were not too different from what the other studies (i.e., the studies with no issues for normality) have reported. Though Lalonde and McGillis Hall (2017) did not speculate about the potential reasons for the skewed data, one reason for the issues with normality could be that the nurses in both studies perceived that they had more clarity over normal responsibilities than nurses in other studies. Ultimately, after reviewing the literature, I found no real reason to think of the skewness in this variable as a characteristic of the scale or of the nursing population; in addition, the scale has generally exhibited a normal distribution in previous studies (among both non-nursing and other nursing samples). Based on this evidence, I decided to transform the variable using a logarithmic transformation to normalize it. It is likely that role ambiguity (in both studies) simply needed to be repaired.

As for the hypotheses involving role ambiguity, with Hypotheses 3a-3b, I expected that role ambiguity would be positively related to exhaustion and disengagement, respectively. The rationale for the hypotheses stems from the characteristics tied to jobs high in role ambiguity (e.g., high uncertainty and lack of information regarding one's role, objectives, and responsibilities; Naylor et al., 1980). Both hypotheses were supported, which is consistent with prior meta-analytic work on burnout and its factors (i.e., Alarcon, 2011; Lee & Ashforth, 1996). From the perspective of classical organization theory, lacking the necessary information regarding one's tasks, responsibilities, and role requirements is likely to lead to hesitation and uncertainty about standard procedures, which, in turn would lead to unmet expectations and increased stress (Rizzo et al., 1970).

With Hypotheses 3c-3d, I predicted that uncertainty avoidance would moderate the effect of role ambiguity on the burnout factors. Specifically, I expected that societies with high uncertainty avoidance would exhibit a stronger positive relationship with exhaustion and disengagement, respectively. These societies are characterized by a low tolerance for vagueness and ambiguity in day-to-day situations; they tend to favor well-structured environments over unknown situations (Hofstede et al., 2010). However, the hypotheses were not supported. This is just as surprising as the results for Hypotheses 1c and 1d – the concept behind role ambiguity (i.e., occurring when people are unclear or *uncertain* about their role) lends itself to be closely connected to Hofstede's conceptualization of uncertainty avoidance, particularly for situations where uncertainty avoidance is high.

To further understand the moderation results, I used an r-to-Z transformation to compare the role ambiguity/burnout factors correlations between both societies (i.e., high and low uncertainty avoidance). I tested whether the two correlations were statistically significant, but the results for the role ambiguity/exhaustion correlations ($z = -0.09$, $SEM = 0.10$, *ns;* using a Bonferroni corrected p-value of .004) and the results for the role ambiguity/disengagement correlations ($z = -0.67$, $SEM = 0.10$, *ns;* using a Bonferroni corrected p-value of .004) supported the non-significant findings of the moderations.

Therefore, uncertainty avoidance did not moderate the role ambiguity/burnout factors relationship and the correlations were not significantly different from one another.

One possibility for the lack of support for Hypotheses 3c-3d may be that extraneous variables (e.g., tenure) may have confounded the true interaction effects on the burnout factors. Tenure might be an interesting variable to control for; as more seasoned nurses get more acquainted with their job, perhaps they learn to cope with role ambiguity better. Thus, what at one point could be a great source of strain could become a less salient factor after some time has passed. For example, as Chang and Hancock (2003) found, in the first few months after starting a new job, role ambiguity was the most relevant factor for job strain among new nursing graduates, but 10 months later role overload was a greater contributor to job strain than role ambiguity.

The next two hypotheses (4a-4b) dealt with innovative climate's relationship with work engagement. As with role ambiguity, I also had normality-related issues with innovative climate; this affected the normality assumption for both hypotheses. Unlike with role ambiguity, however, I did not find much information regarding the use of Van Der Vegt et al.'s (2005) innovative climate scale; in their study, however, the authors did not report having had any issues with normality. Though using a different scale, researchers in other studies (e.g., Dackert, 2010; Köhler et al., 2010; Seppälä et al., 2015) dealing with the construct have not reported issues with normality. Therefore, though the sample of studies measuring the construct is small, the variable (and the scale) seems to fit a normal distribution.

There could be many reasons for the variable's normality issues; one such reason could be that, for this construct, nurses in this study simply behave differently than other samples. Though it may be unlikely because the participants in the study did not all belong to the same organization, another potential reason for the skewed scores could be that the organizations employing the nurses in the study are truly more encouraging of innovative concepts, which is an idea being pushed in nursing research (see the editorial commentary by McSherry & Douglas, 2011). Ultimately, though these could be possible explanations for the issues with normality with innovative climate, there simply is not much information about Van Der Vegt et al.'s (2005) scale. In addition, as I explained above, evidence available from other scales measuring the construct demonstrates that the scale is usually normally distributed. Given this, I used a square-root transformation to fix the normality issues.

Following the data transformations, I proceeded to test the hypotheses. As stated in Hypothesis 4a, I predicted that innovative climate would be positively related to work engagement. The general idea behind this hypothesis is that once people perceive that innovation and opportunities for change are appreciated in their workplace, they would feel more engrossed in their work. Consistent with prior findings, the hypothesis was supported. As Hakanen et al. (2006) reported, it is likely that when an organization's climate is innovative, employees become more engaged and committed to their work. From the employees' perspective, they may have various reasons for wanting opportunities for innovative climate (e.g., opportunities for leaning, personal growth; Huhtala & Parzefall, 2007). Thus, the innovative climate/work engagement relationship may be driven by the employees' perception of having access to appropriate levels of challenges and opportunities to put their skills to full use.

With Hypothesis 4b, I predicted that uncertainty avoidance would moderate the effect of innovative climate on work engagement, such that in societies characterized by low uncertainty avoidance, the positive relationship between innovative climate and work engagement would be stronger. According to Hofstede et al. (2010), societies with low uncertainty avoidance are less apprehensive toward novelty and unpredictability. However, the hypothesis was not supported. To further understand the results of the moderation, I used an *r*-to-*Z* transformation to compare the magnitude of the correlation between innovative climate and work engagement for both societies (i.e., high and low uncertainty avoidance). I tested whether the two correlations were statistically significant, but the results supported the non-significant findings of the moderation ($z = 0.75$, $SEM = 0.10$, *ns;* using a Bonferroni corrected *p*-value of .004).

One possibility for the non-significant results of the moderation hypothesis is that, though some researchers agree on the importance of fostering an innovative climate among nurses (e.g., McSherry & Douglas, 2011; McSherry & Warr, 2010), in practice, it may be that, for innovative climate, the organizational context (i.e., private versus public sector) is more important than the national context. As Hofstede (1991, 2001) explained, the concept of culture implies that people's behavior and patterns of thinking and feeling are partially predetermined by six specific cultural layers, such as national culture and organizational culture. These layers are part of people's learned behavioral patterns regarding their cultural practices and traditions. As such, it is possible that the organizational context for the participants in the study is similar in rigidity and requires a more specific organization to show the expected relationship – one that is more supportive of innovative ideas and empowering nurses. In other words, it could be that, for innovative climate, the *right* organizational context would be required to display the expected behavioral patterns.

A study by Ruggiero, Smith, Copeland, and Boxer (2015) lends some support to this explanation. Ruggiero et al. (2015) reported that a medical review by medical staff at the University of Pennsylvania revealed a 77% discrepancy rate between admission medications and those prescribed at discharge. To improve medication reconciliation, the nursing staff were allowed to take on the problem; based on evidence-based practice, the nurses developed an innovative method for discharge medication reconciliation that improved patient outcomes. The new method lowered the discrepancy rate involving patient safety error upon discharge to a 21% of discrepancies upon discharge. By allowing nurses to take on the discharge time-out process project, nurses were enabled to take on a more active role in discharging their patients. The organization promoted autonomy, encouraged innovation, and fostered a climate that was more accepting of novel ideas.

Pothukuchi, Damanpour, Choi, Chen, and Park's (2002) study also lends some support to this explanation. Pothukuchi et al. (2002) used data from a survey of executives from joint ventures between Indian partners and partners from other countries to examine the effects of dimensions of national- and organizational-culture differences on international joint venture performance. The authors found that the presumed negative effect of culture distance on international joint venture performance originated more from differences in organizational culture than from those found in national culture. As Pothukuchi et al. (2002) suggested, organizational culture is seemingly more proximal and salient to the behaviors of working individuals. Thus, in the case of Hypothesis 4b, it may be that, while societies with low uncertainty avoidance may be more likely to encourage innovative climate at a national level, for a meaningful difference to be present, the organizational culture must also be in agreement with the national culture. It is possible that in some cases, as Ruggiero et al. (2015) reported, an organizational climate which is supportive of innovative behaviors and novel ideas may transcend the influence of national culture.

Masculinity versus femininity as a Moderator

Hypotheses 5a-6b mainly dealt with masculinity versus femininity as a potential moderator of the work-life conflict/burnout factors and the rewards and recognition/work engagement relationships. With Hypotheses 5a-5b, I predicted that work-life conflict would be positively related to the burnout factors. The rationale for these hypotheses is that the incompatible demands between nurses' work and family roles would make participating in both roles more difficult. Therefore, as the incompatible demands between roles increase, so would people's job stress levels. As the results indicated, both hypotheses were supported, which is consistent with prior studies (e.g., Brauchli, Bauer, & Hämmig, 2011; Demerouti et al., 2004; Siegel et al., 2005). It is possible that the mechanism through which these relationships work stems from an increased amount of negative spillover from work into employees' family lives (e.g., due to increasing demands, such as having to stay longer hours; Grzywacz, Almeida, & McDonald, 2002). Thus, when employees are faced with high demands in their work role, it "contaminates" their family role, increasing the levels of employees' continued stress and resulting in prolonged cognitive strain and a need for employees to distance themselves from their work.

