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A Multilevel Examination of Cultural Moderators of the Job Demands-Resources Model

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A Multilevel Examination of Cultural Moderators of the

Job Demands-Resources Model

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
Department of Psychology
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DEDICATION

I dedicate this thesis to my almighty God, my parents, my mentors, and my friends.

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"Have I not commanded you? Be strong and courageous. Do not be afraid; do not be discouraged, for the LORD your God will be with you wherever you go."

(Joshua 1:9)

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ABSTRACT

Although the Job Demands-Resources Model (JD-R) is the dominant theoretical framework used to understand the relationship between workplace factors and employee well-being, the cross-cultural generalizability of this model has seldom been directly tested. Therefore, this study examined whether and to what extent relationships between: 1) job demands (i.e., organizational constraints) and strain (i.e., job satisfaction, and turnover intentions) and 2) job resources (i.e., job control, participation in decision-making, direct supervisor support, senior leader support, and clear goals and performance feedback) and strain were moderated by cultural dimensions (i.e., individualism-collectivism and uncertainty avoidance). Survey data from workers in 28 countries were used to examine these questions. Results revealed that culture-level individualism-collectivism and uncertainty avoidance independently and significantly moderated some job demands-strain and job resources-strain outcomes relationships. Specifically, job control and senior leaders support was consistently and more strongly, negatively related to strain in more individualistic cultures, and participation in decision-making was more strongly, negatively related to strain in more collectivistic cultures when using cultural scores from both Hofstede and GLOBE taxonomies. In contrast, although I also uncovered some significant moderating effects of culture-level uncertainty avoidance on job demands-strain and job resources-strain relationships, the results from these analyses were often in the opposite pattern when GLOBE versus Hofstede cultural scores were used. Overall, the present study sheds light on the generalizability versus specificity of the JD-R model across cultural contexts.

CHAPTER ONE

INTRODUCTION

Job demands and job resources, characteristics of the work environment that employees operate within, have been shown to be consistent predictors of employee strain outcomes, including but not limited to, health (e.g., Schaufeli, & Bakker, 2004; Hakanen, Schaufeli, & Ahola, 2008), job attitudes (e.g., job satisfaction, Lewig, & Dollard, 2003; work engagement; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), and turnover intentions (e.g., Bakker, Demerouti, & Schaufeli, 2003). The dominant theory unifying the impact of job demands and resources on employee outcomes is the Job Demands-Resources Model (JD-R; Demerouti et al., 2001), which can be considered the successor or refinement to earlier models, such as the Job Demand-Control Model (Karasek, 1979) and Job Demands-Control-Support Model (Johnson & Hall, 1988). The JD-R model has been applied to explain relationships between job demands and employee outcomes and job resources and employee outcomes, additively and interactively, in a multitude of contexts, including across different national and cultural settings (e.g., Llorens, Bakker; Xie, 1996; Yang et al., 2012).

Despite its widespread appeal, limited research relative to the popularity of the model has formally examined whether and which cultural dimensions may moderate relationships within this model. Recent research suggests that country-level variation in individualism-collectivism moderates the magnitude of relationships between certain job demands and employee strain outcomes (Yang et al., 2012). Given these findings, the universal generalizability of the JD-R model deserves additional empirical investigation. Thus, the purpose of this study is to examine

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whether and to what extent cultural dimensions that vary across nations, specifically

individualism-collectivism and uncertainty avoidance, moderate relationships between job

demands and employee strain outcomes and job resources and employee strain outcomes (i.e.,

job satisfaction and turnover intentions), respectively.

The Job Demands-Resources (JD-R) Model

The JD-R has been the dominant model in the occupational health and well-being

literature used to explain how workplace factors impact employee physical and psychological

strain (Bakker, Demerouti, & Euwema, 2005; Demerouti et al., 2001). The JD-R model specifies

that there are two major determinants of employee health and well-being: 1) job demands and 2)

job resources. More specifically, job demands refer to "those physical, social, or organizational

aspects of the job that require sustained physical or mental effort and are therefore associated

with certain physiological and psychological costs (e.g., exhaustion)" (Demerouti et al., 2001, p.

501). Examples of job demands include work role demands (e.g., role conflict, overload, and

ambiguity), workload (e.g., long work hours), and organizational constraints (e.g., incomplete

job-related information, defective tools and equipment, inadequate materials and supplies, tight

budgets, limited help from others, lack of task preparation, time unavailability, and poor working

conditions; Peters, & O'Connor, 1980; Spector, & Jex, 1998). Researchers in this domain have

examined job demands at different levels of specificity or breadth; some studies have chosen to

focus more narrowly on a particular type of job demand (e.g., workload), while others have

combined across different types of job demands to examine overall job demands and its

relationships with strain outcomes.

Job demands can also be classified as either "challenge" or "hindrance" stressors

(Crawford, LePine, & Rich, 2010; Podsakoff, LePine, & LePine, 2007). Job demands that

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employees are likely to perceive as "potentially promoting their personal growth and achievement" are considered to be challenge stressors (Podsakoff et al., 2007, p. 438). For example, high levels of responsibility and time pressure are often appraised by most individuals as challenge stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000) and are typically associated with positive outcomes (Crawford et al., 2010; Podsakoff et al., 2007). In contrast, job demands that are appraised by most individuals as "potentially constraining their personal development and work-related accomplishment" are considered to be hindrance stressors (Podsakoff et al., 2007, p. 438). For example, role ambiguity, organizational politics, and role conflict are generally regarded as hindrance stressors by most individuals (Ivancevich, 1986; Ivancevich, Matteson, & Preston, 1982) and are typically associated with negative outcomes (Crawford et al., 2010; Podsakoff et al., 2007).

Within this theoretical framework, the other primary determinant of employee strain is job resources. Job resources are physical, psychological, organizational, or social job characteristics that potentially help employees to accomplish work aims, buffer job demands, and facilitate employees' personal development (Demerouti et al., 2001). Similar to job demands, researchers have examined job resources at different levels of specificity or breadth. Some models and researchers have focused more narrowly on the job resource of control (i.e., decision and/or process autonomy) or social support (i.e., helpful social interactions at work, usually with co-workers and/or supervisors; Luchman & Gonzalez-Morales, 2013). However, other researchers have also included additional types of resources, such as participation in decision-making and task variety, either singly or in combination with control and social support (e.g., Demerouti et al., 2001). Recently, Luchman & Gonzalez-Morales (2013) meta-analytically demonstrated that control and social support were differentially associated with correlates,

suggesting that different types of resources may have distinct effects on psychological and job-related outcomes.

There is a large literature demonstrating that job demands and resources are consistently related to employees' experience of strain or negative physical, psychological, or behavioral symptoms driven by high levels of stress (e.g., Alarcon, 2011; Crawford et al., 2010; Gilboa, Shirom, Fried, & Cooper, 2008; Podsakoff et al., 2007). Job demands generally show positive relationships with strain and job resources generally show negative relationships with strain. Researchers tend to use the term strain fairly inclusively and have operationalized it in a variety of ways, ranging from physical health (e.g., cardiovascular disease, Johnson & Hall, 1988; sickness due to absenteeism, Vahtera, Pentti, & Uutela, 1996) to mental health (e.g., emotional exhaustion, Jonge, Janseen, & Van Breukelen, 1996; depression, Hakanen et al., 2008) to job attitudes (e.g., work engagement, Demerouti et al., 2001; job satisfaction, Xie, 1996) to turnover intentions (e.g., Korunka, Kubicek, Schaufeli, & Hoonakker, 2009). In general, regardless of the specific operationalization of strain used, most studies have found that job demands and job resources are robustly related to employee strain. For example, Crawford et al. (2010) found that job demands ($\rho = .25$) and job resources ($\rho = -.25$) were both similarly related to burnout, but that different types of job demands demonstrated differential relationships with engagement, with challenge stressors exhibiting positive relationships with engagement ($\rho = .21$) and hindrance stressors exhibiting negative relationships with engagement ($\rho = -.19$).

In his original conceptualization, Karasek (1979) argued that job demands and job resources, specifically the job resource of control, should *interact* to predict employee strain outcomes. In particular, it was posited that high control should buffer one against the negative effects of having high job demands. Although there is some support for the interactive effects of

job demands and resources in the literature (e.g., Salanova, Peiró, & Schaufeli, 2002; Meier, Semmer, Elfering, & Jacobshagen, 2008), generally support for this proposition has been quite inconsistent (e.g., de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Van der Doef & Maes, 1999). Thus, in line with previous research (e.g., Luchman & Gonzalez-Morales, 2013), in the present study I focus on the main effects of job demands and job resources, respectively, on employee strain outcomes, given consistent support for additive rather than interactive relationships in the literature (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010).

Existing Cross-Cultural Research on the JD-R

Cross-cultural psychologists study whether and how distinct cultural features influence people's perceptions and values in life (e.g., Hofstede, 1980; Kim, 1994). For example, perceptions of one's self-concept (e.g., Hofstede, 1980; Kim, 1994; Markus & Kitayama, 1991) and social boundaries (e.g., Kim, 1994; Morris & Leung, 2000) have been found to be shaped by one's national culture. Previous research has also revealed that culture influences people's perceptions of stressors and also influences the relationship between stressors and strain outcomes (e.g., Liu, Spector, & Shi, 2007; Schaubroeck, Lam, & Xie, 2000).

Although a number of studies linking job demands, job resources, and employee strain outcomes have been conducted in both U.S. and non-U.S. contexts (see Chang & Spector, 2011 and Chang & Baard, 2011 for reviews), including a growing number of comparative studies examining consistencies and differences among findings in different countries (e.g., Liu et al., 2007; Schaubroeck et al., 2000), relatively few studies have directly examined the moderating influence of cultural dimensions on the job demands-strain and job resources-strain relationships. This is because most comparative studies only compare results from two or three countries and often do not directly assess cultural dimensions. Given that countries differ on a number of

cultural dimensions, it is often unclear which cultural dimensions (or other differences between countries, such as affluence) are driving country-level differences when a small number of countries are being compared. Thus, the present study will contribute to the literature by examining directly whether variations in cultural dimensions across nations moderates job demands-strain and job resources-strain relationships. In line with this goal, I focus my subsequent review on studies that focus on a broad sampling of cultures or nations.

The idea of cultural dimensions moderating the relationship between job demands and employee strain outcomes is supported by three previous large-scale studies (i.e., Spector et al., 2004; Spector et al., 2007, Yang et al., 2012). Spector et al. (2004) found that the relationship between the job demand of work hours and work-to-family conflict was stronger in Anglo than Asian and Latin American country clusters. The authors explained this finding based on different perceptions of work and family domains in individualistic versus collectivistic cultures. Individuals in more individualistic cultures view the work and family domains as separate. Thus, when work hours are increased, family hours will by necessity decrease, and employees in more individualistic cultures will experience higher levels of work-family conflict. In contrast, individuals in more collectivistic cultures perceive work as a means of family financial support and view work and family domains as interdependent. In these cultures, when work hours increase, family members are likely to understand or even be appreciative. Therefore, work-family conflict may be less likely to occur in this context.

Spector et al. (2007) found that the relationship between work-to-family conflict and job satisfaction and turnover intentions, respectively, was stronger for the Anglo country cluster relative to the Latin American, Eastern European, and East Asian country clusters, which are all higher on collectivism. Similarly, in a study using samples drawn from 24 nations that directly

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compared country-level variation in individualism-collectivism, Yang et al. (2012) found that cultural differences in individualism-collectivism moderated the relationship between job demands and employee strain outcomes, such that the relationships between the job demands of perceived workload and organizational constraints and the strain outcomes of job satisfaction and turnover intentions were stronger in more individualistic countries.

From my review of the literature, I only found one large-scale study that examined cross-cultural differences in the relationship between job resources and strain. Masuda et al. (2012) examined the relationships between flexible work arrangement availability and both job satisfaction and turnover intentions across three country clusters (i.e., Anglo, Asian, and Latin American). The availability of flexible work arrangements could be considered a resource offered by organizations to promote the well-being of their employees, but is sometimes considered an organizational support rather than a job resource, as it is not necessarily a function of one's position or job role (e.g., Grotto & Lyness, 2010). Masuda et al. (2012) found that there was a positive relationship between flextime availability and job satisfaction for the Anglo cluster, but there was no relationship between the two in the Latin American cluster. Similarly, there was a negative relationship between flextime availability and turnover intentions and time- and strain-based work-to-family conflict, respectively, within the Anglo cluster, but no relationship in the Latin American cluster (or the Asian cluster for the time-based work-to-family relationship). Furthermore, although there was no relationship between telecommuting or part-time work and strain-based work-to-family conflict in the Anglo cluster, there was a positive relationship between telecommuting and strain-based work-to-family conflict in the Asian cluster and a negative relationship between part-time work and strain-based work-to-family conflict in the Latin American cluster. Thus, the more limited cross-cultural research on the relationships

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between job resources and strain outcomes also suggests that relationships are not isomorphic across cultural settings.

Overall, existing research supports the claim that cultural dimensions moderate the relationships between job demands and strain outcomes and may also moderate the relationships between job resources and strain outcomes. However, my review of the literature also reveals some limitations of the existing literature that this present study seeks to improve upon. First, my review of the literature reveals that there has been more research examining the moderating effect of cultural dimensions on the relationship between job demands and employee strain than the relationship between job resources and employee strain. Given that both job demands and job resources are core constructs in the JD-R model, this asymmetrical focus on demands to the exclusion of resources in the literature deserves a remedy. In the only large-scale cross-cultural study that I found examining whether cultural dimensions moderated the relationship between job resources and strain outcomes, the focus was on flexible work arrangements, which some may not necessarily consider a job resource, but rather an organizational support. Thus, this present study contributes to the literature by examining whether cultural dimensions that vary across nations moderates the relationship between different types of job resources and two indices of employee strain (i.e., job satisfaction and turnover intentions).

A second contribution of the present study is to explore the moderating effect of cultural dimensions besides individualism-collectivism. My review of the literature reveals that the vast majority of theorizing and empirical research in this literature focuses on this cultural dimension – arguing and finding that job demands and resources are more salient and strongly linked to employee outcomes in more individualistic societies. However, Hofstede (2001) and other cross-cultural researchers have suggested and shown that nations differ on a number of cultural

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dimensions, including power distance, masculinity-femininity, uncertainty avoidance, and time orientation (i.e., short versus long-term). Other cultural dimensions besides individualism-collectivism may be driving the moderating effect of culture found for the relationships between job demands and employee outcomes and between job resources and employee outcomes, given that previous work has found that several cultural dimensions are non-trivially inter-correlated (Hofstede, 2001). Alternatively, these other cultural dimensions may affect the relationships between job demands-strain or job resources-strain independently and differently than individualism-collectivism. Thus, this proposed study will examine whether cultural dimensions besides individualism-collectivism also explains variation across nations in relationships of the JD-R model.

The Role of Cultural Dimensions

Although prior research in this domain has focused its theorizing on one cultural dimension, individualism-collectivism, prior work has established that there are a number of cultural dimensions that vary across cultures. In particular, Hofstede's (2001) five cultural dimensions and GLOBE's nine-dimension solution (House, Hanges, Javidan, Dorfman, & Gupta, 2004) are the most commonly used taxonomies in cross-cultural research. In the present study, I chose to employ conceptually and empirically overlapping cultural dimensions from these two taxonomies. House et al. (2004) explained that GLOBE's nine cultural dimensions originated in part from Hofstede's five cultural dimensions. Specifically, three GLOBE cultural dimensions, *power distance, uncertainty avoidance, and individualism-collectivism* were directly adapted from Hofstede's model. However, for the individualism-collectivism dimension, the GLOBE studies found that this dimension should be further divided into two factors (House et al., 2004): in-group collectivism and institutional collectivism. Also, although the Hofstede's

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other two cultural dimensions, *masculinity-femininity* and *short-term versus long-term orientation,* are not conceptually the same as the GLOBE's cultural dimensions of *gender egalitarianism, assertiveness, and future orientation*, the three dimensions were heavily influenced by Hofstede's original cultural dimensions (House et al., 2004).

However, in spite of conceptual similarities between at least some of the cultural dimensions within the Hofstede and GLOBE models, the empirical evidence demonstrates that the relationship between scores on these dimensions range from substantial to non-existent. Javidan, House, Dorfman, Hanges, and de Luque (2006) examined relationships between Hofstede's dimensions and GLOBE's *practices* dimensions. They found relatively strong relationships between the two model's assessment of power distance ($r = .78$), uncertainty avoidance ($r = -.42$), and individualism-collectivism dimension and GLOBE's in-group collectivism dimension ($r = -.82$ for GLOBE's in-group collectivism and $r = -.31$ for institutional collectivism). Although there is evidence of convergence for some cultural dimensions, as shown above, there is lack of convergence for others. Specifically, there are no or relatively weak relationships between Hofstede's masculinity-femininity dimension and GLOBE's gender egalitarianism dimension ($r = -.24$) and between Hofstede's short-term vs. long-term orientation dimension and GLOBE's future orientation dimension ($r = .03$). Due to the lack of empirical convergence between the two models for these two dimensions, I do not examine masculinity-femininity/gender egalitarianism or short-term vs. long-term orientation/future orientation in this present investigation. This means that there are three dimensions that are conceptually similar across the two models: *individualism-collectivism, uncertainty avoidance,* and *power distance*.

Unfortunately, previous work also shows that cultural dimensions are not independent (Kaasa & Vadi, 2010). In fact, there are modest to substantial correlations between certain

dimensions. Drawing on reports of country-level scores from Hofstede (2001), I found substantial correlations between three dimensions, specifically individualism-collectivism, power distance, and short vs. long-term orientation, ranging from |.26| to |.56|. Thus, more individualistic cultures are also more likely to be lower on power distance and possess shorter-term orientations. Furthermore, within the subset of countries represented in the present investigation, where there is greater representation of European and Asian countries, correlations among these three cultural dimensions are even higher, ranging from |.45| to |.80|. Given the high correlations found between individualism-collectivism and power distance (e.g., Triandis & Gelfand, 1998), raising concerns regarding multi-collinearity, the present study will focus on the two dimensions that have been shown to be conceptually similar across Hofstede and GLOBE taxonomies and demonstrate only modest overlap with each other: individualism-collectivism and uncertainty avoidance. Note that individualism-collectivism rather than power distance was retained because this dimension has been the cultural dimension that has been the most frequently studied in this literature (e.g., Triandis, 1995; Kagitçibasi, 1994) and has been shown previously to moderate relationships in the JD-R model (e.g., Yang et al., 2012). Note that this approach is also in line with previous research in IO/OB that takes a configural approach to cultural dimensions, classifying cultures as horizontal individualism (i.e., high individualism combined with low power distance) or vertical collectivism (i.e., high collectivism combined with high power distance), given patterns of associations between cultural dimensions (e.g., Rockstuhl, Dulebohn, Ang, & Shore, 2012).

Individualism-collectivism is the most widely studied cultural dimension (e.g., Wagner, 1995; Ramamoorthy & Flood, 2004), including in the domain of cultural moderators of relationships in the JD-R model (e.g., Yang et al., 2012). Individualism is the tendency to prefer

independence rather than interdependence (Hofstede, 2001). In more individualistic societies, one's self-concept is primarily determined by one's individual identity rather than one's social and/or group identities. In contrast, in more collectivistic societies, individuals prefer to depend on family or other group members and tend to identify themselves based on group memberships (Bochner, 1994). In the GLOBE studies, individualism-collectivism was separated into two dimensions: in-group collectivism and institutional collectivism (House et al., 2004). In-group collectivism is defined as the extent to which individuals show their loyalty to, dependence on, and pride in their families. For example, households in which adults reside with either elderly parents or adult unmarried children are an example of higher levels of in-group collectivism. On the other hand, institutional collectivism focuses on the distribution of collective rewards or resources and collective behaviors in an organization or a society. If an organization or a society emphasizes group cohesion or encourages a sense of group membership, then that organization or society demonstrates higher levels of institutional collectivism.

The next cultural dimension I am focusing on is uncertainty avoidance. Hofstede (2001) defined uncertainty avoidance as the degree to which individuals within a culture are stressed by ambiguous situations (Hofstede, 2001). Similarly, House et al. (2004) defined uncertainty avoidance as "the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events" (p. 30). In higher uncertainty avoidance cultures, individuals desire high levels of security, have strong faith in experts, and tend to take a longer time to make a decision. In contrast, in lower uncertainty avoidance cultures, individuals are more willing to take risks, have less organized activities, and tend to make decisions more quickly.

Hypotheses

In the present investigation, I will examine to what extent different types of job demands and job resources impact two employee strain outcomes (i.e., job satisfaction and turnover intentions). Specifically, I will be focusing on the job demand of organizational constraints and the job resources of job control, participation in decision-making, supervisor support, senior leader support, and clear goals and performance feedback. These operationalizations of job demands and resources are in line with previous research (e.g., Crawford et al., 2010).

Previous research has shown that organizational constraints is a hindrance stressor and shows moderate to strong negative relationships with job attitudes and positive relationships with turnover intentions (Podsakoff et al., 2007). In contrast, previous research has generally theorized and shown that all job resources appear to have similar, positive relationships with job attitudes (Crawford et al., 2010). Thus, I expect each type of job resource and the overall job resources an employee possesses to be positively related to job satisfaction and negatively related to turnover intentions.

Hypothesis 1: Organizational constraints is a) negatively related to job satisfaction and b) positively related to turnover intentions.

Hypothesis 2: Job control is a) positively related to job satisfaction and b) negatively related to turnover intentions.

Hypothesis 3: Supervisor support is a) positively related to job satisfaction and b) negatively related to turnover intentions.

Hypothesis 4: Senior leader support is a) positively related to job satisfaction and b) negatively related to turnover intentions.

Hypothesis 5: Participation in decision-making is a) positively related to job satisfaction

and b) negatively related to turnover intentions.

Hypothesis 6: Clear goals and performance feedback is a) positively related to job

satisfaction and b) negatively related to turnover intentions.

Moderating Effects of Cultural Dimensions on Job Demands–Strain Relationships

Individuals' perceptions and life values, including their definitions regarding quality of

life (e.g., Hofstede, 1980), are likely to be affected by culture (e.g., Hofstede, 1984). Therefore, I

expect that individuals' perceptions about the meaning and impact of job demands are likely to

differ across cultures, leading to differences in employees' well-being. However, I do not expect

that both cultural dimension moderates every single job demand-strain or job resource-strain

relationship. Below, I detail the cultural dimensions I believe will moderate the relationship

between organizational constraints and job satisfaction and turnover intentions, respectively.

Individualism-collectivism. According to Yang et al. (2012), people in more

individualistic countries regard organizational constraints as an organizational problem. In other

words, they attribute organizational constraints to external causes due to high self-serving

attribution biases (Heider, 1976). On the other hand, employees in more collectivistic cultures

tend to perceive organizational constraints or organizational problems as their own. Thus, people

in more individualistic cultures, who tend to attribute job demands to external factors, are likely

to perceive the same job demands as more undesirable and report stronger negative job attitudes

as a consequence. Yang et al.'s (2012) empirical results corroborated their line of reasoning.

Thus, I anticipate the following:

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Hypothesis 7. Individualism-collectivism will moderate the relationship between

organizational constraints and (a) job satisfaction and (b) turnover intentions, such that

the relationships will be stronger in more individualistic cultures.

Uncertainty Avoidance. Individuals in cultures scoring higher in uncertainty avoidance

tend to be anxious and nervous when they are faced with unstructured, unpredictable, or unclear

situations (Hofstede, 1984). Organizational constraints are often unstructured, unpredictable, or

unclear. For example, poor working conditions reflect an unstructured environment and may

result in unpredictable risks, such that employees' work can be hampered or stopped without

notice due to faulty equipment. Furthermore, employees in higher uncertainty avoidance cultures

have a greater fear of failure and typically try to avoid risks (Hofstede, 2001). Given that

organizational constraints may hinder work processes, which may lead to a greater likelihood of

failure on the job, organizational constraints may be seen as more stressful in higher uncertainty

avoidance cultures. Therefore, I hypothesized that individuals in higher uncertainty avoidance

cultures experience more strain as a result of organizational constraints than individuals in lower

uncertainty avoidance cultures.

Hypothesis 8. Uncertainty avoidance will moderate the relationship between

organizational constraints and (a) job satisfaction and (b) turnover intentions, such that

the relationships will be stronger in higher uncertainty avoidance cultures.

Moderating Effects of Cultural Dimensions on Job Resources–Strain Relationships

Similar to the anticipated moderating effects of cultural dimensions on relationships

between job demands and strain, I also anticipate that some cultural dimensions will moderate

relationships between job resources and strain outcomes, as individuals are likely to

differentially value resources across cultures (e.g., O'Connor, & Shimizu, 2002; Liu, Spector,

Liu, & Shi, 2011). For example, O'Connor et al. (2002) argued that the job resource of control

was seen as more desirable in more individualistic cultures, since people in more individualistic

cultures see job control as a means to attain personal success via personal actions. In contrast,

people in more collectivistic cultures are generally satisfied with lower levels of control over

their successes and personal actions. They found support for their assertions, as personal control

and stress was significantly negatively correlated in their British sample ($r = -.32$, $p < .01$), but

not in their Japanese sample ($r = -.01$, $p > .05$). Below, I detail the cultural dimensions I believe

will moderate the relationships between various job resources and job satisfaction and turnover

intentions, respectively.

Job control. Individuals in more individualistic cultures tend to emphasize freedom and

autonomy, and prefer individual to group decision-making (Hofstede, 2001). In contrast,

individuals in more collectivistic cultures tend to follow instruction, take responsibility, obey

orders and rules, and be more comfortable with structure (Hofstede, 2001). Generally, job

control provides workers with greater freedom regarding how to complete job tasks, resulting in

a greater sense of autonomy. Therefore, job control is expected to be more beneficial in more

individualistic cultures where autonomy is considered a virtue and more valued.

Hypothesis 9. Individualism-collectivism will moderate the relationship between control

a) job satisfaction and b) turnover intentions, such that the relationships will be stronger

in more individualistic cultures.

Individuals in higher uncertainty avoidance cultures are reluctant to take risks and favor

clear expectations and instructions, while individuals in lower uncertainty avoidance cultures are

more likely to take risks and prefer broad guidelines rather than specific rules (Hofstede, 2001).

Thus, individuals in higher uncertainty avoidance cultures tend to have lower preferences for

autonomy. Therefore, job control, should be more favored by individuals in low uncertainty avoidance cultures and should be more strongly related to their workplace outcomes.

Hypothesis 10. Uncertainty avoidance will moderate the relationship between job control and a) job satisfaction and b) turnover intentions, such that the relationships will be stronger in lower uncertainty avoidance cultures.

Participation in Decision-Making. Participation in decision-making has been recognized as an effective job resource to reduce job-related strains (e.g., Spector, 1986; Jackson, 1983; Witt, Andrews, & Kacmar, 2000) and promote positive job attitudes (e.g., Coch & French, 1948). Participation in decision-making, which induces feelings of job control (Spector, 1986), may therefore seem to be more important in more individualistic countries. However, Hofstede (2001) has argued that more collectivistic cultures tend to have strong preferences for group rather than individual decision-making, since workers in more collectivistic cultures emphasize belongingness over individuality. Thus, I anticipate that participation in decision-making should ultimately be more strongly related to positive workplace outcomes (i.e., more positive job attitudes, lower intentions to leave) for workers in more collectivistic cultures.

Hypothesis 11. Individualism-collectivism will moderate the relationship between participation in decision-making and a) job satisfaction and b) turnover intentions, such that the relationships will be stronger in more collectivistic cultures.

Participation in decision-making can also provide employees with the opportunity to fulfill their desires to achieve a sense of autonomy and responsibility in workplace, thereby leading to higher levels of job satisfaction (e.g., Driscoll, 1978; Wood, 1972). Given that individuals in lower uncertainty avoidance cultures tend to have a greater preference for autonomy, I anticipate that participation in decision-making will be more effective in reducing

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worker strain outcomes in lower uncertainty avoidance cultures. Additionally, Hofstede (2001) argued that individuals higher on uncertainty avoidance are reluctant and resistant to changing rules and regulations. Therefore, participation in decision-making may be less helpful to the health and well-being of workers in higher uncertainty avoidance cultures, who may view participating in the decision-making process as threatening, as it may suggest likelihood of changing existing rules and regulations.

Hypothesis 12. Uncertainty avoidance will moderate the relationship between participation in decision-making and a) job satisfaction and b) turnover intentions, such that the relationship will be stronger in lower uncertainty avoidance cultures.

Social Support. Social support, another type of job resource, has been shown to have consistent and substantial negative relationships with strain outcomes (e.g., Viswesvaran, Sanchez, & Fisher, 1999; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). In their meta-analysis, Viswesvaran et al. (1999) found that social support predicts lower strain, lower perceptions of potential stressors as stressful, and weakened relationships between stressors and strains. Similarly, in another meta-analysis study, Uchino et al. (1996) found that social support was related to lower cardiovascular, immune system, and endocrine levels, indicating that those with higher levels of support typically were generally in better health.

Individuals in more collectivistic cultures are more emotionally dependent on organizations and in-group members than individuals in more individualistic cultures (Hofstede, 2001). In addition, individuals in more collectivistic cultures generally prefer working together and tend to work cooperatively more frequently than those in more individualistic cultures, who tend to prefer working alone (Hofstede, 2001). Given the higher value placed on interpersonal

relationships in more collectivistic cultures, I anticipate that the beneficial effects of having social support at work is likely greater in more collectivistic cultures.

In this study, I focus on supervisor support. Previous research has found that supervisor support is more strongly related to employee job satisfaction and turnover intentions than support from other sources (i.e., co-workers, Ng & Sorensen, 2008). Previous research has also differentiated between one's direct leader and more senior leaders in the organization (i.e., top management team). Dirks and Ferrin (2002) found that trust in one's direct leader versus trust in senior leadership had differential associations with organizational outcomes, with trust in direct leader demonstrating stronger relationships with job-related outcomes (i.e., performance, satisfaction) and senior leader trust demonstrating stronger relationships with organizational outcomes (i.e., organizational commitment). Given that job satisfaction is a job-related outcome while turnover intentions is an organizational outcome, it may be that direct and senior leader support may be somewhat differential predictors of these two outcomes in the present study.

Hypothesis 13: Direct supervisor support will be more strongly related to job satisfaction than senior leader support.

Hypothesis 14: Senior leader support will be more strongly related to turnover intentions than direct leader support.

Hypothesis 15. Individualism-collectivism will moderate the relationship between direct supervisor support and a) job satisfaction and b) turnover intentions, such that the relationship will be stronger in more collectivistic cultures.

Hypothesis 16. Individualism-collectivism will moderate the relationship between senior leader support and a) job satisfaction and b) turnover intentions, such that the relationship will be stronger in more collectivistic cultures.

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Clear Goals and Performance Feedback. Many researchers have found that clear goals and performance feedback is significantly and positively associated with job attitudes and performance (e.g., Kim, & Hamner, 1976; Steers, 1976). Interestingly, Ilgen, Fisher, and Taylor (1979) found that short-term feedback had a positive impact on reducing uncertainty about work outcomes. Therefore, I expect that workers in higher uncertainty avoidance cultures will show less strain as a result of possessing clear goals and performance feedback, as regular feedback should reduce the level of uncertainty faced by one at work.

Hypothesis 17. Uncertainty avoidance will moderate the relationship between clear goals and performance feedback and a) job satisfaction and b) turnover intentions, such that the relationship will be stronger in higher uncertainty avoidance cultures.

The Proposed Study and Its Contributions

In summary, the main purpose of this study is to investigate the potential moderating effects of two cultural dimensions, individualism-collectivism and uncertainty avoidance, on relationships in the JD-R model (Demerouti et al., 2001). Specifically, the relationships between 1) job demands and strain (i.e., job satisfaction and turnover intentions) and 2) job resources and strain (i.e., job satisfaction and turnover intentions). See Figure 1 for a graphical summary of the relationships to be examined in this study. The examination of whether and which cultural dimensions may moderate relationships between relationships in the JD-R model will contribute to our understanding of the universality versus specificity of these relationships across cultures. In addition, given ongoing debate on whether various types of job demands and resources are equivalent indicators of a latent construct, this study will also contribute to our understanding by demonstrating whether specific types of resources (e.g., control, supervisor support, senior leader support) are more effective in reducing employee strain outcomes. In terms of practical

contributions, the results of this study will help practitioners and organizations better understand

what job demands (resources) are particularly taxing (replenishing) in particular cultural settings,

which can then be used to help inform job design decisions in organizations.
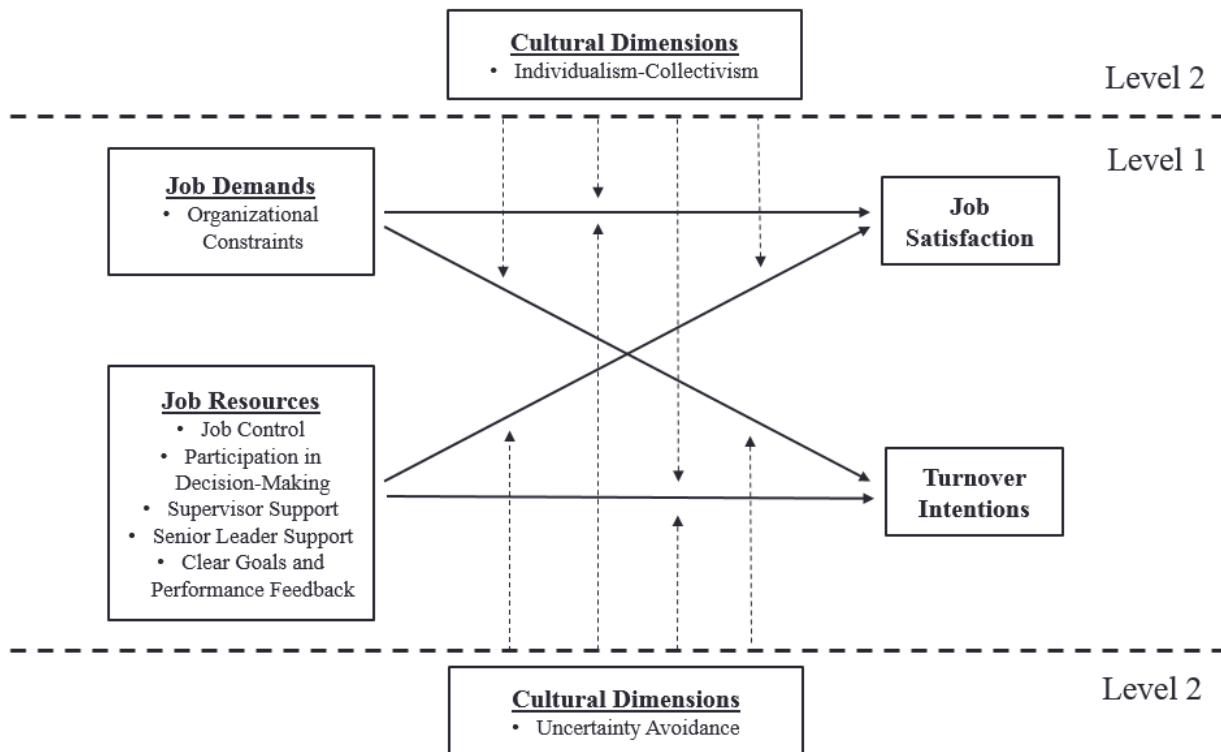
Figure 1. A graphical summary of the current study

CHAPTER TWO

METHOD

Participants

The data from the present study are drawn from the 2012 administration of

WorkTrends^{TM}, an employee opinion survey that has been administered continuously annually or

bi-annually since 1985. However, the content of the survey has not remained static over time

(see Kowske, Rasch, & Wiley, 2010 for more details). In this administration, full-time workers

(i.e., employed at least 35 hours/week) from 28 nations participated ($N = 24,385$), with sample

sizes ranging from 231 (Saudi Arabia) to 1028 (Sweden) across nations.

Approximately half the sample was male (53.3%). The average age of participants was

39.46 ($SD = 10.53$). In terms of education, 6.1% had less than a high school degree, 20.2% had a

high school or secondary school diploma, 18.2% had a vocational, technical, or trade college

degree, 36.5% had a university or higher education degree, 13.6% had a graduate degree, and

5.3% had a professional degree (e.g., J.D., M.D.). The most common industries of employing

organizations were Government/Public Administration (13.4%), Healthcare (9.0%), Heavy

Manufacturing (7.9%), and Education (7.4%). In terms of the size of employing organizations,

0.9% employed 25-99 workers, 19.8% employed 100-249 workers, 16.3% employed 250-499

workers, 14.6% employed 500-999 workers, 20.6% employed 1000-4999 workers, 8.9%

employed 5000-9999 workers, and 19.0% employed 10,000 or more workers. See Table 1 for a

breakdown of sample sizes, participant gender, age, and level of education by country.

Table 1. *Demographic Information for 28 Countries*

Countries	Total (N)	Age (Mean)	Age (SD)	Males (%)	Education	GDP per capita, PPP (World bank, 2012)
Argentina	1003	38.18	10.65	55.6	3.58	
Australia	1005	42.03	11.94	49.2	3.50	42,872
Brazil	992	35.75	9.58	49.4	3.89	14,581
Canada	996	41.17	10.99	49.3	3.42	41,924
China	957	33.20	7.41	49.4	4.14	10,950
Denmark	1007	44.45	11.16	49.9	3.35	42,880
Finland	1022	43.25	10.14	50.6	3.06	39,730
France	1002	40.15	9.44	49.6	3.53	37,115
Germany	972	40.52	10.52	50.1	2.87	43,171
India	946	35.08	7.91	50.5	6.02	5,141
Indonesia	520	33.62	7.58	63.5	3.81	9,014
Ireland	507	37.73	9.50	47.7	3.63	45,282
Italy	988	40.36	9.02	50.3	3.49	35,571
Japan	996	43.66	9.40	59.6	3.67	35,414
Korea, Republic of	496	36.06	8.28	58.7	3.91	31,822
Mexico	999	33.83	9.06	61.7	3.96	16,178
Netherlands	1017	43.10	10.76	51.0	3.17	45,414
New Zealand	507	45.65	11.28	50.1	3.11	32,194
Russian Federation	1024	35.02	9.27	50.0	4.39	23,504
Saudi Arabia	231	32.62	7.19	93.9	3.83	52,042
South Africa	994	40.85	9.16	50.2	3.12	12,258
Spain	1015	39.16	8.56	50.6	3.62	32,303
Sweden	1028	45.61	10.43	50.0	3.16	43,622
Switzerland	1002	40.05	10.21	57.2	3.47	55,029
Turkey	934	33.28	7.00	74.4	3.97	18,186
United Arab Emirates	232	32.69	8.41	77.2	4.50	59,845
United Kingdom	993	41.42	10.95	49.2	3.47	36,942
United States	1000	42.46	11.95	46.7	3.73	51,496
Average	870.89	38.96	9.56	55.2	3.69	33869.71

Note. N = 24385. A level of education was measured using a 6-point Likert scale (1 = less than a high school degree; 2 = a high school or secondary school diploma; 3 = a vocational, technical, or trade college degree; 4 = a university or higher education degree; 5 = a graduate degree; 6 = a professional degree (e.g., J.D., M.D.)).

Measures

Cultural Dimensions. This study examines cultural variations in individualism-collectivism and uncertainty avoidance using: 1) Hofstede's cultural dimension scores and 2) GLOBE's cultural *practices* scores, separately. Hofstede's taxonomy is most popular in the cross-cultural literature (de Mooij & Hofstede, 2011). The initial data validating this taxonomy was collected within IBM in over 70 countries from 1967 to 1973. Subsequently, additional data was collected from 1990 to 2002 that included a broader sampling of countries in order to replicate and further validate existing cultural dimension scores (Hofstede, 2011).

In addition to Hofstede's cultural dimension scores, I also employed GLOBE's cultural *practices* ("as is") scores (House et al., 2004). The GLOBE project was initiated in the 1990s, and data was collected from 17,300 managers from 951 organizations in 62 countries for the purpose of examining conceptualization of leadership across cultures. Specifically, I used GLOBE response-bias corrected cultural scores, which corrects for the fact that people from different cultures have different response tendencies (Triandis, 1994). For example, Asians are less likely to report extreme scores and Mediterranean individuals are unlikely to use middle response categories (Hui & Triandis, 1989). Note that GLOBE uses two dimensions to represent individualism-collectivism; specifically, institutional collectivism and in-group collectivism.

The GLOBE taxonomy differentiates between *practices* ("as is") scores and *values* ("should be") scores. In this study, I employ *practices* scores for the two reasons. First, prior research has argued that cultural practices are linked to the physical and psychological health of the individuals within a culture (House et al., 2004, p. 18). Although House et al. did not articulate why the cultural *practices* should be related to the physical and psychological health, self-determination theory may explain this phenomenon (Chirkov, Ryan, Kim, & Kaplan, 2003;

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Deci & Ryan, 1985; Ryan & Deci, 2000). Self-determination theory posits that individuals have basic desires for autonomy, relatedness, and competence. Although these needs are inherited, social context also affects the development of needs. Thus, social practices influence fulfillment of basic needs, which in turn influences the health and well-being of individuals. Second, items assessing practices typically used a cultural-level referent (e.g. *In this society, followers are expected to obey their leader without question*), while items assessing values typically used an individual-level referent (e.g., *I believe that followers should obey their leader without question*; House et al., 2004, p. 537). Given that my interest was in understanding how *culture* influenced relationships between an individual worker's demands or resources and strain outcomes, the use of practices scores was deemed more appropriate.

Note that scores for cultural dimensions within the Hofstede taxonomy are reported as between 0 and 100, while cultural dimension scores within the GLOBE taxonomy are reported as between 1 and 7. In order to facilitate comparisons between my results utilizing the two different taxonomies, I standardized Hofstede and GLOBE response-bias corrected scores, separately, for use as level 2 variables (see Table 2). Specifically, I standardized Hofstede and GLOBE scores, respectively, relative to all other countries included in the investigations of that particular taxonomy. Hofstede study reported the cultural scores of 78 countries and GLOBE study reported the cultural scores of 61 countries, and 41 common countries were included in *both* taxonomies. Given that my goal is to generalize results to countries and cultures broadly, it seems to be more appropriate to standardize cultural scores based on the *population of countries and cultures* rather than the specific sampling of 28 countries included in the present dataset (for whom we had demands, resources, and strain data available). Conceptually, this is similar to when researchers use range restriction corrections, whereby the researcher decides on the

inference of primary interest; for example, the relationship between variables in a particular sample or in the population as a whole (and which particular population that they are interested in making generalizations to). However, for comparison purposes, I also ran analyses using scores standardized against the 28 countries included in the present dataset as well as the scores standardized against all countries in a particular taxonomy. Although results were fairly consistent, some differences were identified[1]. Results from these analyses are provided in Appendix A and B.

Job Demands and Resources.[2] The response scale for all measures ranged from 1 (strongly disagree) to 5 (strongly agree).

Organizational Constraints (α = .92). Organizational constraints were measured with five items that were reversed-scored so that higher scores indicate more constraints. Sample items: "The systems and equipment I use in my job are efficient and up-to-date" and "The processes and equipment I use rarely break down or disrupt my work".

Job Control (α = .87). Job control was measured with four items. Sample items: "I am able to determine how much work I complete in a day" and "I have the authority to decide what tasks I perform day to day".

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[1] Specifically, when using Hofstede cultural scores standardized against only the 28 countries in the present dataset, the cross-level moderating effect of uncertainty avoidance on the relationship between job control and job satisfaction became non-significant, while the cross-level moderating effective of individualism-collectivism on the relationship between job control and job satisfaction became significant. No other differences in cross-level effects were found. When using GLOBE cultural scores standardized against only the 28 countries in the present dataset, the cross-level moderating effect of institutional collectivism on the relationship between participation in decision-making and job satisfaction and the cross-level moderating effect of in-group collectivism on the relationship between participation in decision-making and job satisfaction became non-significant. Additionally, the cross-level moderating effect of in-group collectivism on the relationship between organizational constraints and turnover intentions, the cross-level moderating effect of uncertainty avoidance on the relationship between organizational constraints and turnover intentions, and the cross-level moderating effect of uncertainty avoidance on the relationship between senior leader support and turnover intentions all became non-significant.

[2] Note that WorkTrends™ and its items are all trademarked and therefore cannot be used without permission from IBM. Also, note that for each item in the WorkTrends™ survey participants could choose "Don't Know" as a response. Those responses were coded as missing and excluded from the present analyses.