Hypotheses 5c-5d predicted that masculinity versus femininity would moderate the effect of work-life conflict on exhaustion and disengagement, respectively. Specifically, I expected that the work-life conflict/burnout factors relationships would be stronger for feminine societies. As Hofstede et al. (2010) indicated, the dominant values in feminine societies are caring for others and quality of life; thus, work-life conflict would be more likely to generate stress in feminine societies. The hypotheses, however, were not supported. The work-life conflict/exhaustion correlations were significant for both societies, but the work-life conflict/disengagement correlations were only significant for the American sample. Thus, to further understand the moderation results involving work-life conflict and exhaustion, I used an *r*-to-*Z* transformation to compare the correlations between the masculine and the feminine society. I tested whether the two correlations were statistically significant, but the results supported the non-significant findings of the moderation ($z = -2.18$, $SEM = 0.10$, *ns;* using a Bonferroni corrected *p*-value of .004). Notably, this would be statistically significant using a more standard *p*-value level of .05. Also noteworthy for Hypothesis 5c is that I had to conduct the analysis excluding two outliers because they affected normality. Though only the results for normality varied by excluding the two cases, as Aguinis et al. (2013) and Field (2017) recommended, I provided the results for this hypothesis with and without the two outliers.

While surprising, once again, it is possible that extraneous variables (e.g., marital status, shift schedule, gender) may have confounded the true interaction effects on the burnout factors. For instance, Boswell and Olson-Buchanan (2007) found marital status and hours worked outside of non-working hours to be related to work-life conflict among non-academic staff employees at a public university. Additionally, shift schedule has been linked to changes in work-life conflict in the past; in a sample of European nurses, Simon, Kümmerling, and Hasselhorn (2004) found that working a regular day shift (i.e., working one of the day shifts) decreased work-life conflict, while working both shifts (i.e., working day and night shifts) increased it. Consistent with Simon et al.'s (2004) results, Kunst et al. (2014) reported similar results among a sample of Norwegian nurses;

the authors found that nurses working both shifts, night shift only, or a rotating three-shift-schedule (i.e., working day, night, and evening shifts) reported significantly more negative spillover from work to family than nurses working a regular day shift (Kunst et al., 2014). Though Simon et al. (2004) and Kunst et al. (2014) did not expand on the potential reasons for these findings, Vitale, Varrone-Ganesh, and Vu (2015) suggested that nurses prefer the regular day work schedule over other shifts because the day work schedule is simply more family and socially friendly. Working other shift schedules can mean less time spent on leisure and/or on fulfilling domestic obligation, more fatigue, and more workplace errors (Vitale et al., 2015).

Lastly, another variable that could be an extraneous variable is gender. As Hofstede et al. (1998) reported, the dimension for masculinity versus femininity recognizes a gap between male and female scores, with men normally displaying more masculine values – even in feminine societies. It is possible that within masculine and feminine societies, the gender variations would mean that males in the study would be less inclined to perceive and/or report instances of work-family conflict than females, in accordance with their gender roles. Thus, controlling for gender might allow to test the relative relationship between work-life conflict and the burnout factors.

With Hypotheses 6a-6b, I tested the relationship between rewards and recognition with work engagement. As with innovative climate, rewards and recognition also exhibited issues with normality, which affected assumptions for the correlational and the regression analysis. I searched the literature to understand whether researchers had reported similar issues with this variable or with the scale; however, like with innovative climate, only a few studies have tested this construct or used the scale. In the original study for the scale, Saks (2006) did not report any issues with normality. However, in a recent study using 74 business managers in Ireland, Kane (2017) reported a $Z_{skewness}$ of 2.19 for the scale, which is slightly larger than the $Z_{skewness}$ threshold of normality of ±1.96 that Tabachnick and Fidell (2013) recommended for sample sizes this small; Kane (2017) did not report having attempted any transformations to normalize the data.

Thus, to my knowledge, as seems to be the case with the innovative climate scale, the sample of studies using this scale is rather small and has not involved nurses. As such, one cannot reasonably conclude that this is how the scale normally behaves (i.e., that data for the scale are usually skewed) or that there were potential reasons inherent to the nursing job that would result in issues with normality. It could be possible that the nurses in the study do not perceive that they receive high rewards/recognition outcomes (e.g., pay, promotion opportunities) and are dissatisfied with this, thus resulting in the scores being piled up on the left side of the distribution. This idea of nurses being dissatisfied with the rewards they receive is certainly something that has been reported in the past in surveys (see McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011). However, as I outlined earlier, there is not much evidence available from other studies using the scale to support the idea of a skewed distribution for this variable. Because of this, I used a square-root transformation to meet the assumption of normality for the analyses.

Having addressed the normality concerns, I proceeded to test Hypotheses 6a-6b. With Hypothesis 6a, I tested the relationship between rewards and recognition with work engagement. As previous researchers have suggested, appropriate rewards and recognition may serve as motivators for employees (Maslach et al., 2001; Saks, 2006). Therefore, I expected rewards and recognition to be positively related to work engagement. Consistent with prior studies (e.g., Farndale & Murrer, 2015; Saks, 2006), the hypothesis was supported. One possibility for this relationship may be that, from the employees' perspective, when they perceive that they are being rewarded for the effort that they put into their work, employees are more likely to get motivated and become engaged in their work.

In Hypothesis 6b, I predicted that masculinity versus femininity would moderate the effect of rewards and recognition on work engagement. As Hofstede et al. (2010) explained, masculine societies exhibit preference for material rewards as proof of success. Therefore, I expected that the relationship would be stronger for masculine societies. However, the hypothesis was not supported, which is surprising in light of how well the definition of rewards and recognition fits with Hofstede's (1991) conceptualization of masculine societies. Hence, to gain a better understanding of these results, I used an *r*-to-*Z* transformation to compare the magnitude of the rewards and recognition/work engagement correlations between the masculine and the feminine society. The results supported the non-significant findings of the moderation (z = -2.33, *SEM* = 0.10, *ns;* using a Bonferroni corrected *p*-value of .004).

These are a few possible explanations for these findings. As could be the case with Hypothesis 5b, one possibility for the results may be that extraneous variables (e.g., gender) may have confounded the true interaction effects on work engagement. Additionally, as with Hypothesis 2b, another possible explanation for the results pertains to the use of the Bonferroni correction for the *p*-value threshold in an effort to prevent Type-I error. This type of adjustment is often considered to be too conservative and may result in diminished power to detect effects (Field, 2017; Narum, 2006). While the moderation results would not be significant under the usual .05 *p*-value level, the z-test results would be.

Individualism versus collectivism as a Moderator

Hypotheses 7a-8b mainly dealt with individualism versus collectivism as a potential moderator of the perceived workload/burnout factors and the coworker support/work engagement relationships. Importantly, both perceived workload and coworker support had issues with normality, which affected assumptions for Hypotheses 7a-7b and for Hypotheses 8a-8b. For perceived workload, I searched the literature to understand whether the issues I had with the positive skew were inherent to the variable (or to the scale) or if they were common among studies involving nursing samples. However, I found no issues with normality among non-nursing samples (e.g., Fida et al., 2015; Spector & Jex, 1998). As for nursing samples, though there is plenty of evidence showing that perceived workload is one of the most salient demands for nurses (e.g., Chang et al., 2006; Greenglass et al., 2001; Kowalski et al., 2010; Rai, 2010), normality has not been an issue for studies with nursing samples using this scale (e.g., Baka & Bazińska, 2016; Lawrence, 2011). Thus, the results from studies using the scale do not seem to imply that the high skewness exhibited for this variable in this study is an issue that is inherent to nurses. Though it is certainty possible that the sampled nurses are indeed very dissatisfied with the amount of work they get in their jobs as well as with other demands, the results from other studies seem to be consistent in showing normal distributions for perceived workload. As a result, it seems that the data just need to be corrected; thus, I used a logarithmic transformation to fix the normality issues in the study.

Having addressed the issues with normality for perceived workload, I proceeded to test Hypotheses 7a-7b. With these hypotheses, I expected that perceived workload would be positively related to exhaustion and disengagement, respectively. The rationale for the hypotheses is that high workload consumes employees' time and energy and may result in intense physical, affective, and/or cognitive strain and deters employees from continuing to work. As the results indicated, and consistent with prior meta-analytic findings (i.e., Alarcon, 2011; Lee & Ashforth, 1996), Hypothesis 7a was supported; however, Hypothesis 7b was not supported, using the Bonferroni-corrected *p*-value level of .004. This is surprising since it contradicts the aforementioned meta-analytic results. As I previously stated, the Bonferroni correction method is often considered to be too conservative and may result in diminished power to detect effects (Field, 2017; Narum, 2006). Notably, Hypothesis 7b would not be significant using the non-transformed variables under the Bonferroni-corrected *p*-value level of .004, but both correlations (using the transformed variables or the non-transformed variables) would be significant under a *p*-value level of .05. These results mean that from the framework of the JD-R model, it is possible that high workload simply expends too much of employees' resources, which trumps their ability to use other resources to deal with other challenges and ultimately exacerbates their level of stress (Bakker & Demerouti, 2007).

With Hypotheses 7c-7d, I predicted that individualism versus collectivism would moderate the effect of perceived workload on the burnout factors. As Hofstede et al. (2010) explained, individualistic societies value individual autonomy and personal achievement, while collectivistic societies value support for members of the group. Because of this, it is possible that employees in individualistic societies may become frustrated by what they perceived to be high workload. As such, they may view high workload as an obstacle in the way of their own personal goals, while collectivistic societies may simply view workload as something that is often necessary for the wellbeing of the group or may not be as affected by it because they have other potential resources at their disposal (e.g., higher social support). Therefore, I expected that in individualistic societies, the perceived workload/burnout factors relationships would be stronger than it would be for collectivistic societies. The hypotheses, however, were not supported.

Though the perceived workload/disengagement correlations were not significant for both societies, the perceived workload/exhaustion correlations were; thus, to further understand the moderation results involving perceived workload and exhaustion, I used an *r*-to-*Z* transformation to compare the magnitude of the zero-order correlations for the societies. The results showed that the correlations were significantly different for the individualistic society when compared to the collectivistic society ($z = -3.29$, $SEM = 0.10$, $< .004$, using a Bonferroni correction for the *p*-value level). This serves as a contradiction to the results from Hypothesis 7c.

There are a few possible explanations for the findings for this hypothesis. One possibility pertains to the use of the Bonferroni correction for the *p*-value threshold in an effort to prevent Type-I error. The method for the Bonferroni correction is often considered to be too conservative and may result in diminished power to detect effects (Field, 2017; Narum, 2006). The obtained z-score was significant under the corrected *p*-value level of .004, and step 2 of the moderation would be significant using the regular *p*-value level of .05.

Another possible explanation for the moderation results (for both exhaustion and disengagement as dependent variables) may be that extraneous variables (e.g., work environment variables) may have confounded the true interaction effects on burnout. For instance, shift schedule and shift length are strongly related to physical (e.g., perceived levels of fatigue, trips, falls) and psychosocial (e.g., burnout, work-life conflict) outcomes in registered nurses (e.g., Barker & Nussbaum, 2011; Geiger-Brown & Lipscomb, 2011; Geiger-Brown et al., 2012). As an example, it may be possible that nurses who work the day shift would be more likely to get a higher volume of work and would be required to work at a faster pace, thus becoming a more likely target for higher levels of job strain.

As for Hypotheses 8a-8b, they served to test the relationship between coworker support and work engagement. Notably, coworker support exhibited issues with normality, which affected both Hypotheses 8a and 8b. The data were negatively skewed for the variable, with high scores indicating that nurses perceive that they can rely on their peers. Given the issues with normality, I searched the literature to understand whether these problems were common for the construct (or for the scale) or whether they were inherent to the nursing population. I found that a large body of work conducted by researchers using both non-nursing samples (e.g., Knight, Patterson, Dawson, & Brown, 2017; Leigh, 2011; Liao, Joshi, & Chuang, 2004; Wood, Niven, & Braeken, 2016) and nursing samples (e.g., Haynes et al., 1999; Hogan, Jones, & Saul, 2016) suggests that there are no normality issues with the scale or with the construct. Only Moore, Cigularov, Chen, Martinez, and Hindman (2011) reported issues with skewness for coworker support, albeit the authors used a different scale.

One possible explanation for the issues with normality in this study may be that the nurses had an inflated perception of how supportive their coworkers actually are. As Catlett and Lovan (2011) indicated, nurses are likely to rely heavily on their network to deal with everyday work stressors, so it is possible that they place a lot of value in this resource. Nevertheless, it is likely that these stressors may not be too different from the stressors that other nurses face and that the support they receive from others is not too different either; as McHugh et al. (2011) indicated, nurses seem to be collectively dissatisfied with various, but similar stressors and support is generally seen as an important factor to counteract those issues. Ultimately, as I indicated above, though commonly seen as an important resource among nurses, other studies involving the scale (including non-nursing samples) have not reported any issues with normality. Because of this, I used a logarithmic transformation to fix the normality issues.

Having addressed the issues with normality, I tested Hypothesis 8a, which looked at the relationship between coworker support and work engagement. When employees perceive that they have their coworkers' support, it is likely that they may feel more connected and engrossed in their work. Therefore, I expected coworker support to be positively related with work engagement. Consistent with prior studies (e.g., Bakker et al., 2007; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008), the hypothesis was supported. As Bakker and Demerouti (2007) suggested, coworker support has many benefits as a resource because it may satisfy the need of employees to belong to a group and it serves as a motivational factor by assisting employees in coping with challenges (both inside and outside of the work context). Hence, when employees perceive that they have the support of their coworkers, it is likely that they feel connected and engaged with many aspects of their work.

As stated in Hypothesis 8b, I predicted that individualism versus collectivism would moderate the effect of coworker support on work engagement. In accordance with the tenets of Hofstede's (2001) theory, collectivistic societies value social interdependence and sacrificing personal goals for the benefit of the group; in other words, collectivistic societies emphasize relationships over individual goals (Hofstede, 1980; 2001; Triandis, 1995). Therefore, with this hypothesis, I expected the coworker support/work engagement relationship to be stronger for collectivistic societies.

However, the hypothesis was not supported. This is noteworthy because of how congruent the concept of supporting coworkers is with Hofstede's (1980, 1991, 2001) conceptualization of collectivistic societies. Thus, to further understand these results, I used an *r*-to-*Z* transformation to compare the magnitude of the zero-order correlations between coworker support and work engagement for the individualistic and the collectivistic society. The results supported the non-significant findings of the moderation (z = 1.07, *SEM* = 0.10, *ns*, using a Bonferroni corrected *p*-value of .004).

A possible explanation for these results may be found at the core of the nursing profession itself. As I briefly discussed before, nursing is a profession deeply rooted in caring – one where a *good nurse* would be someone who, not only displays caring attitudes toward their patients, but also displays them toward their coworkers (Catlett & Lovan, 2011). This same idea is promoted among nursing associations; the International Council of Nurses (ICN), a federation of more than 130 national nursing associations, portrays nursing as a profession that *cares* for others, and not just the patients. Given that this message of *caring* seems to be deeply rooted in the nursing profession, the results of this hypothesis could be explained in a similar manner as the results for Hypothesis 4b; it is possible that another layer of culture may be a stronger influencer of behavior (i.e., at the social or professional level) than national culture. Thus, caring and supporting coworkers could be a part of nurses' learned behavioral patterns that stems from their professional cultural practices and traditions.

Long- versus short-term orientation as a Moderator

Hypotheses 9a-9d mainly dealt with long- versus short-term orientation as a moderator in the distributive justice/burnout factors relationship. Of note, distributive justice exhibited a moderate positive skew, which affected the correlational hypotheses.

Because of this, I searched the literature to understand whether there were other instances of researchers having normality issues with the scale that I used in the study or if nurses in other studies generally had issues with distributive justice. In the original article for the scale, Colquitt (2001) reported no issues with normality; in addition, other studies using the scale, either with non-nursing samples (e.g., Erdogdu, 2018; Hansen, 2010) or with nursing samples (e.g., Brescian, 2010; Ford, 2011) have not had issues with normality. Furthermore, researchers using other scales to measure the construct have not reported such problems (e.g., Dayan, Di Benedetto & Colak, 2009; Ruder, 2003).

There are many potential reasons for the issues with normality; for instance, similar to coworker support (but in the opposite direction), perhaps the nurses' perception about the income/outcome ratio is lower than what it actually really is. It is also possible that the results are simply caused by nurses' collective dissatisfaction with the overall quality of their work (which includes wages) (McHugh et al., 2011). Still, as evidence by the literature review I conducted, the variable for distributive justice has been shown to be normally distributed among various samples, including samples with nurses; as such, I used a square-root transformation to meet the assumption of normality for the correlational analyses.

Having addresses the issues with normality, I proceeded to test the hypotheses. In Hypotheses 9a-9b, I hypothesized that distributive justice would be negatively related to exhaustion and disengagement, respectively. From a burnout perspective, when employees perceive unfairness in the allocation of resources at work, they may regard the problem as a form of psychological distress. Both hypotheses were rejected, which is not consistent with previous results (e.g., Campbell, Perry, Maertz, Allen, & Griffeth, 2013; Moliner et al., 2005). This is surprising given that the concept of distributive justice is very much concerned with inputs/outputs (Colquitt et al., 2001). Thus, from an employee's perspective, I expected that incongruences between inputs/outputs could lead to increased stress. A possible explanation for these results may be linked to the use of the Bonferroni correction for the *p*-value threshold in an effort to prevent Type-I error. As I previously stated, this method is often considered to be too conservative and may result in diminished power to detect effects (Field, 2017; Narum, 2006). Both hypotheses would be significant under a *p*-value level of .05.

The last pair of hypotheses were not supported. With Hypotheses 9c-9d, I predicted that long- versus short-term orientation would moderate the effect of distributive justice on the burnout factors, such that the relationship would be stronger for societies with short-term orientation. Hypotheses 9c-9d was predicated on the idea that short-term-oriented societies would value more imminent rewards over long-term rewards. As Janssen et al. (2010) suggested, it is possible that employees in long-term-oriented societies are less concerned with immediate input/output imbalances. The opposite would be true of short-term-oriented societies; as such, in short-term-oriented societies, people would be less permissive of a perceived ratio of distributive unfairness, which may lead to psychological distress due to the unevenness of the level of investment/reward.

There are a few possible explanations for the findings in the study. One possibility may be that extraneous variables (e.g., salary) may have confounded the true interaction effects on the burnout factors. For instance, salary might be an interesting variable to control for as it has been meta-analytically related to distributive justice in the past (Cohen-Charash & Spector, 2001); the higher the salary, the more likely employees are to perceive distribution of resources as being fair.