Table 2. *Hofstede's and GLOBE Cultural Dimension Scores for the 28 Countries in the Present Dataset*

Studies	Hofstede		GLOBE (*practices*)		
Countries	IDV	UAI	Institutional[a]	In-Group[a]	UAI
Argentina	.06	.71	1.47	-.56	-.91
Australia	1.85	-.75	-.14	1.37	.39
Brazil	-.26	.30	.77	-.07	-.73
Canada	1.44	-.87	-.27	1.25	.62
China	-1.00	-1.62	-1.04	-1.05	1.08
Denmark	1.20	-1.92	-1.68	2.08	1.94
Finland	.75	-.41	-1.28	1.24	1.58
France	1.08	.71	.13	.64	.83
Germany[b]	.91	-.16	1.07	1.04	1.85
India	.14	-1.21	.01	-.98	-.25
Indonesia	-1.24	-.87	-.04	-.55	-.42
Ireland	1.04	-1.42	-.79	-.01	.13
Italy	1.28	.25	1.24	.17	-.54
Japan	.06	.96	-2.42	.55	-.17
Korea, Republic of	-1.08	.67	-2.35	-.84	-1.10
Mexico	-.59	.55	.75	-.71	-.19
Netherlands	1.44	-.66	-.91	1.86	1.08
New Zealand	1.40	-.83	-1.75	2.16	1.16
Russian Federation	-.22	1.09	-.79	-1.01	-1.82
Saudi Arabia[c]	-.79	.46			
South Africa	.83	-.83	-.63	.44	.30
Spain	.26	.71	.95	-.59	-.37
Sweden	1.08	-1.67	-2.50	2.32	2.01
Switzerland	.95	-.46	.13	1.51	2.11
Turkey	-.30	.67	.58	-.95	-.84
United Arab Emirates[c]	-.26	-.04			
United Kingdom	1.81	-1.42	-.14	1.45	.89
United States	1.89	-.96	.10	1.25	-.03
Average	.49	-.32	-.37	.46	.33

Note: IDV = individualism-collectivism; UAI = uncertainty avoidance; MAS = masculinity-femininity

[a] Institutional collectivism and in-group collectivism are reverse-coded for better comparison purposes with Hofstede's individualism-collectivism; higher scores on institutional and in-group columns represent more institutional individualism and more in-group individualism

[b] For Germany score, the average score of the former east and the former west Germany scores is reported

[c] GLOBE study did not report Saudi Arabia scores and United Arab Emirates scores

Participation in Decision-Making ($\alpha = .91$). Participation in decision-making was measured with three items. Sample item: "Where I work, employees are encouraged to participate in making decisions that affect their work".

Supervisor Support ($\alpha = .94$). Supervisor support was measured with six items. Sample items: "My manager treats employees fairly" and "My manager treats me with respect and dignity".

Senior Leader Support ($\alpha = .92$). Senior leader support was measured with four items. Sample items: "Senior management demonstrates that employees are important to the success of the organization" and "Senior management shows concern for the well-being and morale of employees".

Clear Goals and Performance Feedback ($\alpha = .85$). Clear goals and performance feedback were measured with three items. Sample item: "I have clearly defined performance goals and objectives".

Strain Variables

Job Satisfaction ($\alpha = .94$). Job satisfaction was measured with four items. Sample items: "I like the kind of work I do" and "Considering everything, I am satisfied with my job."

Turnover Intentions ($\alpha = .78$). Intentions to turnover were measured with two items: "I rarely think about looking for a new job with another organization" (reversed-scored), and "I am seriously considering leaving my organization within the next 12 months. (If you are retiring within the next 12 months or if you are going on leave, please indicate 'not applicable'.)"

Data Analyses

Confirmatory Factor Analyses (CFAs). Although the content of the measures of job demands, job resources, job satisfaction, and turnover intentions appear to be similar to those

utilized in the literature, given that the particular measures employed in the present study are not previously validated scales, the structure of the constructs should first be verified via confirmatory factor analyses (CFAs). This set of analyses is particularly important given that all measures were administered at one time, such that common method variance may be of particular concern (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In conducting model testing, I also tested whether specific types of job resources (i.e., job control, participation in decision-making, supervisor support, senior leader support, and clear goals and performance feedback) loaded onto a higher order job resource factor or whether different resources are better conceptualized as relatively independent constructs. In all CFAs, functions for factor loadings, residual variance and covariance, and variances of factors were defaults. In other words, factor loading of the first variable was fixed to one and residual covariances were fixed to zero.

Sample Equivalence. Given that the present study employs samples drawn broadly across industries and occupations from 28 countries, the first step is to ensure the equivalence of demographic variables across samples. This procedure better ensures comparability of results across samples and increases the probability that significant findings are due to differences in national or cultural-level dimensions rather than demographic differences across samples. Previously, Taras, Kirkman, and Steel (2010) found that sample characteristics, specifically gender, age, employment status (i.e., employees vs. students), and educational level, moderated the effect of cultural values. Specifically, when samples were older, made up of more males, consisted of incumbent employees, or were more highly educated, cultural values tended to be more strongly related to outcome variables. Therefore, based on Taras et al.'s findings (2010), I specifically examined the equivalence of gender, age, and the level of education across samples drawn from different countries using one-way analysis of variance (ANOVA).

Measurement Equivalence. Measurement equivalence refers to "the level of comparability of scores" (He & van de Vijver, 2012, p. 3). Previous research has argued that measurement invariance across groups should be established before group comparisons are made (Vandenberg & Lance, 2000). Traditionally, a multi-group CFA is conducted to establish measurement equivalence across groups (Chen, Sousa, & West, 2005). However, Muthén and Asparouhov (2013) recently argued that this approach can be problematic when many groups are being compared as the model modification indices values tend to be unrealistically large and the probability of violating scalar invariance is extremely high. Consequently, the violation of scalar invariance hampers the ability to compare factor means across groups. To overcome these shortcomings, Muthén and Asparouhov (2013) introduced two alternative methods for evaluating measurement equivalence when many groups are being compared: 1) an alignment method with a fixed mode (Asparouhov & Muthén, 2014) and 2) two-level modeling with a random mode (de Jong, Steenkamp, & Fox, 2007; Jak, Oort, & Dolan, 2013).

Muthén and Asparouhov (2013) suggested practical ways to select between a fixed and a random mode approach. They argued that when the number of groups being compared is less than 30, the fixed mode method is more appropriate. When the number of groups being compared is between 30 and 100, then both modes are suitable. When the number of groups being compared exceeds 100, the random mode method is more appropriate. Supporting their recommendations, they found that the fixed alignment method worked better than the free alignment method when they tested the random mode and fixed mode using data from 26 European countries. Given that I include data collected from 28 countries in this current investigation, I selected the fixed alignment approach in the present study.

Multilevel Analyses. Hierarchical linear modeling (HLM) was performed to examine the potential moderating effects of the level-2 cultural dimensions (i.e., individualism-collectivism and uncertainty avoidance) on relationships between job demands and strain (i.e., job satisfaction and turnover intentions) and between job resources and strain (i.e., job satisfaction and turnover intentions). HLM was selected as an appropriate analytic approach because in this dataset individuals are nested within cultures and cross-level interactions (i.e., whether culture-level variables moderate relationships between individual-level job demands or resources and strain outcomes) are of primary interest. Level 1 variables were group-mean centered and level 2 variables were grand-mean centered.

For parameter estimation, I used a random effects approach to estimate intercepts and a fixed effects approach to estimate slopes. Although a random effects approach to estimating slopes is generally more accurate than a fixed effect approach to estimating slopes, including when examining interaction effects in multilevel modeling (Nezlek, 2001), a fixed effects approach to estimate slopes is appropriate when the number of level-2 units is small (Möhring, 2012), as in the present case. This is because a random effects approach reduces the degrees of freedom available at level 2, which can create model convergence problems, especially when the number of groups is small. Additionally, a random effects approach tends to increase the number of iterations needed for model convergence. More than 150 iterations may lead to a misspecified model (Nezlek, 2001). Finally, estimates of variance at level 2 tend to be inaccurate when the number of group is small (<100 groups; Van der Leeden & Busing, 1994). Thus, modeling variation in slopes may be less appropriate under these conditions.

I also used full maximum-likelihood estimation rather than restricted maximum-likelihood estimation. Full maximum-likelihood estimation is generally more efficient and both

fixed and random effect estimates can be attained through this estimation (Kreft & de Leeuw, 1998). In contrast, restricted maximum-likelihood only takes random variances into account, removing fixed effects in estimation (Dempster, Rubin, & Tsutakawa, 1981). Since fixed effects are an important part of this study, full maximum-likelihood estimation was chosen. In addition, another advantage of using full maximum-likelihood estimation is that this estimation permits meaningful model comparisons using a deviance statistic (Kreft et al., 1998).

Job demands (i.e., organizational constraints) and job resources (i.e., job control, participation in decision-making, supervisor support, senior leader support, and clear goals and performance feedback) were all included simultaneously in analyses. Given that job demands and resources are typically correlated (e.g., Luchman & Gonzalez-Morales, 2013), including in the present sample (see Tables 5 and 6), I examined the unique effect of each demand or resource controlling for its relationships with the other demands or resources in the model.

Supplemental Analyses. Although cross-level interactions with other cultural variables besides individualism-collectivism and uncertainty avoidance are not hypothesized, I also examined whether including these other cultural variables as controls exerted any effect on my focal variables in supplementary HLM analyses. Due to issues of multi-collinearity and differences in cultural taxonomies, I examine the cultural dimensions for Hofstede and GLOBE separately in these analyses. These additional cultural dimensions scores from Hofstede's and GLOBE's taxonomy are reported in Appendix C.

CHAPTER THREE

RESULTS

Confirmatory Factor Analyses (CFAs)

CFAs were conducted using Mplus 7.2. Since the data contains individuals nested within countries, a multilevel CFA is the most ideal option (Mehta & Neale, 2005); however, when I performed a multilevel CFA analysis, the model failed to converge due to the relatively small number of the level 2 units (i.e., countries). Moreover, intra-class correlations [ICC(1)] of all independent and dependent variables were relatively low (i.e., organizational constraints = .03; job control = .04; participation in decision-making = .05; supervisor support =.04; senior leader support = .06; clear goals and performance feedback = .06; overall job resources = .05; job satisfaction = .04; turnover intentions = .02), demonstrating that country exerts a relatively modest influence on job demands, job resources, and strain. For this reason, single-level CFAs were conducted focusing on the individual-level data structure.

The results are shown in Table 3 and focus on three fit indices: Chi-square, comparative fit index (CFI), and root-mean-square error of approximation (RMSEA). When the chi-square test is not significant, it indicates better goodness of fit. Yet, chi-square tests tend to be influenced by sample size, and are usually significant when the sample size is large. The other two fit indices are relatively robust to the influence of sample size. When a CFI value is higher than .95, it indicates good fit (Hu & Bentler, 1999). RMSEA values below 0.05 demonstrate good fit, while values between 0.05 and 0.08 demonstrate fair fit, and values between 0.08 and 0.10 demonstrate mediocre fit (Browne & Cudeck, 1993).

Table 3. *Comparison of Alternative Measurement Models for Study Constructs*

Model	Description	χ^2	df	$\Delta\chi^2$	CFI	RMSEA
Model 1 (4 factor)	Job demands, job resources (the specific sub-factors are not specified), job satisfaction and turnover intention	274930.40	554		.84	.14
Model 2 (4 factor with a higher order structure for the job resources construct)	Job demands, job resources (the specific sub-factors are specified in a higher order structure), job satisfaction and turnover intention	80011.17	549	194919.23[**]	.95	.08
Model 3 (4 factor with a higher order structure for the job resources construct)	Same as Model 2, however, the job control item 4 was excluded	76152.53	516	3858.64[**]	.96	.08

Note. $N = 24382$. CFI = comparative fit index; RMSEA = root mean square error of approximation.
[**] $p < .01$, two-tailed.

Job demands, job resources, job satisfaction, and turnover intentions are conceptually distinct constructs. To examine whether these distinctions held in the mind of respondents, I first examined the fit of this 4-factor solution. This 4-factor model fits the data relatively poorly [χ^2 (554) = 274930.40, $p < .01$, CFI = .84, RMSEA = .14]. However, this 4-factor model fit the data better than a 3-factor model that does not distinguish between job demands (i.e., organizational constraints) and resources constructs, [χ^2 (557) = 345407.34, $p < .01$, CFI = .80, RMSEA = .16]. This suggests that job demands and resources are more appropriately viewed as separate factors. When I indicated that the specific types of job resources (i.e., job control, participation in decision-making, supervisor support, senior leader support, and clear goals and performance feedback) loaded onto a higher order job resources factor, this revised 4-factor model fits the data adequately [χ^2 (549) = 80011.17, $p < .01$, CFI = .95, RMSEA = .08], and all items significantly loaded onto the relevant factor. For comparative purposes (given that items

assessing organizational constraints generally asked participants to report on resource adequacy rather than resource inadequacy), I also examined an alternative three-factor model whereby organizational constraints along with the other specific types of job resources loaded onto a higher-order factor and job satisfaction and turnover intentions were posited to be distinct factors. This model failed to converge even with the maximum number of iterations, generally suggesting poor fit with the data.

Sample Equivalence

To examine sample equivalence, I conducted a series of one-way ANOVAs. The results indicate that gender composition [$F(27, 24357) = 20.91$, $p < .05$], age [$F(27, 24357) = 139$, $p < .05$], and level of education [$F(27, 24357) = 153.49$, $p < .05$], differed significantly across samples (or countries). Note that some of these sample characteristics are significantly correlated with each other (see Table 5), and, therefore, may not exert independent effects when entered simultaneously in a regression equation. Thus, in my multilevel analyses, I decided to control for all three demographic variables at both levels of analysis: gender, age, and level of education in the level 1 equation, and gender composition in sample (i.e., % male), average age in sample, and average level of education in sample in the level 2 equation.

Measurement Equivalence

To assess measurement equivalence, I conducted alignment optimization analysis with a maximum likelihood estimator in Mplus 7.2. Although my CFA results indicate that each of the specific job resources load onto a high-order job resource factor, at present, the alignment optimization function in Mplus does not permit the inclusion of a higher-order factor model. For this reason, each of the job resources (i.e., job control, participation in decision-making, supervisor support, senior leader support, and clear goals and performance feedback) were

modelled as distinct factors in the alignment test, resulting in a 8-factor model (i.e., the five

specific job resource constructs, organizational constraints, job satisfaction, and turnover

intentions). To assess the fit of this model to my data prior to the alignment analysis, I also

conducted a CFA with this 8-factor solution. This model also fit the data adequately [$\chi 2$ (532) =

91808.944, $p < .01$, CFI = .947, RMSEA = .084].

Table 4 presents the item-based alignment fit statistics. Three indices are used to

determine whether an item demonstrates measurement invariance: (1) fit function contribution,

(2) R-squared, and (3) variance (Asparouhov & Muthén, 2014). The first index is the fit function

contribution. High absolute values indicate possible non-invariance; specifically, if fit function

contribution values are large, it represents that the specified function is far from the optimized

simplicity function. The second index is R^2, which reflects the proportion of explained variance

in factor mean and factor variance across all groups. Low R^2 values indicate lack of invariance.

In Table 4, item 4 of the job control measure shows problematic R^2 values for both

intercept ($R^2 = .00$) and loading ($R^2 = .06$), which suggests this item is non-invariant. The third

index is the variance in the alignment optimization analysis, which indicates the variation of

alignment parameters across groups. Higher variance values indicate non-invariance. Based on

the results of all three indices, item 4 from the job control measure was identified as a non-

invariant item; thus, item 4 from the job control measure was dropped from subsequent analyses.

Although item 2 from turnover intentions measure also had a small R^2 value for the intercept, the

R^2 for the loading was adequate; thus, I chose to retain this item. The revised alpha for the

revised three-item job control measure was .85 and the CFA model without the excluded item

Table 4. *Alignment Fit Statistics*

Item	Intercepts			Loadings		
	Fit function contribution	R-Square	Variance	Fit function contribution	R-Square	Variance
Job demands						
1. Organizational constraints- item 1	-155.87	.72	.10	-133.84	.80	.03
1. Organizational constraints- item 2	-133.49	.89	.10	-126.47	.85	.04
1. Organizational constraints- item 3	-132.78	.90	.09	-124.25	.92	.04
1. Organizational constraints- item 4	-133.35	.93	.10	-124.38	.91	.04
1. Organizational constraints- item 5	-141.66	.77	.08	-135.22	.82	.03
Job resources						
1. Job control- item 1	-173.13	.66	.15	-186.76	.46	.03
1. Job control- item 2	-135.72	.88	.14	-128.31	.89	.04
1. Job control- item 3	-150.36	.35	.15	-133.36	.62	.04
1. Job control- item 4	-159.50	.00	.14	-157.07	.06	.04
2. Participation in decision making- item 1	-135.00	.91	.12	-128.82	.83	.04
2. Participation in decision making- item 2	-149.36	.88	.12	-128.05	.89	.04
2. Participation in decision making- item 3	-142.91	.89	.12	-125.88	.92	.04
2. Participation in decision making- item 4	-147.19	.88	.12	-132.91	.80	.04
3. Supervisor support- item 1	-142.73	.85	.13	-124.46	.87	.04
3. Supervisor support- item 2	-141.29	.87	.13	-132.00	.71	.04
3. Supervisor support- item 3	-144.84	.71	.14	-129.21	.73	.04
3. Supervisor support- item 4	-143.47	.81	.13	-133.63	.56	.04
3. Supervisor support- item 5	-135.38	.90	.13	-123.80	.93	.04
3. Supervisor support- item 6	-136.60	.88	.13	-126.53	.89	.04
4. Senior leader support- item 1	-151.54	.83	.13	-135.91	.78	.04
4. Senior leader support- item 2	-153.92	.83	.12	-127.61	.76	.04
4. Senior leader support- item 3	-126.92	.98	.12	-122.75	.93	.04
4. Senior leader support- item 4	-129.84	.96	.12	-125.66	.91	.04
5. Clear goals and feedback- item 1	-159.64	.70	.14	-129.30	.87	.03
5. Clear goals and feedback- item 2	-128.23	.96	.15	-129.46	.89	.03
5. Clear goals and feedback- item 3	-163.43	.74	.14	-136.39	.85	.03
5. Clear goals and feedback- item 4	-136.96	.89	.15	-129.88	.90	.03
Outcome variables						
1. Job satisfaction- item 1	-133.17	.91	.14	-126.83	.85	.04
1. Job satisfaction- item 2	-137.28	.89	.13	-147.62	.48	.03
1. Job satisfaction- item 3	-142.71	.83	.15	-169.97	.16	.02
1. Job satisfaction- item 4	-146.07	.81	.14	-149.52	.45	.03
1. Job satisfaction- item 5	-144.82	.88	.13	-150.51	.39	.03
1. Job satisfaction- item 6	-206.97	.45	.13	-129.70	.84	.04
2. Turnover intention- item 1	-130.23	.93	.10	-133.21	.88	.05
2. Turnover intention- item 2	-179.88	.00	.10	-148.90	.86	.04

Note. N = 24382.

and modeling each job resources as a separate factor also fit the data well [χ2 (516) = 76152.53,

$p < .01$, CFI = .956, RMSEA = .078].

Descriptive and Correlational Analyses

Table 5 presents means, standard deviations, and correlations for the final individual- and

country-level measures with the exception of the cultural dimension variables. Country-level

variables were generated by aggregating variables across individuals from the sample for each

country. Table 6 reports partial correlations for individual- and country-level variables,

controlling for gender, age, and level of education at each respective level of analysis. At the

individual-level of analysis, all job demands and resources were significantly associated with

both job satisfaction and turnover intentions. At the country-level of analysis, all job demands

and job resources were related to job satisfaction, but not to turnover intentions.

National income was controlled at the country-level analysis, in line with prior multilevel

studies (e.g., Yang et al., 2012). National income may be regarded as an additional resource. For

example, if a country has high national income, employees in that country may receive higher

wages than employees in poorer countries. Better monetary compensation may provide those

workers with additional instrumental and emotional resources. Additionally, national income is

significantly related to country-level individualism-collectivism (Hofstede, 2001). More

individualistic countries are likely to have higher national incomes. Therefore, I controlled for

national income, operationalized as Gross Domestic Product per capita by purchasing power

parity (GDP PPP; World Bank, 2012), at the country-level of analysis.

Hypothesis 1 through 6 appears to be supported by bivariate correlations in the

individual-level data, though note that my ICCs revealed there was some small amount of

Table 5. *Means, SD, and Intercorrelations Among Measures*

Variable	M	SD	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Individual-level measures																			
1. Gender (0 = male, 1 = female)	.47	.50																	
2. Age	39.46	10.53		-.08**															
3. Level of education	3.66	1.57		.02**	-.13**														
4. Organizational constraints	2.56	.94		.01	.06**	-.09**													
5. Job control	3.63	.99		-.01	-.01	.15**	-.40**												
6. PDM	3.22	1.00		-.01	-.09**	.13**	-.58**	.45**											
7. Supervisor support	3.40	1.02		.01	-.08**	.09**	-.49**	.37**	.65**										
8. Senior leader support	3.08	1.10		.00	-.08**	.08**	-.54**	.34**	.75**	.63**									
9. Clear goals and feedback	3.80	.78		.02**	-.05**	.06**	-.51**	.43**	.57**	.54**	.50**								
10. Job satisfaction	3.57	.97		.01	.00	.08**	-.54**	.44**	.65**	.58**	.60**	.57**							
11. Turnover intention	2.68	1.25		-.01	-.09**	.02**	.38**	-.27**	-.48**	-.45**	-.48**	-.37**	-.67**						
Country-level measures																			
0. GDP-PPP	33113.96	14630.54																	
1. Gender (0 = male, 1 = female)	.45	.11	-.17																
2. Age	38.96	4.18	.40*	.58**															
3. Level of education	3.69	.60	-.41*	-.23	-.65**														
4. Organizational constraints	2.56	.17	.41*	.03	.47*	-.66**													
5. Job control	3.63	.21	-.46*	-.10	-.53**	.64**	-.59**												
6. PDM	3.22	.24	-.50**	.09	-.30	.65**	-.78**	.48*											
7. Supervisor support	3.40	.19	-.25	.22	-.15	.49**	-.73**	.39*	.84**										
8. Senior leader support	3.09	.27	-.31	.06	-.23	.52**	-.77**	.41*	.93**	.88**									
9. Clear goals and feedback	3.80	.15	-.46*	.08	-.42*	.54**	-.80**	.61**	.73**	.79**	.68**								
10. Job satisfaction	3.56	.20	-.22	.03	-.12	.31	-.64**	.39*	.71**	.76**	.69**	.72**							
11. Turnover intention	3.29	.20	-.08	-.50**	-.32	.17	.11	.08	-.10	-.18	-.04	-.13	-.47*						
12. Hofstede-IDV	.49	.95	.49**	.57**	.81**	-.48*	.19	-.22	-.19	.02	-.12	-.19	.00	-.42*					
13. Hofstede-UAI	-.32	.90	-.04	-.39*	-.35	.10	.28	.06	-.50**	-.56**	-.57**	-.27	-.43*	.23	-.43*				
14. GLOBE institutional IDV	-.37	1.14	-.17	-.08	-.41*	.12	-.32	.42*	-.03	.10	.00	.27	.17	-.29	.00	.32			
15. GLOBE ingroup IDV	.46	1.12	.73**	.42*	.91**	-.66**	.37	-.44*	-.22	-.01	-.05	-.32	.06	-.24	.81**	-.49*	-.35		
16. GLOBE UAI	.33	1.07	.50*	.34	.62**	-.52**	.01	-.44*	.04	.17	.20	-.14	.27	-.42*	.52**	-.62**	-.28	.77**	

Note. PDM = participation in decision making; GDP-PPP = Gross Domestic Product by purchasing power parity; IDV = individualism-collectivism; UAI = uncertainty avoidance

N = 24233-24385 at the individual level; N = 26-28 at the country level.