Limitations

The present study has a number of strengths (it, e.g., used a theoretically-derived approach to test national cultural dimensions; qualitatively ensured similarity of job tasks between the countries; strove to ensure the geographical representativeness of the sample; tested both the health-impairment process and the motivational process of the JD-R model using cultural dimensions as moderators); however, as with, arguably, any research endeavor (Shadish, Cook, & Campbell, 2002), this study is subject to limitations. First and foremost, though I took measures to prevent issues related to the translated measures, the data failed the test of measurement invariance. Measurement invariance assesses the psychometric equivalence of a construct across groups; it involves three levels that range from less stringent to most difficult, in this order: 1) configural invariance tests whether the factor structure represented in CFA achieves adequate fit when both groups (e.g., two ends of a dimension) are tested together and freely (without any cross-group path constraints); 2) metric invariance tests whether factor loadings are equivalent across both groups; and 3) scalar invariance tests whether means are equivalent across groups (Hair et al., 2010; Steenkamp & Baumgartner, 1998). If the data do not pass configural invariance, one cannot continue to test metric and scalar invariance (Hair et al., 2010; Steenkamp & Baumgartner, 1998). Though full measurement invariance seldom holds (Schmitt & Kuljanin, 2008), configural invariance is considered to be the weakest form of measurement invariance. I tested configural invariance, but the combined model did not fit the data well, $\chi^2(7779) = 4550$, RMSEA = .040, SRMR = .040, CFI = .81, GFI = .66.

Establishing cross-cultural measurement invariance is of particular importance to cross-cultural research since it serves to ensure that the items and measures are being interpreted similarly by members of different samples (Hair et al., 2010; Spector et al., 2015; Vandenberg & Lance, 2000). Since the data did not pass the measurement invariance test, as a result, responses from Spanish and American participants may not be represented in the same level for each variable. Thus, comparisons between the countries in this study should be considered with caution; it is possible that the constructs had a different structure or meaning to the different groups, and so the constructs were not meaningfully tested or construed across groups.

Second, while Hofstede's national dimensions are still represented with Spain and the United States (i.e., there is variation between highs and lows for the majority of the dimensions), the study is limited by being a two-country comparison. As Spector et al. (2015) cautioned in a recent review of cross-cultural research, the use of a two-country design in cross-cultural research makes it difficult for one to be confident that specific variables in the study truly account for the results obtained – even after controlling for a number of methodological confounds. Thus, given that cultures differ in a myriad of factors, it is often difficult to isolate the nature of cultural effects by using a two-country design (Spector et al., 2015; Van de Vijver & Leung, 2000). Studies with a two-country design often a) rely on assumed cultural homogeneity, b) ignore differences that are likely to exist in many respects (e.g., economical, sociological, political), and c) do not explore alternative explanations for any differences that are found (Gelfand, Raver, & Ehrhart, 2002; Spector et al., 2015; Van de Vijver & Leung, 2000). As more countries are included in the design of a cross-cultural study, a true test of cultural dimensions becomes more feasible – rather than simply relying on countries as a cultural proxy (Van de Vijver & Leung, 2000). Thus, adding more countries to the mix may have allowed for more accuracy and confidence in the results and would have provided a better indication of the generalizability of the findings (Spector et al., 2015). In addition, a multi-country design would have allowed for wider representation of all the national dimensions; for instance, neither Spain (intermediate) nor the United States (low) are long-term-oriented societies. Adding a country like Switzerland or Sweden (with high long-term orientation scores) would have allowed for more variation and representation of the long- versus short-term orientation dimension.

Third, related to the sampling concerns, while I took steps to ensure that the sample was representative of the population (e.g., by targeting different regions in Spain and in the United States), the sample in this study may still not be representative of the nations as a whole. The sample still relied on nonprobability and convenience methods for sampling (i.e., it was only available to those with Internet access). By following these methods, one simply assumes that the sample gathered does an adequate job of representing the national population and the culture of interest (Spector et al., 2015). However, it is likely that this is not the case, especially in countries that are heterogeneous in regard to their culture or language, such as the United States (Spector et al., 2015).

Fourth, as I stated at various points during this chapter, including a few extraneous variables as potential control variables (e.g., gender, negative affectivity, shift schedule) in the study would have offered more clarity to the understanding of the results. Not doing so, along with the previous limitation on noninvariance, makes it unlikely that one could be certain that potential differences between countries would not be linked to other factors (Spector et al., 2015). In addition, even as researchers control for a high number of methodological confounds, it is not possible to control for everything that may differ between samples in two countries (Aycan & Kanungo, 2002); thus, this lends more credence to the need to establish measurement invariance when comparing the effects of national dimensions cross-culturally.

Fifth, this study relied on self-report measures. While self-report measures are a useful way to survey participants, they do have their limitations. Self-report measures do not measure observable behaviors, can add to measurement error, and can produce distorted results (Baumeister, Vohs, & Funder, 2007; Podsakoff, MacKenzie, & Podsakoff, 2012). In addition, self-report measures may also be more vulnerable to socially-desirable responding, item social desirability, common scale anchors, and item ambiguity, which may further distort results (Podsakoff et al., 2003).

Sixth, an aspect of this study that could potentially be seen as a limitation by some relates to the incentive presented in the study (i.e., the raffle to win a gift card) and its potential negative effects on data quality. Though participation in the study was voluntary, respondents were presented with an opportunity to win a gift card in exchange for their participation. This was done in an effort to increase sample size; research suggests that incentives are an effective way to boost participation in surveys (e.g., Bentley & Thacker, 2004; Van Otterloo, Richards, Seib, Weiss, & Omer, 2011). However, as Barge and Gehlbach (2012) reported, while they can increase response rates, incentives could degrade the quality of data by increasing low-quality responses. Barge and Gehlbach's (2012) findings contradicted what Toepoel (2012) reported; in a review of studies on incentives and data quality, Toepoel (2012) reported that there was no evidence for data quality concerns because of incentives being offered in research. More recently, Cole, Sarraf, and Wang (2015) analyzed data from thousands of students from 600 institutions who completed the 2014 National Survey of Student Engagement and provided further evidence supporting Toepoel's (2012) findings. Cole et al. (2015) found little evidence that survey incentives degrade data quality in terms of straight-lining (i.e., selecting the same response for a set of items using the same scale), item skipping, total missing items, duration, and survey completion. Based on these findings, it seems that while researchers agree on the benefits of using incentives to boost study participation, the jury is still out on whether doing so may lead to data quality concerns.

Lastly, two other factors that could potentially be seen as a limitation by some concern to the normality issues that various variables exhibited and to how I dealt with cases flagged as potential outliers. Importantly, as Tabachnick and Fidell (2013) explained, often times, remedies in one assumption could inadvertently result in issues with another assumption. As I previously detailed regarding the issues with normality, I searched the literature to examine whether past studies using the same scales demonstrated skewed distributions; however, I found that most studies reported that the affected scales met the assumption of normality. I applied transformations to the non-normal variables and compared the results of the analyses when using non-transformed variables to the results when using transformed variables; for instance, I examined the data for any changes that would impact any of the assumptions or error rate conclusions. Similarly, when I encountered a multivariate outlier, as various researchers recommended (Aguinis et al., 2013; Field, 2017; Tabachnick & Fidell, 2013), I carefully examined the raw and standardized data points of the flagged cases and subsequently ran the analyses with and without the flagged case to determine whether the case had an influence on the overall results of the analyses. Though some researchers prefer removing the flagged outlying cases, I only needed to do this for Hypothesis 5c because of issues with normality.

The main limitations listed above may be corrected in future research. Next, I provide recommendations for future research along with suggestions to address these limitations.

Suggestions for Future Research

Though establishing measurement invariance can be difficult, cross-cultural researchers wanting to draw conclusions from multi-country comparisons may want to build a rigorous research plan prior to data collection. To prevent problems with measurement invariance, researchers may want to start at the planning stage by ensuring they follow an appropriate back-translation protocol for instruments needing translation, such as the method proposed by Jones et al. (2001). Additionally, to ensure comprehension and clarity, researchers may want to conduct pilot studies or pretests – either qualitative (like gathering feedback from focus-group sessions with monolingual and bilingual respondents) or quantitative (like using methods based on item response theory) (Buil, de Chernatony, & Martínez, 2012). Furthermore, researchers may want to sample participants who are comparable according to major demographics parameters (e.g., gender, age, education, socioeconomic status; Chirkov, 2015). Van de Vijver and Leung (2011) suggested a possible way to do this; the authors advocated for the use of stratified sampling as a way to choose participants from different groups based on education. The rationale for this is that doing so would result in the inclusion of participants from different countries that would have comparable levels of education, thus reducing sampling bias.

To address issues related to cultural-dimension representation and to generalizability, researchers may want to consider sampling from more than two countries (Spector et al., 2015). When only two countries are sampled, it is not likely that one can be certain that different results are due to the specific variables being accounted for in the study (Liu et al., 2007; Spector et al., 2015); though countries may differ on culture, they are also likely to differ economically and politically (Spector et al., 2015). Thus, a design with more than two countries offers the opportunities to generalize that a two-country design simply cannot offer; it would allow for actual conclusions about culture and would add substantial variation in any of the cultural dimensions of interest (Liu et al., 2007; Spector et al., 2015). Furthermore, as Spector et al. (2015) and Gelfand, Aycan, Erez, and Leung (2017) indicated, as knowledge on cross-cultural research continues to accumulate over time, top journals have demanded increasingly more sophisticated research designs that involve more than two countries.

In addition, as Spector et al. (2015) noted, most multinational and cross-cultural research largely ignores country representativeness, particularly in large countries like the United States. In the future, researchers may want to use targeted sampling procedures that would allow them to capture more regions in the desired countries. As Spector et al. (2015) warned, one cannot simply ignore the nature of the population when selecting the desired sample – particularly in cross-cultural research.

Moreover, to have a clearer understanding of cross-cultural study results, future researchers may want to search the literature for variables that have been controlled for in the past or that could be related to the variables in the hypothesized relationships. In particular, they could target variables that could result in economical, sociological, and/or political differences that could exist between the countries being studied and that could potentially exert undue influence over the results of the study (Aycan & Kanungo, 2002). For example, choosing participants from the same occupation/industry could allow researchers to control for potential sample and occupational differences that could plague the results (Liu et al., 2017).

Lastly, to help mitigate certain biases associated with self-report measures (e.g., socially desirable responding, item social desirability, common scale anchors, item ambiguity, common retrieval cues), future researchers may want to include items to measure social desirability. They may also want to work closely with translators to a) avoid translating items in a way that reflects socially desirable items, b) explore options that would remove repeating anchors, and c) translate items in a clear manner which captures nuances in phrases and languages (Podsakoff et al., 2012). In addition, future researchers could make use of proximal separation (i.e., introduce separation of measures of predictors and outcome variables); doing so limits the ability of respondents to infer missing details and to use previous answers to fill in gaps in what is recalled. Thus, this could help with eliminating common retrieval cues.

Implication for Researchers

The findings of this study yield some implications for researchers. While I did not find support for the main focus of the study (i.e., the role of national culture as a moderator in the expected relationships), the first step of the moderated regressions along with most correlational results (both overall and country-specific) offer further support for the main tenets of the JD-R model – that is, demands are positively linked to burnout and resources are positively linked to work engagement. Through the health-impairment process, all demands in the study were positively related to exhaustion, while all demands, except for perceived workload, were related to disengagement; thus, they endorse the main idea that demands deplete employees' available resources. In supporting the motivational process, all resources were related to work engagement and its main dimensions. In addition, while I did not explore any demands/resources combinations, all resources (except for distributive justice) were significantly negatively related to exhaustion and to disengagement, respectively, adding further support to the buffering role of resources (Bakker & Demerouti, 2007, 2014). Overall, the study supports the role of the JD-R model as a theoretical framework that researchers can rely on to understand job stress and employee wellbeing.

The study also supports some researchers' views (e.g., Evans & Fisher, 1993; Kristensen et al., 2005; Shirom, 1989; Shirom & Melamed, 2005) regarding the role of emotional exhaustion as the main component of burnout. In this study, emotional exhaustion had the strongest and most consistent relationship with demands, agreeing with Lee and Ashforth's (1996) and Alarcon's (2001) meta-analytic conclusions about emotional exhaustion. Researchers who want to limit the number of items in their study may be able to focus on the emotional exhaustion dimension. In addition, the results seem to support Bakker et al.'s (2005) idea that work engagement and burnout are different constructs and should be assessed using different measures; while the correlations between work engagement and exhaustion and between work engagement and disengagement, respectively, were significant (r=-.33 and r=-.60, p <.004, using a Bonferroni correction for the p-value), they were still far from -1. As Tabachnick and Fidell (2013) and Field (2017) explained, correlations above .80 would indicate potential overlap between two measures and that it is possible that the two measures would be measuring the same thing.

Within the cultural framework, it is possible that, for certain variables, relationships in the study could be best explained by studying different layers of culture, rather than taking the approach of national culture. As Spector et al. (2015) suggested, countries like the United States are composed of various regions that may have their own unique variations; thus, perhaps researchers could explore whether regional differences exist within the United States. Relatedly, I encourage researchers to continue exploring societies that are not usually represented in the wellbeing literature, such as in Spain and other countries in Latin America – both to test the tenets of the JD-R model as well as to expand other models.

Lastly, I encourage future researchers to explore potential differences among countries for challenge and hindrance demands. This study considered demands as being hindrance demands, but as I detailed in the first chapter, a line of research headlined by Crawford et al. (2010) distinguishes hindrance demands (e.g., role conflict) from challenge demands (e.g., workload). In fact, in Crawford et al.'s meta-analysis, they found that workload was *positively* related with work engagement (r=.11, p < .05). In this study, the overall correlation between the variables was not significant.

Implications for Organizations

As the old adage says, "absence of evidence is not evidence of absence." The lack of significant results for the moderation hypotheses does not necessarily mean that national culture does not matter in the context of job stress and employee wellbeing, particularly in light of some of the limitations I previously discussed. Though one could also argue that it is possible that factors like the impact of globalization and technology may serve in fading the boundaries of national borders, as Hofstede (1991) explained, national culture is part of one's learned behavioral patterns regarding their practices and traditions – thus, it is likely to hold some level of influence over individuals. As such, I encourage organizations to take these moderation results with caution.

Nevertheless, there are other findings in the present study that can be useful to organization. The findings lend support for the demands/burnout and resources/work engagement relationships. The results of the study, coupled with consistent empirical evidence showing support for the JD-R model, give further credence to the JD-R model's main tenets; thus, organizations may want to consider implementing policies that would help ensure that they are maximizing resources and safeguarding employees from the negative outcomes related to demands. Specifically, organizations may want to identify potential demands that could jeopardize employee wellbeing and introduce measures to counteract the potential effects of those demands. For instance, to buffer potential issues related to having a centralized work structure, when appropriate, organizations could work with employees to give them more control over decisions that directly affect them, such as the types of tasks and responsibilities they have. Karasek (1979; Karasek & Theorell, 1990) was a firm believer that increasing decision latitude (i.e., allowing more control over decisions) could result in positive outcomes. Evidence of this can be found in research; for example, using a sample of Dutch teachers, Taris et al. (2003) reported that when the teachers' decision latitude increased, coupled with lower levels of demands, the teachers were more likely to learn and believe that they could succeed. Additionally, to combat role ambiguity, employers may want to make an effort to clarify employees' roles early on; knowing and understanding what one's tasks and responsibilities are can help employees avoid stressful situations and increase productivity (Rizzo et al., 1970). Related to this, organizations may want to instruct managers to provide task feedback (when appropriate), to encourage coworker feedback, and to promote clear communication efforts (Bowling et al., 2017).

Furthermore, organizations and managers may also want to help alleviate problems linked to high workload. Simply put, though it could also be linked to work engagement (see Crawford et al., 2010), reducing high workload and distributing work equitably in a fair and transparent manner is beneficial to counter risks of burnout (Boyd, 2014). Moreover, increasing individuals' participation in decision-making and giving them more control over decisions that could affect them may serve to further buffer demands when workload is high (Taris et al., 2003). Thus, managers should be attentive to ensure that work is being distributed in a way that is perceived to be fair among employees and to provide opportunities with more decision latitude.

To combat issues related to work-life conflict, organizations could establish family-friendly workplace policies. As more millennials and members of generation Y enter the workplace with new desires to achieve greater work-life balance, organizations need to be more mindful of the characteristics of the current workforce (Hershatter & Epstein, 2010). The newer generations seem to value employers that have policies that are more family oriented than the previous generation that they are replacing; thus, to attract, select, and retain new workers, employers need to be prepared for these changes in the workforce's priorities (Hershatter & Epstein, 2010; Kuron, Lyons, Schweitzer, & Ng, 2015). Therefore, establishing more family-conscious workplace policies may help decrease levels of work-life conflict, and ultimately may help decrease levels of exhaustion and disengagement.

Similarly, organizations could focus on increasing resources, which also serve to buffer demands (Hobfoll, 1989, 2002). To foster an innovative climate, organizations could follow recommendations set forth by Yuan and Woodman (2010), who found that when employees perceived that the organization supported innovation and that expected positive outcomes would be tied to such displays of behavior, employees were more likely to engage in innovative behaviors. Related to this, organizations may also want to ensure that they are rewarding and recognizing their employees appropriately.

Organizations could establish standard practices to continue to monitor and adjust the rewards and recognition they give to their employees (Kuron et al., 2015). They could work closely with departments of human resources to identify talent and evaluate fair pay.

In addition, organizations may target newcomers and implement socialization and onboarding programs for new employees that can lay the foundation necessary to increase coworker support (Kammeyer-Mueller, Wanberg, Rubenstein, & Song, 2013). Over time, this could even evolve into creating a culture of support in the organization, which would likely beget other positive outcomes. Lastly, organizations should strive to be predictable and consistent in terms of procedural and distributive justice processes (Saks, 2006); they could work toward improving employees' perceptions of how information and communication flows in the organization. When employees perceive satisfaction in these areas, it increases organizational effectiveness and perceptions of justice (Chan & Lai, 2017). Given the role that justice plays as a precursor to numerous positive outcomes (e.g., Colquitt et al., 2001), organizations should strive to ensure the fairness of all their practices. Notably, while I did not find significant results for the correlational hypotheses concerning distributive justice, I still advocate for organizations to pursue fairness with how resources are allocated; previous studies (e.g., Cohen-Charash & Spector, 2001; Colquitt et al., 2001) have shown support for the hypotheses in the past and the correlations were significant using the more traditional .05 *p*-value.

Conclusion

In this study, I looked to address whether there are cultural differences in how societies respond to the dual process of the JD-R model. For this, I relied on Hofstede's (1980, 2001; Hofstede et al., 2010) national dimensions to define and categorize national culture. Using national culture dimensions as moderators, I tested whether the relationship between various job-specific demands (resources) with burnout factors as exhaustion and disengagement (work engagement) would vary in strength. Generally, though the demands were related to exhaustion and disengagement, respectively, and the resources were related to work engagement, I found no support for any of the moderation hypotheses.

The study had various strengths (it, e.g., followed a comprehensive translation method, followed a process to ensure that the same job would be sampled between countries, used job-specific demands and resources), it also had its share of limitations that could be addressed in future research (it, e.g., failed measurement invariance, used a two-country design). Accordingly, the contributions of the study are twofold: a) the study serves as a stepping stone on which future researchers can stand when exploring the role of national culture on the tenets of the JD-R model and b) the study reaffirms the health-impairing role of demands and the motivational potential of resources. Thus, because of these results, and in an effort to reduce burnout and increase work engagement, I encourage organizations and practitioners to adopt measures that focus on limiting job-specific demands and fostering job-specific resources, regardless of where they fall within the spectrum of the national dimensions.