* *p < .05.* ** *p < .01.*

Table 6. *Partical Intercorrelations Among Measures*

Variable	4	5	6	7	8	9	10	11	12	13	14	15	16
Individual-level measures													
4. Organizational constraints													
5. Job control	-.42**												
6. Participation in decision	-.58**	.49**											
7. Supervisor support	-.48**	.40**	.65**										
8. Senior leader support	-.54**	.38**	.74**	.63**									
9. Clear goals and feedback	-.51**	.46**	.57**	.54**	.49**								
10. Job satisfaction	-.54**	.47**	.65**	.58**	.60**	.57**							
11. Turnover intention	.39**	-.31**	-.50**	-.46**	-.49**	-.38**	-.67**						
Country-level measures													
4. Organizational constraints													
5. Job control	-.24												
6. Participation in decision	-.64**	.09											
7. Supervisor support	-.67**	.07	.89**										
8. Senior leader support	-.67**	.11	.94**	.88**									
9. Clear goals and feedback	-.68**	.32	.63**	.75**	.56*								
10. Job satisfaction	-.65**	.28	.73**	.78**	.64**	.75**							
11. Turnover intention	.34	-.14	-.22	-.27	-.13	-.29	-.67**						
12. Hofstede-IDV	-.44	.62**	.16	.16	.10	.32	.23	-.18					
13. Hofstede-UAI	.48*	-.04	-.81**	-.67	-.73**	-.43	-.51*	.11	-.19				
14. GLOBE institutional IDV	-.37	.40	-.05	.09	.01	.16	.25	-.41	.66**	.21			
15. GLOBE ingroup IDV	-.43	.43	.76**	.74**	.71**	.59*	.64**	-.18	.34	-.62**	.09		
16. GLOBE UAI	-.63**	-.04	.71**	.61**	.68**	.35	.59*	-.42	.00	-.62**	-.03	.60**	

Note. PDM = participation in decision making; IDV = individualism-collectivism; UAI = uncertainty avoidance.

Gender, age, and level of education were controlled at the individual-level analysis and at the country-level analysis.

* *p* < .05. ** *p* < .01.

nesting due to country (between 2% and 6% of the variance across constructs). Organizational constraints was a) negatively associated with job satisfaction ($r = -.54$, $p < .01$) and b) positively with turnover intentions ($r = .38$, $p < .01$), supporting Hypothesis 1. Job control was a) positively related to job satisfaction ($r = .44$, $p < .01$) and b) negatively related to turnover intentions ($r = -.27$, $p < .01$), supporting Hypothesis 2. Supervisor support was a) positively related to job satisfaction ($r = .65$, $p < .01$) and b) negatively related to turnover intentions ($r = -.48$, $p < .01$), supporting Hypothesis 3. Senior leader support was a) positively related to job satisfaction ($r = .58$, $p < .01$) and b) negatively related to turnover intentions ($r = -.45$, $p < .01$), supporting Hypothesis 4. Participation in decision-making was a) positively related to job satisfaction ($r = .60$, $p < .01$) and b) negatively related to turnover intentions ($r = -.48$, $p < .01$), supporting Hypothesis 5. Clear goals and performance feedback was a) positively related to job satisfaction ($r = .57$, $p < .01$) and b) negatively related to turnover intentions ($r = -.37$, $p < .01$), supporting Hypothesis 6. The partial correlations in Table 6 also show a similar pattern of results, suggesting these observed relationships were not strongly influenced by participant gender, age, or educational level.

Hypothesis 13 and 14 concerned potential differential relationships between supervisor and senior leader support and worker job satisfaction and turnover intentions. Although it seems that direct supervisor support and senior leader support are similarly related to both job satisfaction ($r = .58$, $p < .01$ and $r = .60$, $p < .01$, respectively) and turnover intentions ($r = -.45$, $p < .01$ and $r = -.48$, $p < .01$, respectively), calculations of the test between two dependent correlations with one variables in common (Lee & Preacher, 2013) indicated that direct supervisor support and senior leader support were statistically differently related to both job satisfaction ($z = -4.74$, $p < .01$) and turnover intentions ($z = -.6.32$, $p < .01$). Specifically,

Hypothesis 13, which posited that direct supervisor support would be more strongly related to job satisfaction was not supported, while Hypothesis 14, which posited the senior leader support would be more strongly related to turnover intentions was supported. Note, however, that the significance of these effects are likely due to the very large sample size available (N = 24,385), and may not be practically meaningful. For example, these effects would not have reached significance if our sample size been a sizeable 2,000 individuals.

Multilevel Analyses

Although the ICC values for both outcomes of interest were small (i.e., job satisfaction ICC = .04; turnover intentions ICC = .02), the nature of data is still nested and violates the assumption of independence (Bryk & Raudenbush, 2002). Additionally, the majority of my hypothesis concerned cross-level interactions. Therefore, I employed multilevel analyses in HLM v.7, rather than multiple regression analyses, to test Hypotheses 7-17.

I controlled for gender, age, and level of education at level 1 and at level 2 for two reasons. First, as I reported in the sample equivalence section, these three demographic variables demonstrated sample non-equivalence across countries. Second, gender, age, and level of education are demographic variables that have been theorized to be related to job satisfaction and/or turnover and prior empirical research generally supports these assertions intentions (e.g., gender, Hulin & Smith, 1964; age, Herzberg, Mausnes, Peterson, & Capwell, 1957, and education level, Blankertz & Robinson, 1997). However, to ascertain that the present results are robust, I also re-ran the same multilevel analyses without the inclusion of any control variables at level 1 and 2. Generally, few differences were found between the two sets of analyses. These results are reported in Appendix D (for Hofstede dimensions) and E (for GLOBE dimensions).

Tables 7-10 present the results of multilevel analyses. Hofstede dimensions scores were used to assess cultural dimensions in predicting job satisfaction (Table 7) and turnover intentions (Table 8) and GLOBE practices scores were used to assess cultural dimensions in predicting job satisfaction (Table 9) and turnover intentions (Table 10). All four tables report results for five models. Model 0 is the null model and is used to examine the impact of nesting (i.e., country) on job satisfaction and turnover intentions. Model 1 includes control variables (i.e., gender, age, and educational level) at level 1 and 2 as predictors only. Model 2 adds job demands and job resources at level 1. Model 3 adds cultural dimensions at level 2 as predictors. Model 4 adds cross-level interactions between cultural dimensions at level 2 and level 1 relationships between job demands and resources and strain. In addition, I also reported between-country variance ($\tau 00$), within-country variance ($\sigma 2$), degrees of freedom, deviance (-2LL), and pseudo R^2 information. In particular, the deviance and the pseudo R^2 statistics provides model fit information. For deviance, a lower value indicates a better fit. If the difference of deviances for two models is significant based on a chi-square distribution, it represents a significant improvement in model fit (Singer & Willett, 2003). Likewise, a significant difference between two R^2 values for two models indicates that the latter or more complex model is significantly more predictive than a previous or more simplistic model (Snijders & Bosker, 1994).

Model 2 in Tables 7-10 show that each of the specific job demands and resources was uniquely and significantly related to both job satisfaction and turnover intentions, respectively. To explain the proportion of variance explained by this model, I initially used Bryk and Raudenbush's formula (1992) of $(\sigma 2_{null} - \sigma 2_{full})/(\sigma 2_{null})$ for the within-unit proportion of variance explained and $(\tau 00_{null} - \tau 00_{full})/\tau 00_{null}$ for the between-unit proportion of variance explained. For

Table 7. *Results of Multilevel Model Analyses Using Two Hofstede's Dimensions on Job Satisfaction*

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		3.552 **	3.555 **	3.555 **	3.555 **
Gender		.031	.034 **	.034 **	.032 **
Age		.003 **	.005 **	.005 **	.005 **
Level of education		.038 **	.003	.003	.003
Organizational constraints			-.134 **	-.134 **	-.134 **
Job control			.123 **	.123 **	.120 **
PDM			.195 **	.195 **	.200 **
Supervisor support			.145 **	.145 **	.145 **
Senior leader support			.148 **	.148 **	.149 **
Clear goals and feedback			.202 **	.202 **	.199 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		2.375	2.337	1.189	1.189
Age		.017	.016	.013	.013
Level of education		.227 **	.223 *	.175	.175
Hofstede_IDV				-.031	-.031
Hofstede_UAI				-.107	-.107
Cross-level interactions					
Hofstede_IDV X OC					.010
Hofstede_UAI X OC					.007
Hofstede_IDV X JC					.015
Hofstede_UAI X JC					.021 **
Hofstede_IDV X PDM					-.051 **
Hofstede_UAI X PDM					-.027 **
Hofstede_IDV X SUS					-.001
Hofstede_UAI X SUS					-.003
Hofstede_IDVX SLS					.007
Hofstede_UAIX SLS					.002
Hofstede_IDV X CGF					.006
Hofstede_UAI X CGF					.015
Between variance ($\tau 00$)	.047	.031	.032	.026	.026
Within variance ($\sigma 2$)	.894	.891	.409	.409	.408
df	3	10	16	18	30
Deviance (-2LL)	50328.590	50241.913	35447.426	35443.489	35388.704
ΔDeviance (-2LL)		86.677 **	14794.487 **	3.937	54.785 **
ΔOLS explained variance[a]		.009	.567	.000	.002
ΔMVP explained variance[b]		.009	.549	.000	.002

Note . OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidanceIndividualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 ; IDV = variables are grand mean centered.

[a] Explained variances were computed using the formula, var(Ŷî)/ (var(Ŷî)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Ŷîj)/ (var(Ŷîj)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.*

Table 8. *Results of Multilevel Model Analyses Using Two Hofstede's Dimensions on Turnover Intentions*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		2.654 **	2.653 **	2.703 **	2.653 **
Gender		-.052 **	-.055 **	-.055 **	-.054 **
Age		-.013 **	-.017 **	-.017 **	-.017 **
Level of education		.007	.039 **	.039 **	.039 **
Organizational constraints			.102 **	.102 **	.101 **
Job control			-.045 **	-.045 **	-.043 **
PDM			-.208 **	-.208 **	-.215 **
Supervisor support			-.188 **	-.188 **	-.188 **
Senior leader support			-.240 **	-.240 **	-.237 **
Clear goals and feedback			-.093 **	-.093 **	-.089 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		-2.271 *	-2.253	-3.238	-3.238
Age		.003	.004	-.006	-.006
Level of education		-.016	-.013	-.051	-.051
Hofstede_IDV				.068	.068
Hofstede_UAI				-.008	-.008
Cross-level interactions					
Hofstede_IDV X OC					.012
Hofstede_UAI X OC					.021
Hofstede_IDV X JC					-.028 *
Hofstede_UAI X JC					-.038 **
Hofstede_IDV X PDM					.055 **
Hofstede_UAI X PDM					.039 *
Hofstede_IDV X SUS					-.013
Hofstede_UAI X SUS					.016
Hofstede_IDVX SLS					-.037 *
Hofstede_UAIX SLS					.008
Hofstede_IDV X CGF					-.027
Hofstede_UAI X CGF					-.001
Between variance ($\tau00$)	.029	.021	.022	.021	.021
Within variance ($\sigma2$)	1.548	1.530	1.045	1.045	1.042
df	3	10	16	18	30
Deviance (-2LL)	60339.632	60121.477	52408.149	52407.738	52355.512
ΔDeviance (-2LL)		218.155 **	7713.329 **	.411	52.226 **
ΔOLS explained variance[a]		.008	.228	.005	.003
ΔMVP explained variance[b]		.008	.224	.005	.003

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a] Explained variances were computed using the formula, $var(Ŷi)/ (var(Ŷi)+\sigma2)$ (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, $var(Ŷij)/ (var(Ŷij)+\tau00+\sigma2)$ (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Table 9. *Results of Multilevel Model Analyses Using Two GLOBE Dimensions on Job Satisfaction*

Variables	Baseline	Model 1	Model 2	Model 3	Model 4
			Job Satisfaction		
Level 1					
Intercept		3.566 **	3.569 **	3.569 **	3.569 **
Gender		.024	.028 **	.028 **	.026 **
Age		.002 **	.005 **	.005 **	.005 **
Level of education		.035 **	.003	.003	.003
Organizational constraints			-.131 **	-.131 **	-.129 **
Job control			.129 **	.129 **	.131 **
PDM			.191 **	.191 **	.193 **
Supervisor support			.138 **	.138 **	.137 **
Senior leader support			.151 **	.151 **	.152 **
Clear goals and feedback			.203 **	.203 **	.202 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		.087	.090	-.237	-.237
Age		.009	.009	-.029	-.029
Level of education		.125	.122	.221 **	.221 **
GP_INS				.047	.047
GP_ING				.188 *	.188 *
GP_UAI				.086	.086
Cross-level interactions					
GP_INS X OC					-.006
GP_ING X OC					.003
GP_UAI X OC					-.005
GP_INS X JC					.016 **
GP_ING X JC					.007
GP_UAI X JC					-.017 *
GP_INS X PDM					-.016 *
GP_ING X PDM					-.030 *
GP_UAI X PDM					.013
GP_INS X SUS					-.006
GP_ING X SUS					-.002
GP_UAI X SUS					.014
GP_INS X SLS					-.001
GP_ING X SLS					.014
GP_UAI X SLS					-.025 *
GP_INS X CGF					-.004
GP_ING X CGF					-.014
GP_UAI X CGF					.017
Between variance ($\tau 00$)	.042	.037	.037	.017	.017
Within variance ($\sigma 2$)	.889	.886	.410	.410	.409
df	3	10	16	19	37
Deviance (-2LL)	62386.450	62305.913	44186.155	44167.550	44108.994
ΔDeviance (-2LL)		80.538 **	18119.758 **	18.605	58.556 **
ΔOLS explained variance[a]		.009	.567	.000	.002
ΔMVP explained variance[b]		.009	.545	.000	.002

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; INS = Institutional collectivism; ING = In-group collectivism; UAI = Uncertainty avoidance; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered variables are grand mean centered

[a]   Explained variances were computed using the formula, $var(Y\hat{\imath})/ (var(Y\hat{\imath})+\sigma 2)$ (Hofmann et al., 2003).

[b]   Explained variances were computed using the formula, $var(Y\hat{\imath j})/ (var(Y\hat{\imath j})+\tau 00+\sigma 2)$ (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Table 10. *Results of Multilevel Model Analyses Using Two GLOBE Dimensions on Turnover Intentions*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		.032 **	2.679 **	2.680 **	2.680 **
Gender		-.042 *	-.049 **	-.049 **	-.048 **
Age		-.012 **	-.016 **	-.016 **	-.016 **
Level of education		.010	.038 **	.038 **	.037 **
Organizational constraints			.104 **	.104 **	.103 **
Job control			-.047 **	-.047 **	-.047 **
PDM			-.204 **	-.204 **	-.206 **
Supervisor support			-.188 **	-.188 **	-.188 **
Senior leader support			-.252 **	-.252 **	-.250 **
Clear goals and feedback			-.080 **	-.080 **	-.077 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		-.467	-.478	-.054	-.054
Age		.012	.012	-.009	-.009
Level of education		-.021	-.021	-.081	-.081
GP_INS				-.076 *	-.076 *
GP_ING				.077	.077
GP_UAI				-.114 *	-.114 *
Cross-level interactions					
GP_INS X OC					.012
GP_ING X OC					.033 *
GP_UAI X OC					-.041 **
GP_INS X JC					-.029 **
GP_ING X JC					-.015
GP_UAI X JC					.005
GP_INS X PDM					.019
GP_ING X PDM					.010
GP_UAI X PDM					-.012
GP_INS X SUS					.011
GP_ING X SUS					.000
GP_UAI X SUS					-.021
GP_INS X SLS					-.003
GP_ING X SLS					-.035 *
GP_UAI X SLS					.031 *
GP_INS X CGF					-.007
GP_ING X CGF					-.022
GP_UAI X CGF					-.006
Between variance (τ00)	.030	.025	.025	.015	.015
Within variance (σ2)	1.538	1.524	1.033	1.033	1.028
df	3	10	16	19	37
Deviance (-2LL)	74823.052	74612.830	64982.376	64970.673	64878.454
ΔDeviance (-2LL)		210.222 **	9630.454 **	11.702	92.220 **
ΔOLS explained variance[a]		.008	.230	.005	.003
ΔMVP explained variance[b]		.008	.226	.005	.003

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; INS = Institutional collectivism; ING = In-group collectivism; UAI = Uncertainty avoidance; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered variables are grand mean centered.

[a] Explained variances were computed using the formula, $var(\hat{Y}i)/ (var(\hat{Y}i)+\sigma2)$ (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, $var(\hat{Y}ij)/ (var(\hat{Y}ij)+\tau00+\sigma2)$ (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.*

Model 2 in Table 7 and 8, job demands (i.e., organizational constraints) and job resources together explained -2% of the variance in job satisfaction, and -2% of variance in turnover intentions at the between-country level, and 54% of the variance in job satisfaction and 32% of the variance in turnover intentions at the within-country level. Similarly, for Model 2 in Table 9 and 10, job demands and job resources together explained -1% of the variance in job satisfaction and -2% of the variance in turnover intentions at the between-country level of analysis, and 54% of the variance in job satisfaction and 32% of the variance in turnover intentions at the within-country level of analysis. Note that the effects for Model 2 in Tables 7 and 8 versus 9 and 10 are not identical despite the inclusion of the same predictors to predict the same dependent variables, as the country-level scores available for countries in the Hofstede and GLOBE models are not the same (i.e., GLOBE does not have cultural dimensions scores for Saudi Arabia or the United Arab Emirates), so a slightly different set of countries are included for the two sets of analyses.

Note that although negative percentage of variance explained are theoretically impossible, negative percentage of variance explained calculations have been found in a number of multilevel studies and is currently an unresolved problem in multilevel research (LaHuis, Hartman, Hakoyama, & Clark, 2014). In previous studies, percentage of variance explained statistics have not always been consistently reported in multilevel work. In fact, LaHuis et al. (2014) found that approximately 40% of multilevel studies in ten top I/O journals did not report proportion of variance explained statistics. In their review of methods to calculate percentage of variance explained statistics in multilevel models, LaHuis et al. (2014) reports that there are four approaches: (1) Bryk and Raudenbushs's (1992) formula (B&R), (2) Snijders and Bosker's (1994) approach (S&B), (3) Ordinary Least Squares Regression (OLS; Hofmann, Morgeson, &

Gerras, 2003)[3], and (4) Multilevel Variance Partitioning (MVP; Nakagawa & Schielzeth, 2013). LaHuis et al. (2014) reports that random intercept models may produce negative percentage of variance explained estimates when B&R and S&B approaches are used, but OLS and MVP methods do not produce negative percentage variance explained statistics. Therefore, I report variance explained estimates produced using both the OLS and MVP approaches.

Model 3 reports the direct effects of cultural dimensions on outcome variables. Model 3 in Table 7 and 8 shows that there were no direct effects of Hofstede's individualism-collectivism (job satisfaction: $\beta = -.03$, $p > .05$, turnover intentions: $\beta = .07$, $p > .05$) and uncertainty avoidance (job satisfaction: $\beta = -.11$, $p > .05$, turnover intentions: $\beta = -.01$, $p > .05$) on either job satisfaction or turnover intentions, respectively. Model 3 in Table 9 and 10 reveals GLOBE in-group collectivism was positively related to job satisfaction ($\beta = .19$, $p < .05$), such that countries lower in in-group collectivism had workers who were more satisfied with their jobs. GLOBE institutional collectivism ($\beta = -.08$, $p < .05$) and uncertainty avoidance ($\beta = -.11$, $p < .05$) were also significantly negatively related to turnover intentions, such that countries that were more individualistic or higher on uncertainty avoidance had workers with lower turnover intentions.

Cross-level interaction results for Hofstede's dimensions. My main hypotheses are tested in Model 4 of Table 7 and 8, which depicts cross-level interactions between Hofstede's cultural dimensions on individual-level relationships between job demands and job resources together on job satisfaction and turnover intentions, respectively.

Job Demands. The relationship between organizational constraints and job satisfaction and turnover intentions, respectively, were not moderated by country-level individualism-

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[3] Some researchers have argued that an OLS approach is not appropriate for the nested structure of multilevel data since it underestimates the appropriate standard errors for regression coefficients (e.g., Bliese & Hanges, 2004). However, OLS still produces unbiased regression coefficients (LaHuis et al., 2014), and in turn produces unbiased percentage of variance explained statistics. Therefore, I also utilized the OLS approach in the present study.

collectivism (job satisfaction: $\gamma = .010$, $p > .05$, turnover intentions: $\gamma = .012$, $p > .05$) or

uncertainty avoidance (job satisfaction: $\gamma = .007$, $p > .05$, turnover intentions: $\gamma = .021$, $p > .05$),

failing to support Hypothesis 7 and 8. Thus, it appears that the relationship between job demands

and strain outcomes did not differ across cultures by these two cultural dimensions.