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APPENDIX A

HUMAN USE APPROVAL LETTER

LOUISIANA TECH
UNIVERSITY

OFFICE OF UNIVERSITY RESEARCH

MEMORANDUM

TO: Dr. Steven Toaddy and Dr. James De Leon

FROM: Dr. Stan Napper, Vice President Research & Development

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: May 18, 2017

In order to facilitate your project, an EXPEDITED REVIEW has been done for your proposed study entitled:

"Culture, Demands, and Resources in the Workplace"

HUC 17-117

The proposed study's revised procedures were found to provide reasonable and adequate safeguards against possible risks involving human subjects. The information to be collected may be personal in nature or implication. Therefore, diligent care needs to be taken to protect the privacy of the participants and to assure that the data are kept confidential. Informed consent is a critical part of the research process. The subjects must be informed that their participation is voluntary. It is important that consent materials be presented in a language understandable to every participant. If you have participants in your study whose first language is not English, be sure that informed consent materials are adequately explained or translated. Since your reviewed project appears to do no damage to the participants, the Human Use Committee grants approval of the involvement of human subjects as outlined.

Projects should be renewed annually. ***This approval was finalized on May 18, 2017 and this project will need to receive a continuation review by the IRB if the project, including data analysis, continues beyond May 18, 2018.*** Any discrepancies in procedure or changes that have been made including approved changes should be noted in the review application. Projects involving NIH funds require annual education training to be documented. For more information regarding this, contact the Office of University Research.

You are requested to maintain written records of your procedures, data collected, and subjects involved. These records will need to be available upon request during the conduct of the study and retained by the university for three years after the conclusion of the study. If changes occur in recruiting of subjects, informed consent process or in your research protocol, or if unanticipated problems should arise it is the Researchers responsibility to notify the Office of Research or IRB in writing. The project should be discontinued until modifications can be reviewed and approved.

Please be aware that you are responsible for reporting any adverse events or unanticipated problems.

If you have any questions, please contact Dr. Mary Livingston at 257-2292 or 257-5066.

A MEMBER OF THE UNIVERSITY OF LOUISIANA SYSTEM

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APPENDIX B

MATCHING O*NET TASKS

Matching O*NET Tasks

Please indicate whether the Spanish task matches any of the tasks from the O*NET list. Note that more than one of the Spanish tasks could be mapped to the same O*NET task.

<u>O*NET tasks</u>

1. Maintain accurate, detailed reports and records.
2. Administer medications to patients and monitor patients for reactions or side effects.
3. Record patients' medical information and vital signs.
4. Monitor, record, and report symptoms or changes in patients' conditions.
5. Consult and coordinate with healthcare team members to assess, plan, implement, or evaluate patient care plans.
6. Modify patient treatment plans as indicated by patients' responses and conditions.
7. Monitor all aspects of patient care, including diet and physical activity.
8. Direct or supervise less-skilled nursing or healthcare personnel or supervise a particular unit.
9. Prepare patients for and assist with examinations or treatments.
10. Instruct individuals, families, or other groups on topics such as health education, disease prevention, or childbirth and develop health improvement programs.
11. Assess the needs of individuals, families, or communities, including assessment of individuals' home or work environments, to identify potential health or safety problems.
12. Prepare rooms, sterile instruments, equipment, or supplies and ensure that stock of supplies is maintained.
13. Refer students or patients to specialized health resources or community agencies furnishing assistance.
14. Consult with institutions or associations regarding issues or concerns relevant to the practice and profession of nursing.
15. Inform physician of patient's condition during anesthesia.
16. Administer local, inhalation, intravenous, or other anesthetics.
17. **Provide health care, first aid, immunizations, or assistance in convalescence or rehabilitation in locations such as schools, hospitals, or industry.**
18. Hand items to surgeons during operations.
19. Observe nurses and visit patients to ensure proper nursing care.
20. Conduct specified laboratory tests.
21. Direct or coordinate infection control programs, advising or consulting with specified personnel about necessary precautions.
22. Engage in research activities related to nursing.
23. Prescribe or recommend drugs, medical devices, or other forms of treatment, such as physical therapy, inhalation therapy, or related therapeutic procedures.
24. Order, interpret, and evaluate diagnostic tests to identify and assess patient's condition.
25. Perform physical examinations, make tentative diagnoses, and treat patients en route to hospitals or at disaster site triage centers.

26. **Perform administrative or managerial functions, such as taking responsibility for a unit's staff, budget, planning, or long-range goals.**
27. Provide or arrange for training or instruction of auxiliary personnel or students.
28. Work with individuals, groups, or families to plan or implement programs designed to improve the overall health of communities.

Note: Bold lettering indicates that the task was not selected by at least 2 raters as being a match.

Original tasks from Spanish Job Postings

1. Mantendrá y actualizará los registros bajo su responsabilidad y / o área de trabajo.
2. Preparar y supervisar la administración de medicamentos a pacientes y su monitoreo de cuidado.
3. Registrar en la historia clínica toda la información disponible de los problemas identificados en individuos.
4. Observar y reportar sobre todos los cambios que puedan ocurrir en el estado del paciente.
5. Tener alta relación laboral interdepartamental para atender directamente al paciente de acuerdo al plan de actuación de enfermería, llevando a cabo los tratamientos y curas necesarias, aportando unos cuidados de excelente calidad.
6. Administrar y modificar los tratamientos y medicaciones prescritos por profesionales médicos por cambios en el estado del paciente.
7. Observar e informar sobre todos los cambios que puedan ocurrir en el estado del paciente. También, monitoriza su estado médico, su actividad física y su alimentación.
8. Funcionar como un modelo a seguir ayudando en la organización y supervisión de auxiliares de enfermería cuando proceda y tutelando a estudiantes o unidades de enfermería.
9. Preparar y ofrecer instrucciones para el tratamiento del paciente.
10. Facilitar tratamiento preventivo, curativo y paliativo, promover la salud y la adquisición de hábitos saludables y habilidades que favorezcan las conductas saludables a través de programas dirigidos a toda la comunidad, e informar sobre problemas frecuentes (enfermedades transmisibles, prevención de accidentes, etc.), cómo prevenirlos.
11. Asesorar en materia de enfermería en los ámbitos de hogar, institucional, municipal, y provincial para implementar modelos de identificaión, intervención, y promoción de la salud en la comunidad.
12. Preparar a los pacientes para las operaciones y comprueba el equipo y los suministros y Preparar todo lo relacionado en el área asignada para garantizar un buen funcionamiento del servicio.
13. *Ser el referente de salud y el nexo de unión entre los diferentes organismos de salud (Centro de Atención Primaria, Servicio de Odontopediatría, Salud Pública, Unidad de Prevención Comunitaria, etc.) facilitando la puesta en marcha de los distintos programas de promoción de la salud que ofertan las Administraciones Públicas y Privadas.*

14. Colaborar con grupos de investigación desarrollando el trabajo de campo en el ámbito escolar, difundir los resultados de los estudios a través de revistas científicas y participación en congresos, y consultar en revistas científicas y congresos sobre casos del trabajo de enfermería.
15. Tomar decisiones, controlar, y ejecutar la administración de analgésicos y antipiréticos e informar al médico sobre la condición del paciente.
16. Ejecutar la preparación y administración de medicacion por vía rectal, oral, subcutánea e intramuscular.
17. Asistir al equipo médico en pre-operatorios y operaciones.
18. Realizar visitas de seguimiento y asesoramiento.
19. Ayudar o gestionar con las muestras y análisis de laboratorio.
20. Dirigir el equipo de enfermería en unidades de atención comunitarias e infecciones.
21. *<u>Abordar con rigor metodológico el estudio de actividades de enfermeria con el fin de ampliar y profundizar en el conocimiento enfermero y evaluar la práctica y sus efectos, definen esta función.</u>*
22. Realizar recomendaciones dirigidas a madres-padres, y personal docente y no docente sobre varios procedimientos comunes y medicinas.
23. Realizar e intepretar exámenes de salud, técnicas, y procedimientos de métodos diagnósticos.
24. Realizar métodos diagnósticos y exámenes de salud.
25. Colaborar activamente con el resto de profesionales de la unidad para cubrir necesidades asistenciales.
26. Colaborar con médicos y otros profesionales de la unidad para planear modelos de intervención de promoción de la salud en la Comunidad.
27. Promover una efectiva relación laboral interdepartamental y trabajar eficazmente como miembro de un equipo para facilitar la consecución de objetivos y metas del departamento.
28. Participará en la realización de las auditorías y evaluaciones anuales, internas y / o externas, de la provisión del programa integral de apoyo psicosocial así como evaluar la satisfacción de las personas con cáncer y su entorno que se hayan beneficiado.
29. Dar la atención, monitorea la continuidad y proporciona apoyo social.
30. Señala si hay cambios en el estado de salud del cliente.
31. Prestar asistencia indirecta al paciente manteniendo el entorno y los materiales de trabajo en excelentes condiciones de manera que los procesos asistenciales puedan ser llevados a cabo correctamente.
32. **Atender al residente encamado por enfermedad, efectuando los cambios posturales prescritos, controlando el servicio de comidas a los enfermos y suministrando directamente a aquellos pacientes que dicha alimentación requiera instrumentalización.**

Note: Bold lettering indicates that the task was not selected by at least 2 raters as being a match; Italics and underlined lettering indicates that the task was only selected by 1 rater as being a match.

<u>Original tasks from Spanish Job Postings (Translated from Spanish)</u>
1. Maintains and updates records under your responsibility and / or work area.
2. Prepares and supervises the administration of medications to patients and monitor their care.