Job Resources. For job control, there was a significant cross-level interaction for

turnover intentions, but not for job satisfaction, partially supporting Hypothesis 9. Specifically,

individualism-collectivism moderated the relationship between job control and turnover

intentions ($\gamma = -.028$, $p < .05$), such that the relationship was stronger in more individualistic

cultures (see Figure 2).

Figure 2. The moderating effect of Hofstede' individualism-collectivism in the relationship
between job control and turnover intentions

Although there was also significant cross-level interactions such that country-level

uncertainty avoidance moderated the relationship between job control and job satisfaction (γ

$= .021$, $p < .01$) and turnover intentions ($\gamma = -.038$, $p < .01$), respectively, the form of the

interaction was contrary to what was hypothesized. Specifically, the relationship between job

control and strain outcomes was stronger in high uncertainty avoidance cultures than in low

uncertainty avoidance cultures (see Figure 3), failing to support Hypothesis 10.
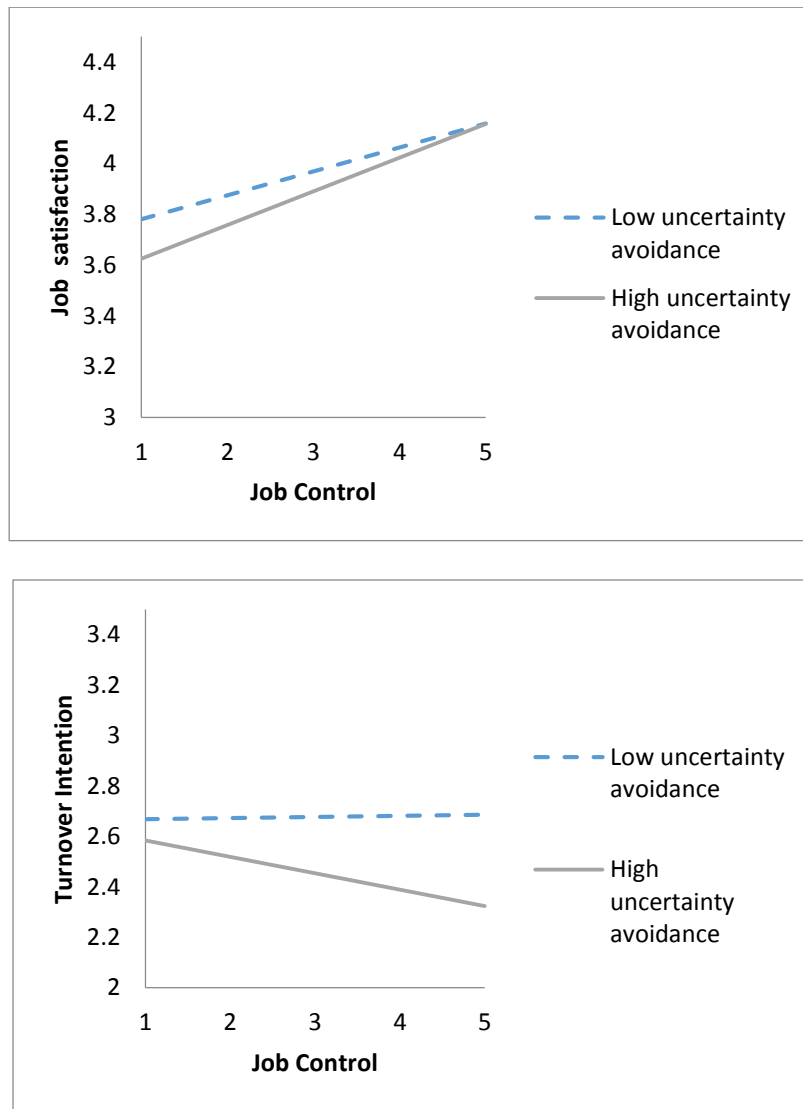
Figure 3. The moderating effect of Hofstede' uncertainty avoidance in the relationship between job control and job satisfaction and turnover intentions

There was also significant cross-level interactions found between both country-level

dimensions on the relationship between participation in decision-making and job satisfaction and

turnover intentions. Relationships between participation in decision-making and job satisfaction

($\gamma = -.051, p < .01$) and turnover intentions ($\gamma = .055, p < .01$) were both stronger in more

collectivistic cultures (see Figure 4), supporting Hypothesis 11.
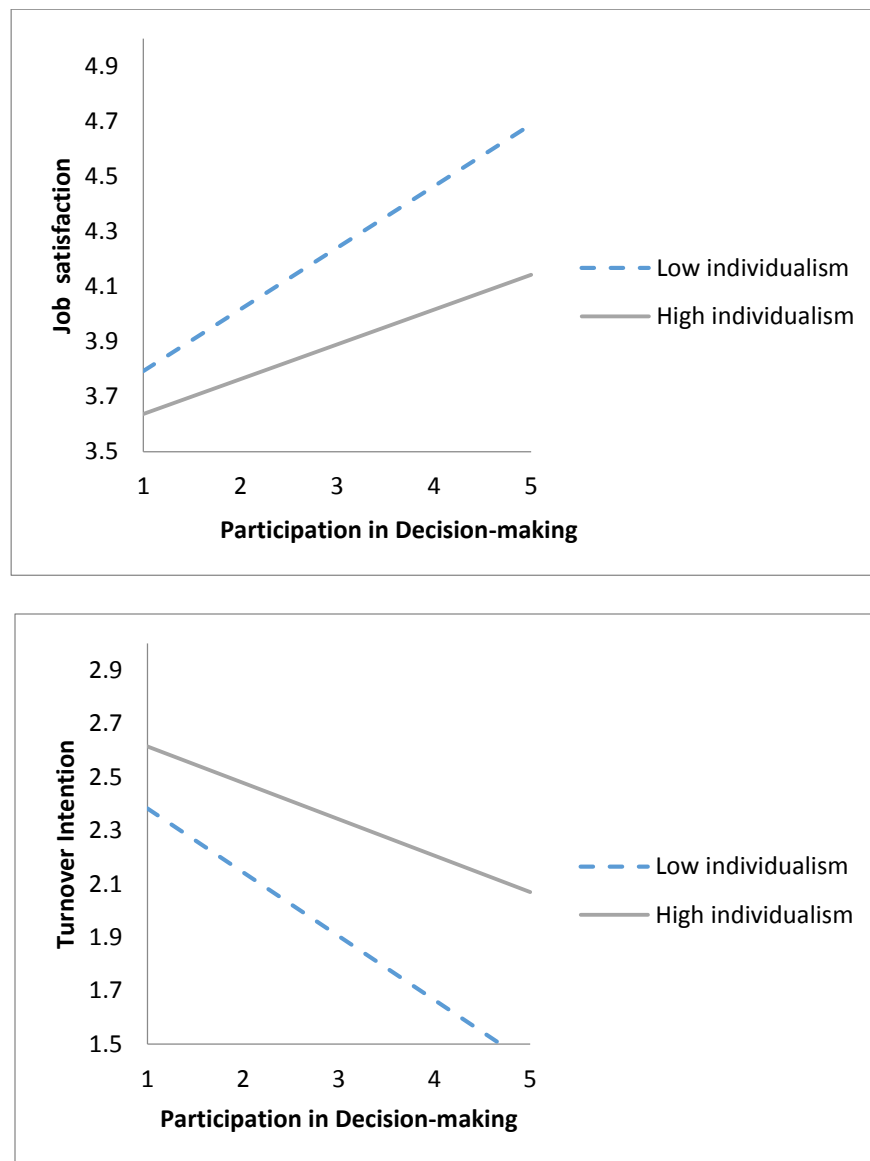
Figure 4. The moderating effect of Hofstede' individualism-collectivism in the relationship between participation in decision-making and job satisfaction and turnover intentions

Similarly, cross-level interactions were found such that the relationships between

participation in decision-making and job satisfaction ($\gamma = -.027, p < .01$) and turnover intentions

(γ = .039, p < .05) were stronger in cultures lower on uncertainty avoidance (see Figure 5),

supporting Hypothesis 12.
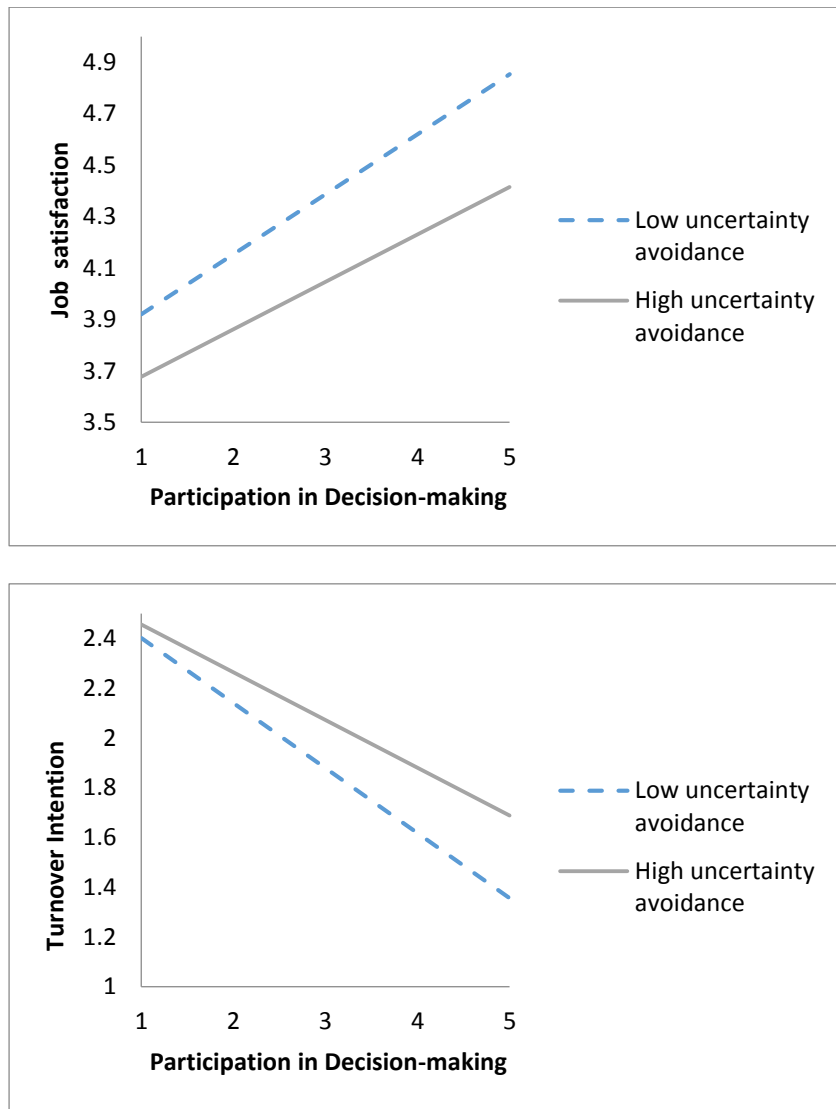
Figure 5. The moderating effect of Hofstede' uncertainty avoidance in the relationship between participation in decision-making and job satisfaction and turnover intentions

Contrary to expectations, individualism-collectivism did not moderate the relationship

between direct supervisor support and job satisfaction (γ = -.001, p > .05) or turnover intentions

(γ = -.013, p > .05), failing to support Hypothesis 15. Although country-level individualism-

collectivism also did not moderate the relationship between senior leader support and job

satisfaction ($\gamma = .007$, $p > .05$), it did moderate the relationship between senior leader support

and turnover intentions ($\gamma = -.037$, $p < .05$). Contrary to what was hypothesized, the relationship

between senior leader support and turnover intentions was stronger in more individualistic

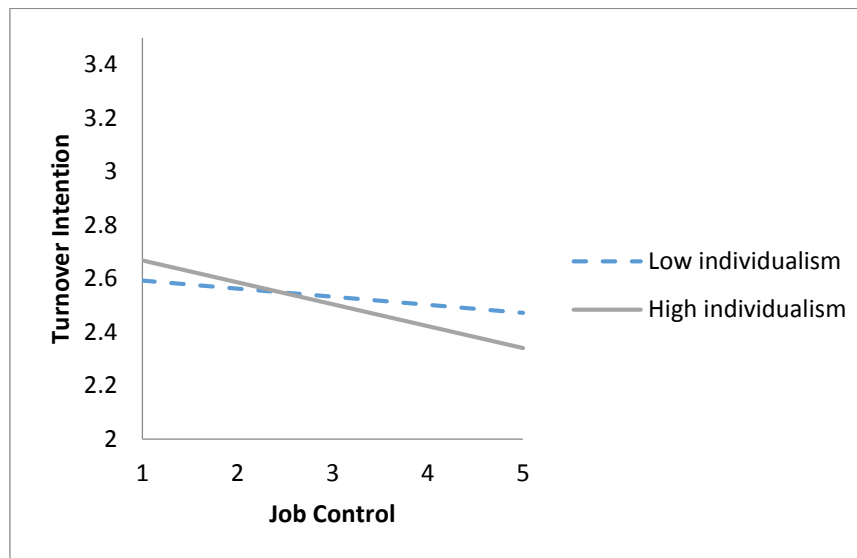cultures (see Figure 6), failing to support Hypothesis 16.
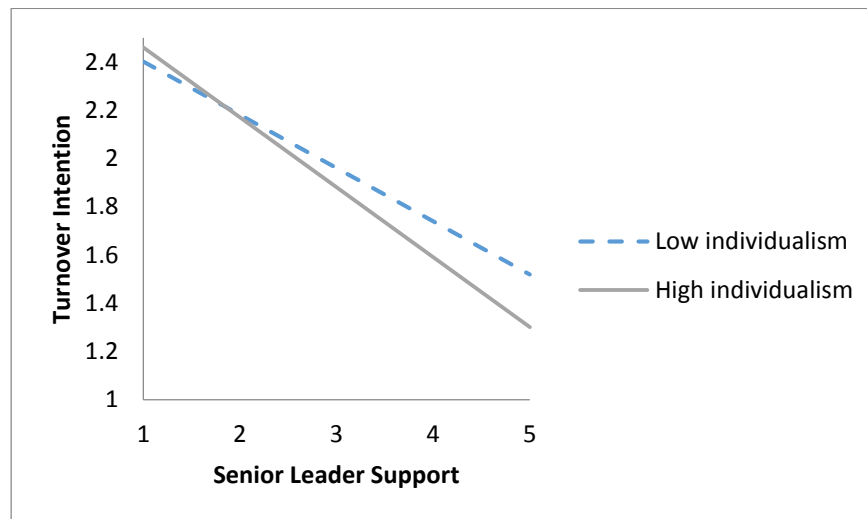
Figure 6. The moderating effect of Hofstede' individualism-collectivism in the relationship
between senior leader support and turnover intentions

Finally, I did not find any evidence of cross-level interactions between uncertainty

avoidance and the relationship between clear goals and performance feedback and either job

satisfaction ($\gamma = .015$, $p > .05$) or turnover intentions ($\gamma = -.001$, $p > .05$), failing support

Hypothesis 17. Thus, it appears that the impact of clear goals and performance feedback operated

similarly for workers across cultures, regardless of country-level uncertainty avoidance.

Cross-level interaction results for GLOBE dimensions. [4] Model 4 in Table 9 and 10

shows cross-level interactions between GLOBE dimensions and individual-level relationships

between job demands or resources and job satisfaction and turnover intentions, respectively.

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[4] Note that GLOBE has two dimensions representing individualism-collectivism, in-group collectivism and
institutional collectivism, while Hofstede only has one dimension. Since the two collectivism dimensions are
correlated with each, in order to better compare GLOBE and Hofstede results, I also re-ran analyses only including

Job Demands. There were no significant cross-level moderating effects of institutional collectivism on the relationship between organizational constraints with job satisfaction (γ = -.006, p > .05) or turnover intentions (γ = .012, p > .05). In contrast, there was a significant cross-level interaction between in-group collectivism and the relationship between organizational constraints and turnover intensions (γ = .033, p < .05), but this cross-level interaction was not found for the relationship between organizational constraints and job satisfaction (γ = .003, p >.05). Specifically, the relationship between organizational constraints and turnover intentions was stronger in countries higher on in-group individualism (see Figure 7), partially supporting Hypothesis 7.
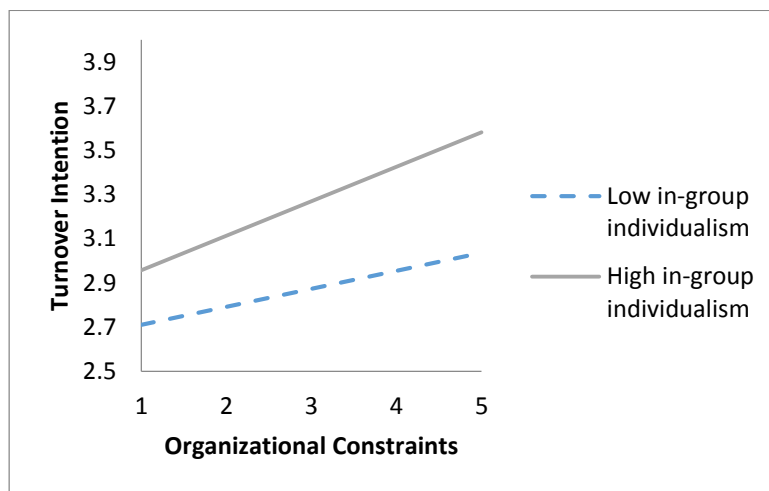
Figure 7. The moderating effect of GLOBE in-group collectivism in the relationship between organizational constraints and turnover intentions

There was also a significant cross-level interaction between country-level uncertainty avoidance and the relationship between organizational constraints and turnover intentions (γ = -.041, p < .01), but not the relationship between organizational constraints and job satisfaction (γ = -.005, p > .05). Contrary to what I posited, the relationship between organizational constraints

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in-group collectivism, which is more strongly correlated with Hofstede's operationalization of individualism-collectivism and those analyses are included in footnotes where appropriate throughout this section.

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and turnover intentions was stronger in lower uncertainty avoidance cultures (see Figure 8), failing to support Hypothesis 8.[5]
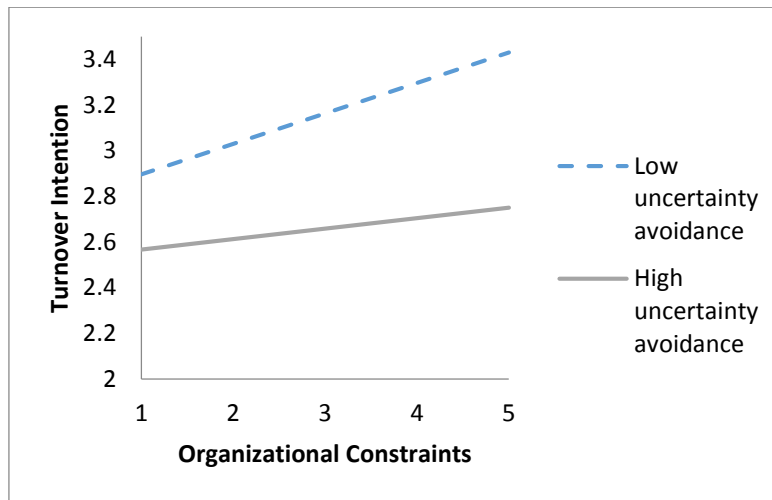
Figure 8. The moderating effect of GLOBE uncertainty avoidance in the relationship between organizational constraints and turnover intentions

Job Resources. The relationship between job control and job satisfaction ($\gamma = .016$, $p < .01$) and job control and turnover intentions ($\gamma = -.029$, $p < .01$) were both moderated by country-level institutional collectivism, but neither relationship was moderated by country-level in-group collectivism (job satisfaction: $\gamma = .007$, $p > .05$, turnover intentions: $\gamma = -.015$, $p > .05$).[6] Specifically, job control was more strongly related to both strain outcomes in countries higher in institutional individualism (see Figure 9), partially supporting Hypothesis 9.