3. Records in the clinical history all the available information of the problems identified in individuals.
4. Observes and reports on all changes that may occur in the patient's condition.
5. Develops interdepartmental labor relationship to directly treat patients according to the nursing action plan, carrying out the necessary treatments and cures, providing excellent quality care.
6. Administers and modifies the treatments and medicines prescribed by medical professionals due to changes in the patient's condition.
7. Observes and reports all changes that may occur in the patient's condition. It also monitors your medical condition, your physical activity and your diet.
8. Functions as a role model to help in the organization and supervision of nursing auxiliaries when appropriate and to supervise nursing students or units.
9. Prepares and offers instructions for the treatment of the patient.
10. Facilitates preventive, curative and palliative treatment, promote health and the acquisition of healthy habits and skills that favor healthy behaviors through programs addressed to the entire community, and report on common problems (communicable diseases, accident prevention, etc.) and on how to prevent them.
11. Advises on nursing matters in home environment and institutional, municipal, and provincial areas to implement models of identification, intervention, and health promotion in the community.
12. Prepares patients for operations and check equipment and supplies and prepare everything related to the assigned area to ensure proper operation of the service.
13. *<u>Serves as referral for health and the link between the different health organizations (e.g., Primary Care Center, Pediatric Dentistry Service, Public Health, Community Prevention Unit, etc.) facilitating the implementation of the different health promotion programs offered by Public and Private Administrations.</u>*
14. Collaborates with research groups developing field work, disseminates the results of studies through scientific journals and participation in congresses, and consults in scientific journals and congresses on cases about the nursing job.
15. Makes decisions, control, and execute the administration of analgesics and antipyretics and inform the doctor about the patient's condition.
16. Performs the preparation and administration of medication rectally, orally, subcutaneously and intramuscularly.
17. Assists the medical team in pre-operative and operations.
18. Makes follow-up visits and advice.
19. Helps or manages with samples and laboratory analysis.
20. Leads the nursing team in community or infection care units.
21. **Approaches with methodological rigor the study of nursing activities in order to expand and deepen in Nursing knowledge and evaluate the practice and its effects define this function.**
22. Makes recommendations directed to mother, parents, and teaching and non-teaching staff about several common procedures and medicines.
23. Conducts and interprets health exams, techniques, and diagnostic methods procedures.
24. Performs diagnostic methods and health/physical examinations.
25. Actively collaborates with the rest of the professionals of the unit to cover assistance needs.

26. Collaborates with doctors and other professionals in the unit to plan intervention models for health promotion in the Community.
27. Promotes an effective interdepartmental labor relationship and work effectively as a member of a team to facilitate the achievement of the department's objectives and goals.
28. Participates in the performance of audits and annual assessments, internal and / or external, of the provision of the comprehensive psychosocial support program as well as assessing the satisfaction of people with cancer and their environment who have benefited.
29. Gives attention, monitor continuity and provide social support.
30. Indicates if there are changes in the client's health status.
31. Provides indirect assistance to the patient by maintaining the environment and working materials in excellent conditions so that the care processes can be carried out correctly.
32. *Treats the resident bedridden due to illness, making the prescribed postural changes, controlling the food service to the sick and providing directly to those patients that said feeding requires instrumentalization.*

Note: Bold lettering indicates that the task was not selected by at least 2 raters as being a match; Italics and underlined lettering indicates that the task was only selected by 1 rater as being a match.

APPENDIX C

DEMOGRAPHICS FORM

Demographics Form

English

Demographics

1. From what country are you taking the survey?
2. What is your nationality?
3. What is your race/ethnicity?
4. What is your age?
5. What is your gender?
7. What is your current job title?
8. What is the highest level of education that you have completed (1 = middle school; 2 = high school; 3 = 2-year degree; 4 = Bachelor's degree or equivalent; 5 = Master's or equivalent; 6 = Ph.D. or equivalent)?

Spanish

1. De que país está usted tomando el cuestionario?
3. Cuál es su nacionalidad?
4. Cuál es su edad?
5. Cuál es su género?
7. Cuál es su título actual en su trabajo?
8. Cuál es el nivel más alto de educación que ha completado (1= escuela básica; 2 = preparatoria o bachiller; 3 = educación de 2 años; 4 = universidad de 4 años, como BSN; 5 = Maestría o equivalente; 6 = Ph.D. o equivalente)?

APPENDIX D

CENTRALIZATION SCALE

(English Version)

Indicate your level of agreement to the following statements: using 4-point Likert-type anchors, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree).

1. There can be little action taken here until a supervisor approves a decision.
2. A person who wants to make his own decisions would be quickly discouraged here.
3. Even small matters have to be referred to someone higher up for a final answer.
4. Unit members have to ask their supervisor before they do almost anything.
5. Most decisions people make here have to have their supervisor's approval.

(Spanish Version) (Translated using panel)

Por favor indique su nivel de acuerdo o desacuerdo con las siguientes declaraciones: Utilize el rango desde 1 (Totalmente en desacuerdo) a 4 (Totalmente de acuerdo)

1. Aquí se pueden adoptar pocas medidas hasta que un supervisor apruebe una decision.
2. Una persona que quiera tomar sus propias decisiones en este lugar sería rápidamente desanimado.
3. Hasta los asuntos triviales o pequeños tienen que ser referidos a un superior para obtener una respuesta final.
4. Las personas de aquí necesitan preguntarle a su supervisor antes de realizar casi cualquier acción.
5. La mayoría de las decisions que las personas toman aquí deben tener la aprobación de su supervisor.

APPENDIX E

PROCEDURAL JUSTICE SCALE

(English Version)

The following items refer to the procedures used to arrive at your outcomes (for example, meet objectives, effort, number of hours worked, etc.). Use a 5-point scale with anchors of 1 (To a small extent) to 5 (To a large extent). To what extent:

1. Have you been able to express your views and feelings during those procedures?
2. Have you had influence over the outcome arrived at by those procedures?
3. Have those procedures been applied consistently?
4. Have those procedures been free of bias?
5. Have those procedures been based on accurate information?
6. Have you been able to appeal the outcome arrived at by those procedures?
7. Have those procedures upheld ethical and moral standards

(Spanish Version)

Las siguientes preguntas hacen referencia a los procedimientos o criterios utilizados para alcanzar tus recompensas (por ejemplo, logro de objetivos, esfuerzo, horas trabajadas, etc.). Utilize una escala del 1 (Hasta un punto muy pequeño) al 5 (Hasta un gran punto) para responder. Hasta que punto:

1. ¿Has sido capaz de expresar tus puntos de vista y sentimientos ante los procedimientos utilizados para dar recompensas?
2. ¿Has tenido influencia sobre las recompensas obtenidas a partir de dichos procedimientos?
3. ¿Los procedimientos para dar recompensas han sido aplicados consistentemente (de la misma manera a todos los empleados)?

4. ¿Los procedimientos para dar recompensas han sido aplicados de manera neutral (sin prejuicios)?
5. ¿Los procedimientos para dar recompensas se han basado en información precisa?
6. ¿Has sido capaz de apelar o solicitar las recompensas laborales que mereces según dichos procedimientos?
7. ¿Los procedimientos para dar recompensas se han basado en estándares éticos y morales?

APPENDIX F

ROLE AMBIGUITY SCALE

(English Version)

Please indicate your level of agreement with the following statements about your job using 7-point Likert-type anchors, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

1. I feel certain about how much authority I have (R).
2. Clear, planned goals and objectives exist for my job (R).
3. I know that I have divided my time properly (R).
4. I know what my responsibilities are (R).
5. I know exactly what is expected of me (R).
6. Explanation is clear of what has to be done (R).

(Spanish Version) (Translated using panel)

Por favor indique su nivel de acuerdo o desacuerdo con las siguientes declaraciones con respect a su trabajo: Utilize el rango desde 1 (Totalmente en desacuerdo) a 7 (Totalmente de acuerdo)

1. Me siento seguro de cuánta autoridad tengo (R).
2. Existen metas y objetivos claros y planificados para mi trabajo (R).
3. Sé que he distribuido mi tiempo apropiadamente (R).
4. Sé cuáles son mis responsabilidades (R).
5. Sé exactamente lo que se espera de mí (R).
6. La explicación de lo que hay que hacer es clara (R).

APPENDIX G

INNOVATIVE CLIMATE SCALE

(English Version)

Please indicate your level of agreement with the following statements about your job using 5-point Likert-type anchors, ranging from 1 (Disagree) to 5 (Agree).

1. People in my workgroup are encouraged to come up with innovative solutions to work-related problems
2. Our workgroup has established a climate where employees can challenge our traditional way of doing things.
3. In my experience, our workgroup learns from the activities of other groups in this hospital or clinic.
4. In my experience, our workgroup learns from the activities of other hospitals or clinics.

(Spanish Version) (Translated using panel)

Por favor indique su nivel de acuerdo o desacuerdo con las siguientes declaraciones con respect a su trabajo: Utilize el rango desde 1 (En desacuerdo) a 7 (De acuerdo)

1. Los empleados en mi grupo de trabajo son motivados a desarrollar soluciones innovadoras a problemas relacionados con el trabajo.
2. Nuestro grupo de trabajo ha establecido un ambiente en donde los empleados pueden retar o cambiar la manera tradicional de hacer las cosas.
3. En mi experiencia, en nuestro grupo de trabajo los empleados aprenden de las actividades de otros grupos en este hospital o clínica.
4. En mi experiencia, en nuestro grupo de trabajo los empleados aprenden de las actividades de otros hospitals o clínicas.

APPENDIX H

WORK-LIFE CONFLICT SCALE

(English Version)

Please indicate your level of agreement with the following statements about your job using 5-point Likert-type anchors, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

1. The demands of my work interfere with my home and family life.
2. The amount of time my job takes up makes it difficult to fulfill family responsibilities.
3. Things I want to do at home do not get done because of the demands my job puts on me.