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[5] In the analysis including only in-group collectivism, it was found to moderate the relationship between organizational constraints and turnover intentions ($\beta = .037$, $p < .05$), but not job satisfaction ($\gamma = .009$, $p > .05$).
[6] In the analysis including only in-group collectivism, it did not moderate the relationship between job control and job satisfaction ($\gamma = -.001$, $p > .05$) or job control and turnover intentions ($\gamma = -.001$, $p > .05$).
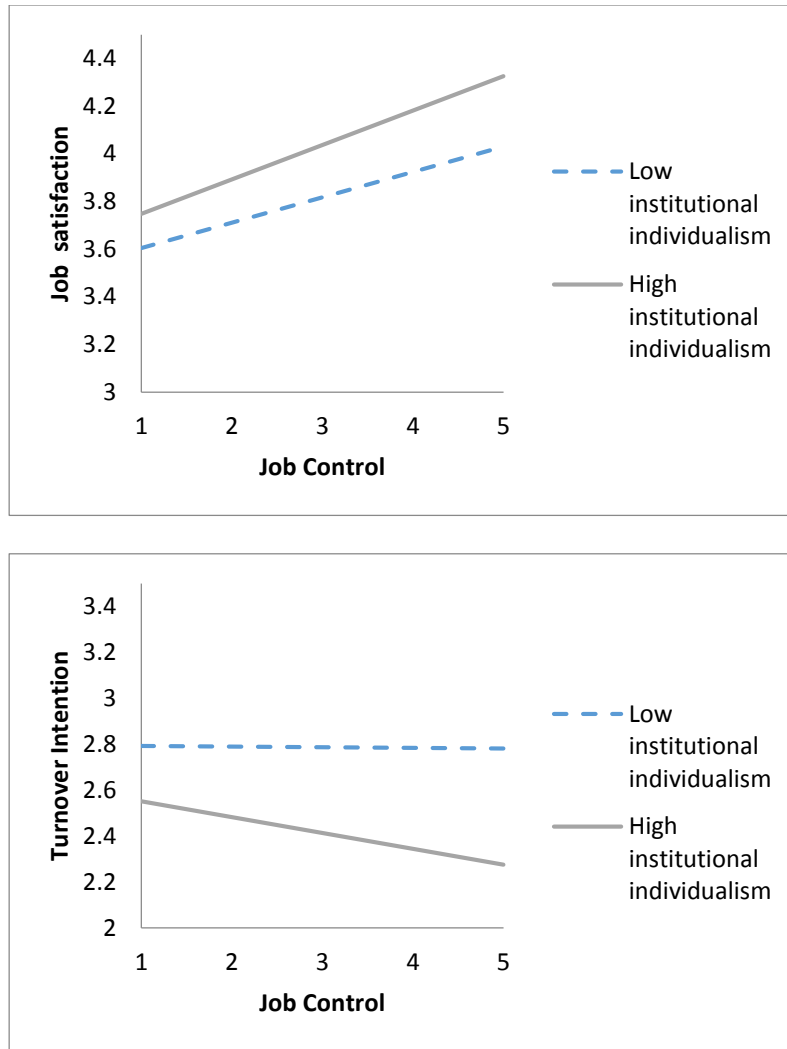
Figure 9. The moderating effect of GLOBE institutional collectivism in the relationship between job control and job satisfaction and turnover intentions

Uncertainty avoidance also moderated the relationship between job control and job satisfaction (γ = -.017, $p < .05$), but not the relationship between job control and turnover intentions (γ = .005, $p > .05$), partially supporting Hypothesis 10. Specifically, the relationship between job control and job satisfaction was stronger in lower uncertainty avoidance countries (see Figure 10).
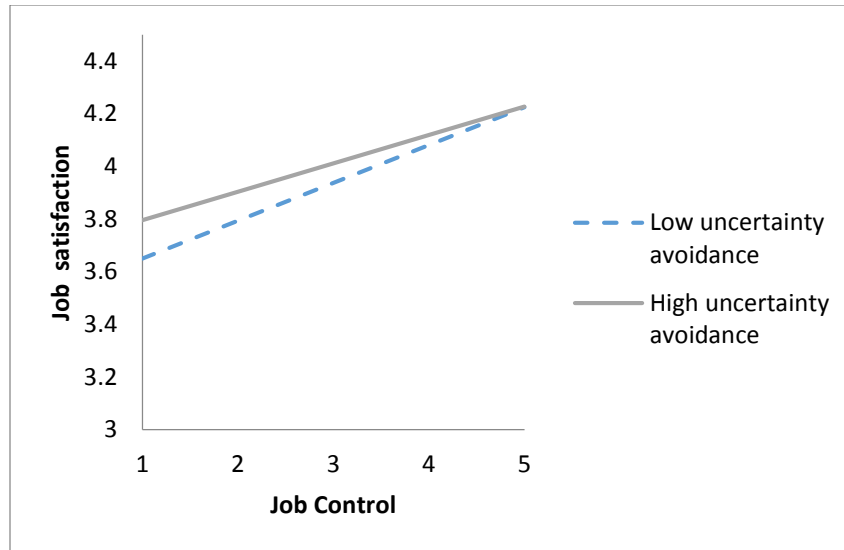
Figure 10. The moderating effect of GLOBE uncertainty avoidance in the relationship between job control and job satisfaction

Both institutional collectivism and in-group collectivism moderated the relationship between participation in decision-making and job satisfaction ($\gamma = -.016$, $p < .05$ and $\gamma = -.030$, $p < .05$, respectively), but not the relationship between participation in decision-making and turnover intentions ($\gamma = .019$, $p > .05$ and $\gamma = .010$, $p > .05$, respectively), partially supporting Hypothesis 11.[7] Specifically, the relationship between participation in decision-making and job satisfaction was stronger in more collectivistic cultures, as assessed by institutional collectivism and in-group collectivism (see Figure 11).

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[7] In the analysis including only in-group collectivism, it moderated the relationship between participation in decision-making and job satisfaction ($\gamma = -.033$, $p < .05$), but not participation in decision-making and turnover intentions ($\gamma = .005$, $p > .05$).
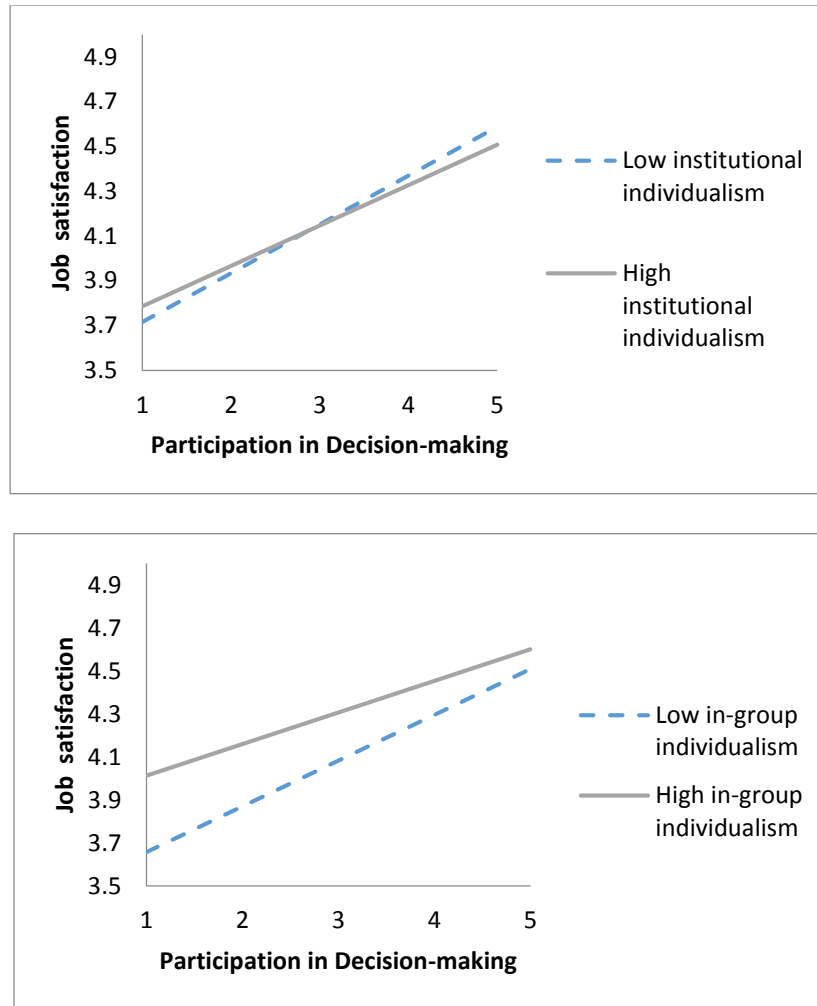
Figure 11. The moderating effect of GLOBE institutional collectivism and GLOBE in-group collectivism in the relationship between participation in decision-making and job satisfaction

Uncertainty avoidance did not moderate the relationship between either participation in decision-making and job satisfaction (γ = .013, p > .05) or participation in decision-making and turnover intentions (γ = -.012, p > .05), failing to support Hypothesis 12.

For the relationship between direct supervisor support and strain outcomes, no significant moderating effects for either institutional collectivism (job satisfaction: γ = -.006, p > .05, turnover intentions: γ = .011, p >.05) or in-group collectivism (job satisfaction: γ = -.002,

$p > .05$, turnover intentions, $\gamma = .000$, $p > .05$) were found, failing to support Hypothesis 15.[8] For the relationship between senior leader support and strain outcomes, institutional collectivism did not moderate either the relationship between senior leader support and job satisfaction ($\gamma = -.001$, $p > .05$) or the relationship between senior leader support and turnover intentions ($\gamma = -.003$, $p > .05$). In-group collectivism did moderate the relationship between senior leader support and turnover intentions ($\gamma = -.035$, $p < .05$), but not the relationship between senior leader support and job satisfaction ($\gamma = .014$, $p > .05$). [9] Specifically, workers in more individualistic cultures reported stronger relationships between senior leader support and turnover intentions, contrary to what was hypothesized in Hypothesis 16 (see Figure 12).
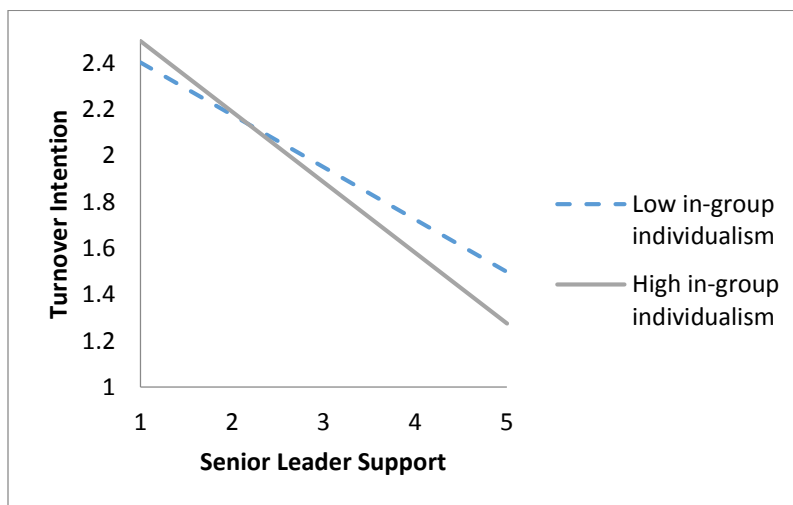
Figure 12. The moderating effect of GLOBE in-group collectivism in the relationship between senior leader support and turnover intentions

For clear goals and performance feedback, country-level uncertainty avoidance did not moderate the relationship between clear goals and performance feedback and job satisfaction (γ

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[8] In the analysis only including in-group collectivism, it did not moderate the relationship between supervisor support and job satisfaction ($\gamma = -.005$, $p > .05$) or supervisor support and turnover intentions ($\gamma = -.003$, $p > .05$).
[9] In the analysis only including in-group collectivism, it moderated the relationship between senior leader support and turnover intentions ($\gamma = -.045$, $p < .01$), but not senior leader support and job satisfaction ($\gamma = .012$, $p > .05$).

= .017, $p > .05$) or clear goals and performance feedback and turnover intentions ($\gamma = -.006$,

$p > .05$), failing to support Hypothesis 17.

Supplemental Analyses: Controlling for Other Cultural Dimensions

Although moderating effects of other cultural dimensions on the relationships between

job demands and resources on strain outcomes (i.e., job satisfaction and turnover intentions)

were not hypothesized, I also ran supplemental analyses that included main effects of all cultural

dimensions in each model as well as cross-level moderating effects of all cultural dimensions in

each model, separately for the Hofstede and GLOBE models, in order to see whether the

inclusion of these other dimensions changed my conclusions (see Table 11 and 12 for Hofstede

and Table 13 and 14 for GLOBE results).

Hofstede model. In short, the inclusion of other cultural dimensions did change some

results regarding the two focal cultural dimensions (i.e., individualism-collectivism and

uncertainty avoidance). Specifically, Table 11 and 12 shows that five significant cross-level

moderating effects in Table 7 and 8 were no longer significant, though three prior significant

cross-level moderating effects remained for the Hofstede model (i.e., the moderating effect of

individualism-collectivism and uncertainty avoidance on the relationship between participation

in decision-making and job satisfaction and the moderating effect of individualism-collectivism

on the relationship between senior leader support and turnover intentions). Specifically,

uncertainty avoidance no longer moderated the relationship between job control and job

satisfaction ($\gamma = .002$, $p > .05$), individualism-collectivism ($\gamma = -.012$, $p > .05$) and uncertainty

avoidance ($\gamma = -.024$, $p > .05$) no longer moderated the relationship between job control and

turnover intentions, and individualism-collectivism ($\gamma = .054$, $p > .05$) and uncertainty avoidance

Table 11. *Results of Multilevel Model Analyses Using All Hofstede's Dimensions on Job Satisfaction*

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		3.552 **	3.557 **	3.557 **	3.557 **
Gender		.031 *	.035 **	.035 **	.031 **
Age		.003 **	.005 **	.005 **	.005 **
Level of education		.038 **	.003	.003	.003
Organizational constraints			-.136 **	-.136 **	-.136 **
Job control			.108 **	.108 **	.108 **
PDM			.205 **	.205 **	.207 **
Supervisor support			.145 **	.145 **	.144 **
Senior leader support			.147 **	.147 **	.149 **
Clear goals and feedback			.204 **	.204 **	.198 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		2.375	2.288	-.386	-.386
Age		.017	.016	-.022	-.022
Level of education		.227 *	.221 *	.187	.187
Hofstede_PDI				-.107	-.107
Hofstede_UAI				-.038	-.038
Hofstede_IDV				.113	.113
Hofstede_MAS				-.099 *	-.099 *
Hofstede_LTO				.030	.030
Cross-level interactions					
Hofstede_PDI X OC					-.009
Hofstede_UAI X OC					.025 *
Hofstede_IDV X OC					.034
Hofstede_MAS X OC					-.018 **
Hofstede_LTO X OC					.028
Hofstede_PDI X JC					.031 **
Hofstede_UAI X JC					.002
Hofstede_IDV X JC					.023
Hofstede_MAS X JC					.009
Hofstede_LTO X JC					-.009
Hofstede_PDI X PDM					.038 *
Hofstede_UAI X PDM					-.038 **
Hofstede_IDV X PDM					-.042 *
Hofstede_MAS X PDM					.007
Hofstede_LTO X PDM					-.016
Hofstede_PDI X SUS					-.016
Hofstede_UAI X SUS					.018
Hofstede_IDV X SUS					.025
Hofstede_MAS X SUS					-.012
Hofstede_LTO X SUS					.034 *
Hofstede_PDI X SLS					.003
Hofstede_UAI X SLS					-.013
Hofstede_IDV X SLS					-.011
Hofstede_MAS X SLS					.013
Hofstede_LTO X SLS					-.015

Table 11. *Results of Multilevel Model Analyses Using All Hofstede's Dimensions on Job Satisfaction (Continued)*

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Hofstede_PDI X CGF					-.024
Hofstede_UAI X CGF					.037 **
Hofstede_IDV X CGF					.019
Hofstede_MAS X CGF					-.014
Hofstede_LTO X CGF					.023
Between variance (τ00)	.047	.031	.032	.018	.018
Within variance (σ2)	.894	.891	.409	.409	.406
df	3	10	16	21	51
Deviance (-2LL)	50328.590	50241.913	35320.122	35308.391	35186.989
ΔDeviance (-2LL)		86.677 **	14921.792 **	11.730 *	121.402 **
ΔOLS explained variance[a]		.021	.564	.026	.007
ΔMVP explained variance[b]		.020	.545	.025	.007

Note . OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor

support; SLS = Senior leader support; CGF = Clear goals and feedback; PDI = Power distance; UAI = Uncertainty avoidance

IDV = Individualism-collectivism; MAS = Masculinity-Femininity; LTO = Long term orientation-short term orientation;

ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a]   Explained variances were computed using the formula,var(Yî)/ (var(Yî)+σ2) (Hofmann et al., 2003).

[b]   Explained variances were computed using the formula, var(Yîj)/ (var(Yîj)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

p < .05. **p* < .01.

Table 12. *Results of Multilevel Model Analyses Using All Hofstede's Dimensions on Turnover Intentions*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		2.654 **	2.652 **	2.652 **	2.652 **
Gender		-.052 **	-.054 **	-.054 **	-.053 **
Age		-.013 **	-.017 **	-.017 **	-.017 **
Level of education		.007	.040 **	.040 **	.038 **
Organizational constraints			.103 **	.103 **	.107 **
Job control			-.040 **	-.040 **	-.040 **
PDM			-.210 **	-.210 **	-.222 **
Supervisor support			-.188 **	-.188 **	-.186 **
Senior leader support			-.241 **	-.241 **	-.237 **
Clear goals and feedback			-.095 **	-.095 **	-.094 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		-2.271 *	-2.233 *	-1.201	-1.201
Age		.003	.004	.011	.010
Level of education		-.016	-.012	.014	.014
Hofstede_PDI				-.076	-.076
Hofstede_UAI				.024	.024
Hofstede_IDV				-.019	-.019
Hofstede_MAS				.060	.060
Hofstede_LTO				.033	.033
Cross-level interactions					
Hofstede_PDI X OC					-.025
Hofstede_UAI X OC					.014
Hofstede_IDV X OC					-.019
Hofstede_MAS X OC					.018
Hofstede_LTO X OC					-.013
Hofstede_PDI X JC					.000
Hofstede_UAI X JC					-.024
Hofstede_IDV X JC					-.012
Hofstede_MAS X JC					-.007
Hofstede_LTO X JC					.012
Hofstede_PDI X PDM					.052 *
Hofstede_UAI X PDM					.016
Hofstede_IDV X PDM					.054
Hofstede_MAS X PDM					-.004
Hofstede_LTO X PDM					-.028
Hofstede_PDI X SUS					.029
Hofstede_UAI X SUS					-.014
Hofstede_IDV X SUS					-.052
Hofstede_MAS X SUS					.019
Hofstede_LTO X SUS					-.057 *
Hofstede_PDI X SLS					-.023
Hofstede_UAI X SLS					.011
Hofstede_IDV X SLS					-.060 *
Hofstede_MAS X SLS					.002
Hofstede_LTO X SLS					-.017

Table 12. *Results of Multilevel Model Analyses Using All Hofstede's Dimensions on Turnover Intentions (Continued)*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Hofstede_PDI X CGF					.004
Hofstede_UAI X CGF					-.009
Hofstede_IDV X CGF					-.001
Hofstede_MAS X CGF					.029 *
Hofstede_LTO X CGF					.030
Between variance (τ00)	.029	.021	.022	.017	.017
Within variance (σ2)	1.548	1.530	1.044	1.044	1.038
df	3	10	16	21	51
Deviance (-2LL)	60339.632	60121.477	52198.038	52193.060	52093.171
ΔDeviance (-2LL)		218.155 **	7923.439 **	4.978	99.889 **
ΔOLS explained variance[a]		.010	.224	.009	.005
ΔMVP explained variance[b]		.010	.220	.008	.005

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; PDI = Power distance; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; MAS = Masculinity-Femininity; LTO = Long term orientation-short term orientation; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a] Explained variances were computed using the formula,var(Yˆi)/ (var(Yˆi)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Yˆij)/ (var(Yˆij)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*$p < .05$. **$p < .01$.

($\gamma = .016$, $p > .05$) no longer moderated the relationship between participation in decision-making and turnover intentions. Additionally, two previous non-significant cross-level moderating effects in Table 7 and 8 were now statistically significant in Table 11 and 12. Specifically, uncertainty avoidance now significantly moderated the relationship between organizational constraints and job satisfaction ($\gamma = .025$, $p < .05$), such that the relationship between was stronger in lower uncertainty avoidance cultures (see Figure 13), contrary to Hypothesis 8.

Also, uncertainty avoidance now significantly moderated the relationship between clear goals and performance feedback and job satisfaction ($\gamma = .037$, $p < .01$), such that the relationship was stronger in higher uncertainty avoidance cultures (see Figure 14), consistent with Hypothesis 17. The inclusion of power distance, masculinity-femininity, and long-term orientation also revealed some additional cross-level moderating effects with these dimensions

(see Table 11 and 12), though these significant effects were generally spread across the three

dimensions (i.e., did not appear that one dimension were driving these effects).
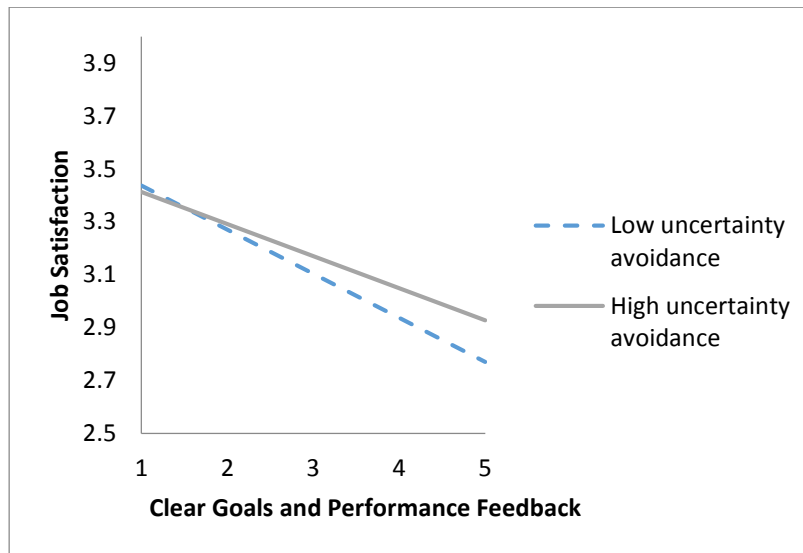
Figure 13. The moderating effect of Hofstede's uncertainty avoidance in the relationship
between organizational constraints and job satisfaction
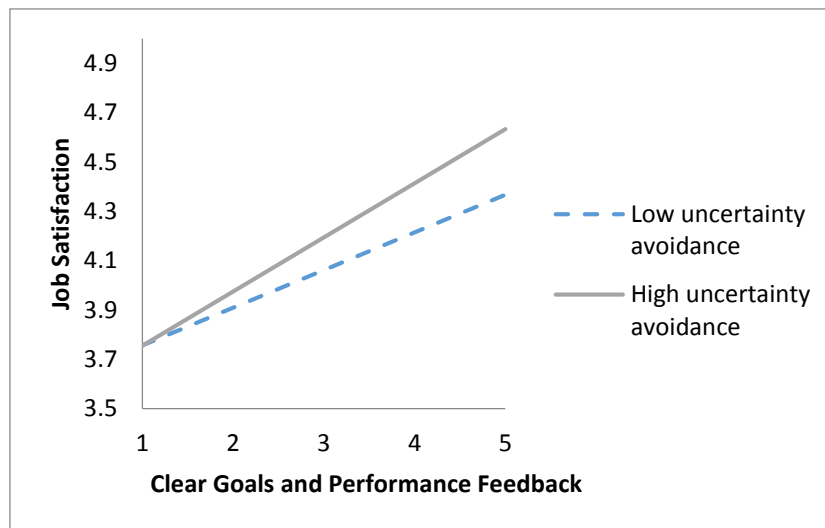
Figure 14. The moderating effect of Hofstede's uncertainty avoidance in the relationship
between clear goals and performance feedback and job satisfaction

GLOBE model. For the GLOBE analyses, when including all GLOBE dimensions,

seven significant cross-level moderating effects from Table 9 and 10 were no longer statistically

significant (see Table 13 and 14). However, three prior significant cross-level moderating effects remained (i.e., the moderating effect of institutional collectivism on the relationship between job control and job satisfaction, the moderating effect of in-group collectivism on the relationship between organizational constraints and turnover intentions, and the moderating effect of uncertainty avoidance on the relationship between senior leader support and turnover intentions). Specifically, uncertainty avoidance no longer moderated the relationship between job control and job satisfaction (γ = -.016, p > .05), institutional collectivism (γ= .000, p > .05) and in-group collectivism (γ = -.016, p > .05) no longer moderated the relationship between participation in decision-making and job satisfaction, uncertainty avoidance (γ = .013, p > .05) no longer moderated the relationship between senior leader support and job satisfaction, uncertainty avoidance no longer moderated the relationship between organizational constraints and turnover intentions (γ = -.026, p > .05), institutional collectivism no longer moderated the relationship between job control and turnover intentions (γ = -.014, p > .05), and in-group collectivism no longer moderated the relationship between senior leader support and turnover intentions (γ = .002, p > .05). Additionally, the inclusion of assertiveness, future orientation, gender egalitarianism, human orientation, performance orientation, and power distance did reveal some additional cross-level moderating effects with these dimensions (see Table 13 and 14). Similar to the Hofstede model, the significant effects were generally evenly spread across the dimensions. Thus, it does not appear that one cultural dimension was driving the differences in effects across the two sets of analyses.

Table 13. *Results of Multilevel Model Analyses Using All GLOBE Dimensions on Job Satisfaction*

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		3.566 **	3.571 **	3.570	3.570 **
Gender		.024	.029 **	.029 **	.026 **
Age		.002 **	.005 **	.005 **	.005 **
Level of education		.035 **	.003	.003	.003
Organizational constraints			-.133 **	-.133 **	-.136 **
Job control			.114 **	.114 **	.118 **
PDM			.201 **	.201 **	.204 **
Supervisor support			.139 **	.139 **	.137 **
Senior leader support			.150 **	.150 **	.151 **
Clear goals and feedback			.205 **	.205 **	.201 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		.087	.082	-.362	-.362
Age		.009	.008	-.018	-.018
Level of education		.125	.122	.330 **	.330 **
GP_AS				.133 *	.133 *
GP_INS				-.011	-.011
GP_ING				.156 *	.156 *
GP_FO				-.140 **	-.140 **
GP_GE				.034	.034
GP_HO				-.004	-.004
GP_PO				-.060	-.060
GP_PDI				-.151 **	-.151 **
GP_UAI				.148 **	.148 **
Cross-level interactions					
GP_AS X OC					.057 **
GP_INS X OC					-.024 *
GP_ING X OC					.002
GP_FO X OC					.001
GP_GE X OC					-.001
GP_HO X OC					.032 *
GP_PO X OC					-.039 **
GP_PDI X OC					.005
GP_UAI X OC					.004
GP_AS X JC					-.001
GP_INS X JC					.020 *
GP_ING X JC					-.011
GP_FO X JC					.013
GP_GE X JC					-.038 **
GP_HO X JC					.015
GP_PO X JC					.014
GP_PDI X JC					.026 **
GP_UAI X JC					-.016
GP_AS X PDM					-.041 *
GP_INS X PDM					.000
GP_ING X PDM					-.016

Table 13. *Results of Multilevel Model Analyses Using All GLOBE Dimensions on Job Satisfaction (Continued)*

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
GP_FO X PDM					.014
GP_GE X PDM					.007
GP_HO X PDM					-.026
GP_PO X PDM					.007
GP_PDI X PDM					.001
GP_UAI X PDM					-.002
GP_AS X SUS					.014
GP_INS X SUS					-.020
GP_ING X SUS					.004
GP_FO X SUS					-.017
GP_GE X SUS					.011
GP_HO X SUS					-.012
GP_PO X SUS					-.003
GP_PDI X SUS					-.012
GP_UAI X SUS					.016
GP_AS X SLS					.009
GP_INS X SLS					-.001
GP_ING X SLS					.012
GP_FO X SLS					.009
GP_GE X SLS					-.002
GP_HO X SLS					.015
GP_PO X SLS					-.011
GP_PDI X SLS					.013
GP_UAI X SLS					-.022
GP_AS X CGF					.033
GP_INS X CGF					-.016
GP_ING X CGF					-.015
GP_FO X CGF					.004
GP_GE X CGF					.014
GP_HO X CGF					.011
GP_PO X CGF					-.006
GP_PDI X CGF					-.006
GP_UAI X CGF					.015
Between variance ($\tau 00$)	.042	.037	.037	.007	.007
Within variance ($\sigma 2$)	.889	.886	.410	.410	.407
df	3	10	16	25	79
Deviance (-2LL)	62386.450	62305.913	44004.830	43964.208	43807.408
ΔDeviance (-2LL)		80.538 **	18301.083 **	40.622 **	156.800 **
ΔOLS explained variance[a]		.010	.566	.026	.010
ΔMVP explained variance[b]		.010	.545	.026	.010

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; AS = Assertiveness; INS = Institutional collectivism; ING = In-group collectivism; FO = Future orientation; GE = Gender egalitarianism; HO = Human orientation; PO = Performance orientation; PDI = Power distance; UAI = Uncertainty avoidance; ICC = Intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered

[a] Explained variances were computed using the formula, $\mathrm{var}(\hat{Y}i)/ (\mathrm{var}(\hat{Y}i)+\sigma 2)$ (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, $\mathrm{var}(\hat{Y}ij)/ (\mathrm{var}(\hat{Y}ij)+\tau 00+\sigma 2)$ (Nakagawa & Schielzeth, 2013).

*$p < .05$. **$p < .01$.*

Table 14. *Results of Multilevel Model Analyses Using All GLOBE Dimensions on Turnover Intentions*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		2.680	2.678 **	2.679 **	2.679 **
Gender		-.042 *	-.049 **	-.049 **	-.048 **
Age		-.012 **	-.016 **	-.016 **	-.016 **
Level of education		.010	.038 **	.038 **	.037 **
Organizational constraints			.106 **	.106 **	.113 **
Job control			-.039 **	-.039 **	-.036 **
PDM			-.207 **	-.207 **	-.216 **
Supervisor support			-.189 **	-.189 **	-.185 **
Senior leader support			-.253 **	-.253 **	-.243 **
Clear goals and feedback			-.082 **	-.082 **	-.080 **
Level 2					
GDP PPP		.000	.000	.000 **	.000 **
Gender		-.467	-.479	.496	.496
Age		.012	.012	-.021	-.021
Level of education		-.021	-.020	-.180 **	-.180 **
GP_AS				-.038	-.038
GP_INS				-.048	-.048
GP_ING				.161 *	.161 *
GP_FO				.139 **	.139 **
GP_GE				.033	.033
GP_HO				.051	.052
GP_PO				.024	.024
GP_PDI				.142 **	.142 **
GP_UAI				-.185 **	-.185 **
Cross-level interactions					
GP_AS X OC					-.044
GP_INS X OC					.020
GP_ING X OC					.039 *
GP_FO X OC					-.069 **
GP_GE X OC					.007
GP_HO X OC					-.039
GP_PO X OC					.055 **
GP_PDI X OC					-.032
GP_UAI X OC					-.026
GP_AS X JC					-.026
GP_INS X JC					-.014
GP_ING X JC					-.008
GP_FO X JC					-.009
GP_GE X JC					.016
GP_HO X JC					-.006
GP_PO X JC					.012
GP_PDI X JC					-.018
GP_UAI X JC					.001
GP_AS X PDM					.034
GP_INS X PDM					.009
GP_ING X PDM					.000
GP_FO X PDM					-.010
GP_GE X PDM					-.022

Table 14. *Results of Multilevel Model Analyses Using All GLOBE Dimensions on Turnover Intentions (Continued)*

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
GP_HO X PDM					.034
GP_PO X PDM					-.020
GP_PDI X PDM					.028
GP_UAI X PDM					.015
GP_AS X SUS					-.019
GP_INS X SUS					.030
GP_ING X SUS					.023
GP_FO X SUS					.023
GP_GE X SUS					.019
GP_HO X SUS					.025
GP_PO X SUS					-.005
GP_PDI X SUS					.032
GP_UAI X SUS					-.030
GP_AS X SLS					.015
GP_INS X SLS					-.025
GP_ING X SLS					.002
GP_FO X SLS					-.062 **
GP_GE X SLS					.048 **
GP_HO X SLS					-.011
GP_PO X SLS					-.001
GP_PDI X SLS					-.014
GP_UAI X SLS					.040 *
GP_AS X CGF					-.078 **
GP_INS X CGF					.036
GP_ING X CGF					-.027
GP_FO X CGF					.042
GP_GE X CGF					-.009
GP_HO X CGF					-.030
GP_PO X CGF					.013
GP_PDI X CGF					-.006
GP_UAI X CGF					-.027
Between variance ($\tau00$)	.030	.025	.025	.005	.005
Within variance ($\sigma2$)	1.538	1.524	1.032	1.032	1.022
df	3	10	16	25	79
Deviance (-2LL)	74823.052	74612.830	64691.084	64656.513	64437.204
ΔDeviance (-2LL)		210.222 **	9921.746 **	34.572 **	219.309 **
ΔOLS explained variance[a]	.000	.008	.229	.014	.007
ΔMVP explained variance[b]	.000	.008	.225	.014	.007

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; AS = Assertiveness; INS = Institutional collectivism; ING = In-group collectivism; FO = Future orientation; GE = Gender egalitarianism; HO = Human orientation; PO = Performance orientation; PDI = Power distance; UAI = Uncertainty avoidance; ICC = Intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered

[a]   Explained variances were computed using the formula, var($\hat{Y}i$)/ (var($\hat{Y}i$)+$\sigma2$) (Hofmann et al., 2003).

[b]   Explained variances were computed using the formula, var($\hat{Y}ij$)/ (var($\hat{Y}ij$)+$\tau00$+$\sigma2$) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.*

CHAPTER FOUR

DISCUSSION

The present study investigated the moderating effects of individualism-collectivism and uncertainty avoidance on key relationships in the JD-R model. Although job demands appear to be consistently positively correlated with strain and job resources consistently negatively correlated with strain across contexts, my results indicate that country-level individualism-collectivism and uncertainty avoidance do moderate some relationships between job demands and resources, on one hand, and strain outcomes (i.e., job satisfaction and turnover intentions), on the other. Thus, the *strength* of relationships within the JD-R model may not always be of the same magnitude across cultural settings. A summary of results are presented in Table 15.

One of the purposes of this study was to replicate some of the findings of Yang et al. (2012) regarding the moderating effect of individualism-collectivism on relationships between job demands and strain outcomes. However, my results were not entirely consistent with their findings. Specifically, Yang et al. found that individualism-collectivism, measured using combined scores from Hofstede's model and Spector et al.'s (2001) study, moderated the relationship between both organizational constraints and job satisfaction as well as the relationship between organizational constrains and turnover intentions in their sample, such that the relationships were stronger in more individualistic countries. However, in my study, I did not replicate these effects when using Hofstede's cultural dimensions. I did, however, find that GLOBE in-group collectivism moderated the relationship between organizational constraints and turnover intentions in the same manner, such that the relationship was stronger in more

Table 15. Summary of Cross-level Interaction Effects

Hypothesis	Hofstede		GLOBE	
	Job satisfaction (JS)	Turnover intentions (TI)	Job satisfaction (JS)	Turnover intentions (TI)
Hypothesis 7. Individualism-collectivism will moderate the relationship between organizational constraints and (a) JS and (b) TI, such that the relationships will be stronger in more individualistic cultures.	Not supported	Not supported	Not supported for institutional individualism or in-group individualism	Not supported for institutional individualism, but **supported for in-group individualism**
Hypothesis 8. Uncertainty avoidance will moderate the relationship between organizational constraints and (a) JS and (b) TI, such that the relationships will be stronger in higher uncertainty avoidance cultures.	Not supported	Not supported	Not supported	Not supported (relationship was stronger in lower uncertainty avoidance cultures)
Hypothesis 9. Individualism-collectivism will moderate the relationship between control a) JS and b) TI, such that the relationships will be stronger in more individualistic cultures.	Not supported	**Supported**	**Supported for institutional individualism,** but not supported for in-group individualism	**Supported for institutional individualism,** but not supported for in-group individualism
Hypothesis 10. Uncertainty avoidance will moderate the relationship between job control and a) JS and b) TI, such that the relationships will be stronger in lower uncertainty avoidance cultures.	Not supported (relationship was stronger in higher uncertainty avoidance cultures)	Not supported (relationship was stronger in higher uncertainty avoidance cultures)	**Supported**	Not supported
Hypothesis 11. Individualism-collectivism will moderate the relationship between participation in decision-making and a) JS and b) TI, such that the relationships will be stronger in more collectivistic cultures.	**Supported**	**Supported**	**Supported for institutional individualism and in-group individualism**	Not supported for institutional individualism or in-group individualism
Hypothesis 12. Uncertainty avoidance will moderate the relationship between participation in decision-making and a) JS and b) TI, such that the relationship will be stronger in lower uncertainty avoidance cultures.	**Supported**	**Supported**	Not supported	Not supported
Hypothesis 15. Individualism-collectivism will moderate the relationship between direct supervisor support and a) JS and b) TI, such that the relationship will be stronger in more collectivistic cultures.	Not supported	Not supported	Not supported for institutional individualism or in-group individualism	Not supported for institutional individualism or in-group individualism
Hypothesis 16. Individualism-collectivism will moderate the relationship between senior leader support and a)JS and b) TI, such that the relationship will be stronger in more collectivistic cultures.	Not supported	Not supported (relationship was stronger in more individualistic cultures)	Not supported for institutional individualism or in-group individualism	Not supported for institutional individualism or in-group individualism (for the latter, the relationship was stronger in higher in-group individualistic cultures)
Hypothesis 17. Uncertainty avoidance will moderate the relationship between clear goals and performance feedback and a) JS and b) TI, such that the relationship will be stronger in higher uncertainty avoidance cultures.	Not supported	Not supported	Not supported	Not supported

individualistic cultures, but no moderating effect was found in the relationship between organizational constraints and job satisfaction. These discrepancies may be due to differences in measures employed, the set of countries/cultures represented, and/or differences in samples (i.e., managers versus workers more broadly) between the two studies.

One of the primary contributions of the current study is my examination of whether relationships between job resources and strain outcomes vary by cultural dimensions. In particular, I find that relationships between job control, participation in decision-making, and senior leader support on strain differed by country-level cultural dimensions. Specifically, job control and senior leader support appeared to be more strongly, negatively related to strain (i.e., turnover intentions) in more individualistic cultures, and this effect was somewhat consistent across the Hofstede and GLOBE models. In contrast, participation in decision-making was more strongly, negatively related to strain (i.e., job satisfaction) in more collectivistic cultures, and this was also somewhat consistent across both models. However, note that the fact that senior leader support was more strongly related to strain in more individualistic cultures was unexpected, as I had originally theorized that senior leader support would be more important in vertical-collectivistic culture (i.e., higher collectivism and higher power distance cultures, which tend to co-occur; Rockstuhl et al., 2012). One possibility is that workers in more horizontal-individualistic cultures may be more likely to directly approach senior leaders to express concerns and suggestions and utilize their support than workers in more vertical-collectivistic cultures, who may be hesitant to fraternize with senior leaders because of their concerns of power distance. Alternatively, the specific items assessing senior leader support in the current study generally referred to management's provision of individualized consideration. Prior research suggests that individuals in more individualistic cultures are more concerned and

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impacted by organizational justice than those in more collectivistic cultures (e.g., Shao, Rupp, Skarlicki, & Jones, 2013), providing a possible explanation for my present findings regarding senior leader support.

Although there were some consistent findings across Hofstede and GLOBE models, there were also points of divergence, which mostly centered on the uncertainty avoidance dimension. Most notably, the two models found contradictory effects regarding the relationship between job control and strain. Specifically, with Hofstede's operationalization of uncertainty avoidance I observed that the relationship between job control and strain was stronger in *higher* uncertainty avoidance cultures, while with GLOBE's operationalization of uncertainty avoidance the relationship was stronger in *lower* uncertainty avoidance cultures. Additionally, I found that only Hofstede's operationalization of uncertainty avoidance moderated the relationship between participation in decision-making and strain.

Although Hofstede and GLOBE define uncertainty avoidance similarly, Venaik and Brewer (2010) argue their operational definitions differ considerably. In fact, the two operationalizations are strongly *negatively* correlated ($r = -.69$). After digging further into each measure, Venaik and Brewer (2010) argue that Hofstede's operationalization appears to focus on stress (i.e., *How often do you feel nervous or tense (at work)?*), while GLOBE's operationalization appears to represent rule orientation (i.e., *In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation*; reversed-coded). Thus, it appears that job control is more beneficial in reducing strain in cultures where stress or ambiguity was high (i.e., high uncertainty avoidance in Hofstede's model), perhaps due to the greater desire for control and autonomy within these settings, and also more beneficial in cultures where there was a weaker adherence to rules (i.e., low uncertainty avoidance in GLOBE

model), though why that may be is somewhat unclear. Additionally, participation in decision-making appeared to be more important to reducing strain in cultures lower in stress, and organizational constraints appeared to lead to higher strain in cultures lower in stress (i.e., low uncertainty avoidance in Hofstede's model). I speculate that this may be because in cultures high in stress, participation in decision-making may be seen as another indication of change and therefore viewed as taxing rather than replenishing. Additionally, perhaps the stronger reaction of individuals toward organizational constraints in cultures lower in stress reflects that constraints may be more unusual and viewed more negatively in these contexts compared to more stressful cultures where individuals may be more used to adapting to and facing workplace stressors.

Although I uncovered a number of significant cross-level interaction effects in the current study, the proportion of variance explained is generally small for these effects (which is typical of the literature; Aguinis, Gottfredson, & Culpepper, 2013). This is likely because in the current study there appears to be much more within-level (i.e., within-country) variance relative to between-level variance (i.e., between-level variance). However, small effects can have meaningful real-world consequences (Cortina & Landis, 2009). Additionally, given that many of the cross-level moderating effects were replicated using different operationalizations of the same cultural dimensions, I feel that this suggests that the findings from this study are likely robust.

Strengths and Limitations

The present study has several strengths. First, this study included a number of different job resources. Prior research on job resources tends to focus primarily on job control and social support (e.g., Luchman & Gonzalez-Morales, 2013). The current study reveals that although all types of job resources are correlated, the moderating effect of cultural dimensions are not

identical across different types of resources, highlighting the need for continued research on a variety of job resources. Second, my results show that other cultural dimensions besides individualism-collectivism influence the relationships in the JD-R model. Specifically, I highlight the role of uncertainty avoidance in influencing how resources influence strain outcomes. Third, I compare and contrast results using two different cultural dimension taxonomies (i.e., Hofstede and GLOBE), identifying points of convergence and divergence. In particular, the use of both models allows us to better identify which findings are robust versus model dependent. Fourth, the current study is methodologically sophisticated, applying new techniques to help address issues of sample and measurement equivalence.

Although the present study has a number of strengths, it is not without limitations. One limitation is that although the present study encompasses data from 28 countries, the countries included may not be representative of the world. Specifically, 12 of the 28 countries sampled are in Europe and the countries included tend to be higher on individualism than the population at large (see Table 2). For example, only one African country (i.e., South Africa) was represented. I encourage future research to include larger and more diverse sets of countries and cultures when examining cross-cultural questions. Second, the low ICC values suggest that country did not exert a large effect on these variables. This may be because other groupings (i.e., industries, organizations, work groups) exert a larger influence on workers' experiences than country or increases in globalization have created greater homogeneity and similarity in people's work experiences. Third, the small between-country variance relative to the larger within-country variance likely contributed to the small proportion of variance explained at level 2, despite a number of significant main and cross-level interaction effects. Fourth, I only assessed job satisfaction and turnover intentions as indicators of strain. I encourage future research to include

alternative indices of strain, particularly more objective measures (e.g., blood pressure, sick days). Fifth, the current design is cross-sectional in nature. Therefore, the present study represents a snapshot of workplace dynamics and cannot directly speak to issues of causality. Lastly, although the current study controlled for some demographic (i.e., gender, age, and level of education) and contextual variables (i.e., national income; GDP-PPP), it is nonetheless possible that other third variables may be driving the present results and need to be ruled out. For example, the countries included in the present investigation differ on a number of other characteristics that were not assessed and controlled for, such as dominant religion of a culture and cultural tightness-looseness (Gelfand, Nishii, & Raver, 2006).

Future Research Directions

The present study is also suggestive of a number of different future research directions that remain unanswered and should be pursued. One question worthy of additional study revolves around the directionality of relationships within the JD-R model. The use of cross-lagged panel designs would provide stronger evidence regarding the causality of relationships (i.e., does resources lead to better health or does health help one to accumulate more workplace resources?). Although I posit that job demands and resources predict strain, it is also possible that strain predicts the accumulation of resources and the experience of demands, or that there are reciprocal relationships between the two classes of variables.

Future research should also examine the short-term impacts of job demands and resources using experience sampling or daily diary designs. Prior research has found that demands and resources (i.e., work characteristics) do indeed fluctuate on a daily or weekly level (e.g., Butler, Grzywacz, Bass, & Linney, 2005; Totterdall, Wood, & Wall, 2006), though the number of daily diary studies examining changing work characteristics (or perceptions) is small relatively little.

These types of designs will allow researchers to examine within-person relationships as well as whether characteristics of the individual (e.g., personality) or the environment (e.g., organizational culture, leader behaviors) may strengthen or weaken these relationships. In particular, I would encourage researchers to link these short-term variations in job demands and resources with objective measures of health and well-being outcomes.

Also, given that the present study uncovered a number of moderating effects, I encourage future researchers to examine other potential moderators of relationships in the JD-R model at multiple levels of analysis (i.e., individual, team, and organization). For example, at the individual-level of analysis, workers higher on a sense of calling, who feel that their job is their purpose (Hall & Chandler, 2005), may be more tolerant of job demands or more appreciative of job resources, weakening relationships between demands and strain outcomes and strengthening relationships between resources and strain outcomes. As another example, at the team-level of analysis, team cohesion may moderate the individual-level relationships between job demands-strain and job resources-strain. In more cohesive teams, there may be more back up behaviors by team members in the face of job demands or more capitalization and sharing of positive events between team members in the presence of resources, leading to weaker relationships between job demands and strain and stronger (negative) relationships between job resources and strain.