3. My job produces strain that makes it difficult to fulfill family duties.
4. Due to work-related duties, I have to make changes to my plans for family activities.

(Spanish Version) (Translated using panel)

Por favor indique su nivel de acuerdo o desacuerdo con las siguientes declaraciones con respect a su trabajo: Utilize el rango desde 1 (Totalemente en desacuerdo) a 5 (Totalemente en acuerdo)

1. Las exigencias de mi trabajo interfieren con mi vida familiar y de hogar.
2. La cantidad de tiempo que demanda mi trabajo dificulta el cumplimiento de mis responsabilidades familiares.
3. Las cosas que quiero hacer en my casa no se hacen debido a las exigencies de mi trabajo.
4. Mi trabajo me produce tal tensión que hace que me sea difícil cumplir con mis deberes familiares.

5. Debido a responsabilidades relacionados con el trabajo, he tenido que hacer cambios en mis planes de actividades familiares.

APPENDIX I

REWARDS AND RECOGNITION SCALE

(English Version)

Indicate the extent to which you receive various outcomes for performing your job well using (5-point scale with anchors (1) to a small extent to (5) a large extent)

1. A pay raise.
2. Job security.
3. A promotion.
4. More freedom and opportunities.
5. Respect from the people you work with.
6. Praise from your supervisor.
7. Training and development opportunities.
8. More challenging work assignments.
9. Some form of public recognition (e.g. employee of the month).
10. A reward or token of appreciation (e.g. lunch).

(Spanish Version) (Translated using panel)

Por favor indique hasta que punto usted recibe varias recompensas o reconocimientos en las siguientes áreas por haber realizado un buen trabajo. 1= Hasta un punto muy pequeño A 5= Hasta un punto muy grande:

1. Un aumento de sueldo.
2. Seguridad de empleo.
3. Un ascenso/una promoción.
4. Más libertad laboral y oportunidades.
5. Respeto de las personas con las que trabaja.

6. Reconocimiento de parte de su supervisor.
7. Oportunidades de entrenamiento y desarrollo professional.
8. Asignaciones de trabajos que representen un reto o desafío.
9. Alguna forma de reconocimiento público (por ejemplo, título de empleado del mes).
10. Una recompensa o muestra de aprecio (por ejemplo, invitación a almorzar).

APPENDIX J

PERCEIVED WORKLOAD SCALE

(English Version)

Indicate the amount of work using 5-point Likert-type anchors, ranging from 1 (Less than once per month or never) to 5 (Several times per day).

1. How often does your job require you to work very fast?
2. How often does your job require you to work very hard?
3. How often does your job leave you with little time to get things done?
4. How often is there a great deal to be done?
5. How often do you have to do more work than you can do well?

(Spanish Version) (Translated using panel)

Por favor indique la cantidad de trabajo que realiza utilizando la escala desde el 1 (Menos de una vez al mes o nunca) al 5 (Varias veces al día).

1. ¿Con qué frecuencia su trabajo requiere que usted trabaje muy rápido?
2. ¿Con qué frecuencia su empleo requiere que usted trabaje muy intensamente?
3. ¿Con qué frecuencia su trabajo le deja con poco tiempo para terminar las cosas?
4. ¿Con que frecuencia hay mucho que hacer?
5. ¿Con qué frecuencia tiene que hacer más trabajo del que puede hacer bien?

APPENDIX K

COWORKER SUPPORT SCALE

(English Version)

The following questions ask about the extent to which other people provide you with help or support. Response scale: 1 (not at all) to 5 (completely). *To what extent can you:*

1. Count on your colleagues to listen to you when you need to talk about problems at work?
2. Count on your colleagues to back you up at work?
3. Count on your colleagues to help you with a difficult task at work?
4. Really count on your colleagues to help you in a crisis situation at work, even though they would have to go out of their way to do so?

(Spanish Version) (Translated using panel)

Las siguientes preguntas hacen referencia hasta que punto usted recibe ayuda o apoyo de sus compañeros de trabajo. Responda con la escala del 1(Cero ayuda o apoyo (no en absoluto)) al 5 (Ayuda o apoyo absoluto (Completamente)). *Hasta que punto puede usted:*

1. ¿Contar con sus colegas para escucharle cuando usted necesite hablar sobre problemas en el trabajo?
2. ¿Contar con sus colegas para que lo respalden en el trabajo?
3. ¿Contar con sus colegas para ayudarle con una tarea difícil en el trabajo?
4. ¿Realmente contar con sus colegas para que lo ayuden en una situación de crisis en el trabajo, a pesar de que ellos tendrían que salirse de su rutina para hacerlo?

APPENDIX L

DISTRIBUTIVE JUSTICE SCALE

(English Version)

The following items refer to the outcome (for example, salary raise, promotions, recognition, etc.) that you have received for your work. Use the scale 1 (To a very small extent) to 5 (To a very large extent). To what extent:

1. Does your outcome reflect the effort you have put into your work?
2. Is your outcome appropriate for the work you have completed?
3. Does your outcome reflect what you have contributed to the organization?
4. Is your outcome justified, given your performance?

(Spanish Version)

Las siguientes preguntas hacen referencia a las recompensas (por ejemplo, aumentos de salario, reconocimientos, ascensos, etc.) que como empleado ha recibido. Use la escale del 1 (Hasta un punto muy pequeño / Casi nunca) al 5 (Hasta un punto muy grande / Mucho o casi siempre). Hasta qué punto:

1. ¿Tus recompensas reflejan el esfuerzo que has puesto en tu trabajo?
2. ¿Tus recompensas son apropiadas para el trabajo que has terminado?
3. ¿Tus recompensas reflejan lo que has contribuido a la organización?
4. ¿Tus recompensas son justas teniendo en cuenta tu desempeño?

APPENDIX M

BURNOUT SCALE

(English Version)

Indicate your level of agreement to the following statements using a 4-point Likert-type anchors, ranging from 1 (Strongly Agree) to 4 (Strongly Disagree).

1. I always find new and interesting aspects in my work.
2. There are days when I feel tired before I arrive at work.
3. It happens more and more often that I talk about my work in a negative way.
4. After work, I tend to need more time than in the past in order to relax and feel better
5. I can tolerate the pressure of my work very well.
6. Lately, I tend to think less at work and do my job almost mechanically.
7. I find my work to be a positive challenge.
8. During my work, I often feel emotionally drained.
9. Over time, one can become disconnected from this type of work.
10. After working, I have enough energy for my leisure activities.
11. Sometimes I feel sickened by my work tasks.
12. After my work, I usually feel worn out and weary.
13. This is the only type of work that I can imagine myself doing.
14. Usually, I can manage the amount of my work well.
15. I feel more and more engaged in my work.
16. When I work, I usually feel energized.

(Spanish Version) (Translated using panel)

A continuación encontrará una serie de declaraciones con las que puede estar de acuerdo o en desacuerdo. Utilizando la escala, indique el grado de su acuerdo seleccionando el número que corresponde con cada declaración con el 1 (Totalmente en desacuerdo) al 4 (Totalmente en acuerdo):

1. Siempre encuentro aspectos nuevos e interesantes en mi trabajo.
2. Hay días en que me siento cansado antes de llegar al trabajo.
3. Sucede cada vez con más frecuencia que hablo de mi trabajo de manera negativa.
4. Después del trabajo, suelo necesitar más tiempo que en el pasado para relajarme y sentirme mejor.
5. Puedo tolerar la presión de mi trabajo muy bien.
6. Últimamente, suelo pensar menos durante horas laborales y hago mi trabajo casi mecánicamente.
7. Considero que mi trabajo es un reto positivo.
8. A menudo, me siento emocionalmente agotado durante mi trabajo.
9. Con el tiempo uno puede volverse desconectado de este tipo de trabajo.
10. Después de trabajar, tengo suficiente energía para mis actividades de ocio.
11. A veces me repugnan mis tareas laborales.
12. Después de mi trabajo, usualmente me siento cansado y agotado.
13. Este es el único tipo de trabajo que me puedo imaginar haciendo.
14. Usualmente, puedo manejar la cantidad de trabajo que tengo bien.
15. Me siento cada vez más involucrado con mi trabajo.
16. Cuando trabajo, suelo sentirme energizado.

APPENDIX N

WORK ENGAGEMENT SCALE

English Version)

Indicate your level of agreement to the following statements using a 7-point Likert-type anchors, ranging from 0 (Never) to 6 (Every Day).

1. At my work, I feel bursting with energy
2. At my job, I feel strong and vigorous
3. When I get up in the morning, I feel like going to work
4. I am enthusiastic about my job
5. I am proud on the work that I do
6. My job inspires me
7. I am immersed in my work
8. I get carried away when I'm working
9. I feel happy when I am working intensely

(Spanish Version)

Las siguientes preguntas se refieren a los sentimientos de las personas en el trabajo. Por favor, lea cuidadosamente cada pregunta y decida si se ha sentido de esta forma. Si nunca se ha sentido así conteste "nunca", y en caso contrario indique cuántas veces se ha sentido así utilizando la escala de 0 (Nunca (ninguna vez)) al 6 (Siempre (todos los dias))

1. En mi trabajo me siento lleno de energía.
2. En mi trabajo me siento fuerte y vigoroso.
3. Cuando me levanto por las mañanas tengo ganas de ir a trabajar.

4. Estoy entusiasmado con mi trabajo.
5. Estoy orgulloso del trabajo que hago.
6. Mi trabajo me inspira.
7. Estoy inmerso en mi trabajo.
8. Me “dejo llevar” por mi trabajo.
9. Soy feliz cuando estoy absorto en mi trabajo.