Additionally, although the current study focused on the main effects of job demands and job resources on strain outcomes, future research should investigate whether job demands and resources interactively predict strain outcomes across cultures and whether the fit (or buffering effect) between demands and resources varies across countries. For example, in low stress cultures (i.e., low uncertainty avoidance according to Hofstede's operationalization), it may be that participation in decision-making will help to buffer against the negative effects of

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organizational constraints (based on the moderating effects found in the current study), while other resources (e.g., job control and senior leader support) will not and may actually exacerbate the negative effects in this cultural context.

Future researchers may also wish to utilize GLOBE value scores in cross-cultural investigations, allowing for direct comparisons between GLOBE practices and values. Although I believe that GLOBE practices is more appropriate and relevant to the moderating effects of cultural dimensions on the relationship between employees' job demands and resources and outcomes, the comparison of results from GLOBE practice and value scores is likely to broaden our current understanding of the role of culture. Additionally, results based on GLOBE values scores are likely to be significantly different from the result reported using the GLOBE practices scores as practices and values are typically negatively correlated (Maseland & van Hoorn, 2009).

Finally, future researchers should seek to gather data regarding cultural dimensions at both individual and country or culture levels of analysis. Prior research shows that despite cultural differences on these dimensions, individuals within any given culture may differ substantially from the typical or normative standing of the overall culture (e.g., there are still collectivists in, on average, more individualistic countries, but simply fewer of them). Future research should examine whether cultural variables assessed at different levels of analysis exhibit similar or differential moderating effects.

Conclusion

This study finds that country-level individualism-collectivism and uncertainty avoidance impacts the strength of relationships between job demands and job resources and strain outcomes. In particular, the impact of the job resources of job control, participation in decision-making, and senior leader support appeared to be most dependent upon cultural beliefs and

practices. Future work should continue to strive to better understand the universality versus specificity of tenets of the JD-R model as well as the stress process more generally.

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APPENDICES

Results of Multilevel Model Analyses Using Standardized Hofstede's Cultural Scores against the 28 Countries in the Present Dataset

Appendix A1: Results of Multilevel Model Analyses Using Standardized Hofstede's Cultural Scores against the 28 Countries in the Present Dataset on Job Satisfaction

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		3.562 *	3.566 *	3.566 *	3.566 *
Gender		.028 *	.032 *	.032 *	.029 *
Age		.003 *	.005 *	.005 *	.005 *
Level of education		.039 *	.001	.001	.001
Organizational constraints			-.130 *	-.130 *	-.131 *
Job control			.124 *	.124 *	.122 *
PDM			.195 *	.195 *	.201 *
Supervisor support			.146 *	.146 *	.146 *
Senior leader support			.145 *	.145 *	.146 *
Clear goals and feedback			.206 *	.206 *	.203 *
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		2.375	2.536 *	-1.437	-1.437
Age		.017	.018	-.011	-.011
Level of education		.227 **	.217 *	.050	.050
Hofstede_IDV				-.141 *	-.141 *
Hofstede_UAI				.141	.141
Cross-level interactions					
Hofstede_IDV X OC					.014
Hofstede_UAI X OC					.003
Hofstede_IDV X JC					.014
Hofstede_UAI X JC					.018 *
Hofstede_IDV X PDM					-.049 *
Hofstede_UAI X PDM					-.024 *
Hofstede_IDV X SUS					.001
Hofstede_UAI X SUS					-.004
Hofstede_IDVX SLS					.002
Hofstede_UAIX SLS					.004
Hofstede_IDV X CGF					.010
Hofstede_UAI X CGF					.010
Between variance ($\tau00$)	.047	.030	.031	.021	.021
Within variance ($\sigma2$)	.886	.882	.407	.407	.405
df	3.000	10.000	16.000	18.000	30.000
Deviance (-2LL)	47453.339	47370.155	33433.329	33426.117	33367.613
ΔDeviance (-2LL)		83.184 *	13936.827	7.211 #	58.505
ΔOLS explained variance[a]		.009	.569	.002	.002
ΔMVP explained variance[b]		.009	.551	.002	.002

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a]   Explained variances were computed using the formula, var($\hat{Y}i$)/ (var($\hat{Y}i$)+$\sigma2$) (Hofmann et al., 2003).

[b]   Explained variances were computed using the formula, var($\hat{Y}ij$)/ (var($\hat{Y}ij$)+$\tau00$+$\sigma2$) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Appendix A2: Results of Multilevel Model Analyses Using Standardized Hofstede's Cultural Scores against the 28 Countries in the Present Dataset on Turnover Intentions

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		2.643 **	2.642 **	2.642 **	2.642 **
Gender		-.050 **	-.053 **	-.053 **	-.051 **
Age		-.013 **	-.017 **	-.017 **	-.017 **
Level of education		.005	.039 **	.039 **	.038 **
Organizational constraints			.099 **	.099 **	.099 **
Job control			-.050 **	-.050 **	-.046 **
PDM			-.211 **	-.211 **	-.218 **
Supervisor support			-.185 **	-.185 **	-.185 **
Senior leader support			-.237 **	-.237 **	-.234 **
Clear goals and feedback			-.092 **	-.092 **	-.090 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		-2.491 *	-2.475 *	-1.300	-1.300
Age		.002	.002	.012	.012
Level of education		-.010	-.008	.042	.042
Hofstede_IDV				.025	.025
Hofstede_UAI				-.061	-.061
Cross-level interactions					
Hofstede_IDV X OC					.008
Hofstede_UAI X OC					.022
Hofstede_IDV X JC					-.032 *
Hofstede_UAI X JC					-.031 **
Hofstede_IDV X PDM					.049 **
Hofstede_UAI X PDM					.037 *
Hofstede_IDV X SUS					-.011
Hofstede_UAI X SUS					.013
Hofstede_IDVX SLS					-.034 *
Hofstede_UAIX SLS					.007
Hofstede_IDV X CGF					-.027
Hofstede_UAI X CGF					.000
Between variance (τ00)	.028	.019	.019	.019	.019
Within variance (σ2)	1.536	1.519	1.043	1.043	1.040
df	3.000	10.000	16.000	18.000	30.000
Deviance (-2LL)	56958.161	56754.113	49538.256	49537.839	49488.494
ΔDeviance (-2LL)		204.048 **	7215.857 **	.417	49.345
ΔOLS explained variance[a]		.008	.227	.004	.003
ΔMVP explained variance[b]		.008	.224	.004	.003

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a] Explained variances were computed using the formula, var(Yî)/ (var(Yî)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Yîj)/ (var(Yîj)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Results of Multilevel Model Analyses Using Standardized GLOBE Cultural Scores against the 28 Countries in the Present Dataset

Appendix B1: Results of Multilevel Model Analyses Using Standardized GLOBE Cultural Scores against the 28 Countries in the Present Dataset on Job Satisfaction

Variables	Job Satisfaction				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		3.566 **	3.569 **	3.569 **	3.569 **
Gender		.026 *	.027 **	.027 **	.025 **
Age		.002 **	.005 **	.005 **	.005 **
Level of education		.033 **	.002	.002	.002
Organizational constraints			-.130 **	-.130 **	-.129 **
Job control			.128 **	.128 **	.131 **
PDM			.194 **	.194 **	.194 **
Supervisor support			.141 **	.141 **	.140 **
Senior leader support			.150 **	.150 **	.152 **
Clear goals and feedback			.203 **	.203 **	.201 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		.066	.069	-.383	-.383
Age		.009	.009	-.015	-.015
Level of education		.124	.122	.247 **	.247 **
GP_INS				.037	.037
GP_ING				.071	.071
GP_UAI				.154 **	.154 **
Cross-level interactions					
GP_INS X OC					-.004
GP_ING X OC					.016
GP_UAI X OC					-.011
GP_INS X JC					.026 **
GP_ING X JC					.008
GP_UAI X JC					-.017 *
GP_INS X PDM					-.015
GP_ING X PDM					-.021
GP_UAI X PDM					.004
GP_INS X SUS					-.009
GP_ING X SUS					.001
GP_UAI X SUS					.013
GP_INS X SLS					-.001
GP_ING X SLS					.018
GP_UAI X SLS					-.026 **
GP_INS X CGF					-.001
GP_ING X CGF					-.012
GP_UAI X CGF					.015
Between variance (τ00)	.046	.040	.040	.022	.022
Within variance (σ2)	.889	.886	.410	.410	.409
df	3.000	10.000	16.000	19.000	37.000
Deviance (-2LL)	56942.436	56872.008	40319.775	40306.569	40239.555
ΔDeviance (-2LL)		70.428 **	16552.233 **	13.206 **	67.014
ΔOLS explained variance[a]		.010	.566	.005	.005
ΔMVP explained variance[b]		.010	.543	.005	.005

Note . OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered

[a] Explained variances were computed using the formula, var(Ŷî)/ (var(Ŷî)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Ŷîj)/ (var(Ŷîj)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Appendix B2: Results of Multilevel Model Analyses Using Standardized GLOBE Cultural Scores against the 28 Countries in the Present Dataset on Turnover Intentions

Variables	Turnover Intentions				
	Baseline	Model 1	Model 2	Model 3	Model 4
Level 1					
Intercept		2.686 **	2.686 **	2.686 **	2.686 **
Gender		-.048 **	-.053 **	-.053 **	-.051 **
Age		-.012 **	-.016 **	-.016 **	-.016 **
Level of education		.012 *	.040 **	.040 **	.039 **
Organizational constraints			.100 **	.100 **	.106 **
Job control			-.046 **	-.046 **	-.047 **
PDM			-.211 **	-.211 **	-.212 **
Supervisor support			-.192 **	-.192 **	-.187 **
Senior leader support			-.245 **	-.245 **	-.242 **
Clear goals and feedback			-.075 **	-.075 **	-.075 **
Level 2					
GDP PPP		.000	.000	.000	.000
Gender		-.453	-.461	-.104	-.104
Age		.011	.011	-.026	-.026
Level of education		-.024	-.024	-.041	-.041
GP_INS				-.109 *	-.109 *
GP_ING				.208 **	.208 **
GP_UAI				-.148 **	-.148 **
Cross-level interactions					
GP_INS X OC					-.010
GP_ING X OC					.002
GP_UAI X OC					-.026
GP_INS X JC					-.036 **
GP_ING X JC					-.007
GP_UAI X JC					-.004
GP_INS X PDM					.016
GP_ING X PDM					-.019
GP_UAI X PDM					.004
GP_INS X SUS					.004
GP_ING X SUS					-.024
GP_UAI X SUS					-.012
GP_INS X SLS					-.002
GP_ING X SLS					-.038 *
GP_UAI X SLS					.029
GP_INS X CGF					.014
GP_ING X CGF					.015
GP_UAI X CGF					-.029
Between variance (τ00)	.032	.026	.027	.015	.015
Within variance (σ2)	1.531	1.516	1.032	1.032	1.027
df	3.000	10.000	16.000	19.000	37.000
Deviance (-2LL)	68189.913	67986.023	59252.567	59239.622	59140.583
ΔDeviance (-2LL)		203.890 **	8733.455 **	12.945 **	99.039 **
ΔOLS explained variance[a]		.009	.228	.009	.004
ΔMVP explained variance[b]		.008	.223	.009	.004

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a] Explained variances were computed using the formula, var(Ŷi)/ (var(Ŷi)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Ŷij)/ (var(Ŷij)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.

Standardized Scores of All Hofstede's and GLOBE Cultural Dimensions

Appendix C1: Standardized scores of all Hofstede's and GLOBE cultural dimensions

Studies	Hofstede					GLOBE (*practices*)								
Countries	IDV	UAI	MAS	PDI	LTO	INS	ING	UAI	GE	AS	FO	HO	PO	PDI
Argentina	.06	.71	.34	-.54		1.47	-.56	-.91	-.19	.12	-1.66	-.32	-1.20	1.06
Australia	1.85	-.75	.61	-1.15	-.44	-.14	1.37	.39	-.10	.43	.54	.52	.74	-.92
Brazil	-.26	.30	-.04	.39	.89	.77	-.07	-.73	-.19	.32	.12	-.72	.06	.21
Canada	1.44	-.87	.12	-1.01	-.75	-.27	1.25	.62	-.82	-.13	1.23	.94	.97	-.82
China	-1.00	-1.62	.88	.90	2.96	-1.04	-1.05	1.08	.99	-1.04	-.37	.45	.74	-.37
Denmark	1.20	-1.92	-1.82	-1.98	.15	-1.68	2.08	1.94	-1.85	-.28	1.66	1.29	.81	-2.69
Finland	.75	-.41	-1.28	-1.29	-.05	-1.28	1.24	1.58	-.51	-.25	1.21	.23	-.18	-.21
France	1.08	.71	-.36	.34	-.12	.13	.64	.83	-1.25	.86	-.24	-1.08	.89	1.38
Germany	.91	-.16	.88	-1.19	-.44	1.07	1.04	1.85	.47	1.64	.84	-1.58	.53	1.14
India	.14	-1.21	.34	.76	.74	.01	-.98	-.25	1.39	-1.24	.43	.81	.06	.35
Indonesia	-1.24	-.87	-.20	.81		-.04	-.55	-.42	.96	-1.24	-.53	.85	.13	-.61
Ireland	1.04	-1.42	.98	-1.52	.03	-.79	-.01	.13	.53	-.59	.19	1.93	.55	-.08
Italy	1.28	.25	1.09	-.49	-.32	1.24	.17	-.54	.21	-.05	-1.13	-.94	-1.12	.77
Japan	.06	.96	2.44	-.31	1.48	-2.42	.55	-.17	.59	-1.27	.99	.56	.34	.19
Korea, Republic of	-1.08	.67	-.58	-.03	1.28	-2.35	-.84	-1.10	2.65	.63	.12	-.79	1.15	1.40
Mexico	-.59	.55	1.04	.95		.75	-.71	-.19	-.36	.49	-.22	-.55	-.31	-.24
Netherlands	1.44	-.66	-1.93	-1.05	.07	-.91	1.86	1.08	-.71	.91	1.95	-.15	.97	-2.22
New Zealand	1.40	-.83	.44	-1.80	-.48	-1.75	2.16	1.16	.56	-1.89	-.86	.76	2.02	-.10
Russian Federation	-.22	1.09	-.74	1.50		-.79	-1.01	-1.82	-2.00	-.79	-1.75	-.10	-1.46	1.19
Saudi Arabia	-.79	.46	.55	1.60										
South Africa	.83	-.83	.71	-.54		-.63	.44	.30	-.40	.91	1.17	-.29	.80	-1.20
Spain	.26	.71	-.42	-.17	-.91	.95	-.59	-.37	.90	.72	-.73	-1.76	-.23	.98
Sweden	1.08	-1.67	-2.41	-1.38	-.36	-2.50	2.32	2.01	-.99	-2.06	1.17	.01	-1.09	-.58
Switzerland	.95	-.46	1.09	-1.24	-.09	.13	1.51	2.11	.73	1.25	2.12	-.79	2.49	-.29
Turkey	-.30	.67	-.26	.25		.58	-.95	-.84	1.02	.80	-.24	-.37	-.70	.72
United Arab Emirates	-.26	-.04	.18	.90										
United Kingdom	1.81	-1.42	.88	-1.19	-.67	-.14	1.45	.89	-.85	.26	1.03	-.77	.19	.27
United States	1.89	-.96	.66	-.96	-.52	.10	1.25	-.03	.04	1.03	.63	.21	.94	-.63
Average	.49	-.32	.11	-.34	.12	-.37	.46	.33	.03	-.02	.30	-.06	.31	-.05

Note. IDV = individualism-collectivism; UAI = uncertainty avoidance; MAS = masculinity-femininity; PDI = power distance; LTO = long term orientation-short term orientation; INS = Institutional collectivism; ING = In-group collectivism; GE = gender egalitarianism; AS = Assertiveness; FO = Future orientation; ; HO = human orientation; PO = Performance orientation.

Institutional collectivism, in-group collectivism, and gender egalitarianism are reverse-coded for better comparison purposes with Hofstede's individualism-collectivism and masculinity-femininity; higher scores on institutional and in-group columns represent institutional individualism and in-group individualism, and higher scores on a gender egalitarianism column represesent low gender egalitarianism.

Appendix D

Results of Multilevel Model Analyses Using Relevant Hofstede's Dimensions without Control Variables

Appendix D1: Results of Multilevel Model Analyses Using Relevant Hofstede's Dimensions without Control Variables

Variables	Job Satisfaction				Turnover Intentions			
	Baseline	Model 2	Model 3	Model 4	Baseline	Model 2	Model 3	Model 4
Level 1								
Intercept		3.555 **	3.555 **	3.555 **		2.654 **	2.654 **	2.654 **
Organizational constraints		-.134 **	-.134 **	-.134 **		.104 **	.104 **	.103 **
Job control		.127 **	.127 **	.125 **		-.050 **	-.050 **	-.048 **
PDM		.192 **	.192 **	.198 **		-.194 **	-.194 **	-.202 **
Supervisor support		.141 **	.141 **	.142 **		-.175 **	-.175 **	-.175 **
Senior leader support		.147 **	.147 **	.148 **		-.239 **	-.239 **	-.237 **
Clear goals and feedback		.204 **	.204 **	.200 **		-.105 **	-.105 **	-.100 **
Level 2								
Hofstede_IDV			-.020	-.020			-.051	-.051
Hofstede_UAI			-.146 **	-.146 **			.031	.031
Cross-level interactions								
Hofstede_IDV X OC				.010				.015
Hofstede_UAI X OC				.008				.018
Hofstede_IDV X JC				.014				-.024
Hofstede_UAI X JC				.022 **				-.042 **
Hofstede_IDV X PDM				-.053 **				.061 **
Hofstede_UAI X PDM				-.027 **				.041 *
Hofstede_IDV X SUS				-.001				-.012
Hofstede_UAI X SUS				-.003				.016
Hofstede_IDVX SLS				.006				-.034 *
Hofstede_UAIX SLS				.002				.009
Hofstede_IDV X CGF				.007				-.030
Hofstede_UAI X CGF				.016				-.003
Between variance (τ00)	.047	.047	.032	.032	.029	.029	.026	.026
Within variance (σ2)	.894	.412	.412	.411	1.548	1.077	1.077	1.075
df	3.000	9.000	11.000	23.000	3.000	9.000	11.000	23.000
Deviance (-2LL)	50328.590	35580.545	35572.874	35512.469	60339.632	52967.314	52964.963	52915.679
ΔDeviance (-2LL)		14748.045 **	7.671 *	60.405 **		7372.318 **	2.352	49.283 **
ΔOLS explained variance[a]		.566	.002	.002		.211	.009	.003
ΔMVP explained variance[b]		.539	.002	.002		.207	.009	.003

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; UAI = Uncertainty avoidance; IDV = Individualism-collectivism; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a]   Explained variances were computed using the formula, $var(\hat{Y}i)/ (var(\hat{Y}i)+\sigma2)$ (Hofmann et al., 2003).

[b]   Explained variances were computed using the formula, $var(\hat{Y}ij)/ (var(\hat{Y}ij)+\tau00+\sigma2)$ (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.*

Results of Multilevel Model Analyses Using Relevant GLOBE Dimensions without Control Variables

Appendix E1: Results of Multilevel Model Analyses Using Relevant GLOBE Dimensions without Control Variables

Variables	Job Satisfaction				Turnover Intentions			
	Baseline	Model 2	Model 3	Model 4	Baseline	Model 2	Model 3	Model 4
Level 1								
Intercept		3.569 **	3.569 **	3.569 **		2.679 **	2.680 **	2.680 **
Organizational constraints		-.132 **	-.132 **	-.130 **		.106 **	.106 **	.105 **
Job control		.133 **	.133 **	.136 **		-.052 **	-.052 **	-.054 **
PDM		.187 **	.187 **	.190 **		-.189 **	-.189 **	-.192 **
Supervisor support		.135 **	.135 **	.135 **		-.177 **	-.177 **	-.177 **
Senior leader support		.151 **	.151 **	.152 **		-.252 **	-.252 **	-.250 **
Clear goals and feedback		.205 **	.205 **	.203 **		-.091 **	-.091 **	-.087 **
Level 2								
GP_INS			.046	.046			-.074 *	-.074 *
GP_ING			-.054	-.054			.010	.010
GP_UAI			.108	.108			-.095 *	-.095 *
Cross-level interactions								
GP_INS X OC				-.006				.010
GP_ING X OC				.003				.034 *
GP_UAI X OC				-.005				-.040 *
GP_INS X JC				.017 **				-.029 **
GP_ING X JC				.006				-.014
GP_UAI X JC				-.017 *				.009
GP_INS X PDM				-.016 *				.021
GP_ING X PDM				-.031 *				.015
GP_UAI X PDM				.013				-.018
GP_INS X SUS				-.006				.012
GP_ING X SUS				-.002				.003
GP_UAI X SUS				.014				-.022
GP_INS X SLS				-.002				-.001
GP_ING X SLS				.014				-.036 *
GP_UAI X SLS				-.025 *				.032 *
GP_INS X CGF				-.004				-.007
GP_ING X CGF				-.013				-.026
GP_UAI X CGF				.017				-.007
Between variance (τ00)	.042	.042	.034	.034	.030	.030	.019	.019
Within variance (σ2)	.889	.413	.413	.412	1.538	1.060	1.060	1.056
df	3.000	9.000	12.000	30.000	3.000	9.000	12.000	30.000
Deviance (-2LL)	62386.450	44336.686	44331.691	44270.583	74823.052	65579.100	65567.950	65480.087
ΔDeviance (-2LL)		18049.764 **	4.995	61.108 **		9243.951 **	11.150 **	87.863 **
ΔOLS explained variance[a]		.564	.012	.002		.212	.005	.006
ΔMVP explained variance[b]		.541	.011	.002		.208	.005	.006

Note. OC = Organizational constraints; JC = Job control; PDM = Participation in decision making; SUS = Supervisor support; SLS = Senior leader support; CGF = Clear goals and feedback; INS = Institutional collectivism; ING = In-group collectivism; UAI = Uncertainty avoidance; ICC = intraclass correlation coefficient; Level 1 variables are group mean centered; Level 2 variables are grand mean centered.

[a] Explained variances were computed using the formula, var(Ŷi)/ (var(Ŷi)+σ2) (Hofmann et al., 2003).

[b] Explained variances were computed using the formula, var(Ŷij)/ (var(Ŷij)+τ00+σ2) (Nakagawa & Schielzeth, 2013).

*p < .05. **p < .01.*