



Individualism–collectivism as a moderator of the work demands–strains relationship: A cross-level and cross-national examination

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Abstract

Surveying 6509 managers from 24 countries/geopolitical entities, we tested the process through which individualism–collectivism at the country level relates to employees' appraisals of and reactions to three types of work demands (i.e., work hours, workload, and organizational constraints). Our multilevel modeling results suggested that, while working the same number of hours, employees from individualistic countries reported a higher perceived workload than their counterparts in collectivistic countries. Furthermore, relationships of perceived workload and organizational constraints with job dissatisfaction and turnover intentions were stronger in individualistic than in collectivistic countries. Importantly, results of supplementary analyses suggested that the cultural value of individualism–collectivism moderated the mediation effect of perceived workload between work hours and both job dissatisfaction and turnover intentions. Our findings highlight the need to expand contemporary theories of work stress by applying multilevel approaches and incorporating cross-national differences in dimensions such as individualism–collectivism while studying how employees appraise and react to important work stressors.

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INTRODUCTION

Although the connection between stressful job conditions and employee well-being is well established (Beehr, 1995; Chang & Spector, 2010), there is limited comparative work that sheds light on potential country and culture differences. Employee appraisals of work conditions are likely to be influenced by national differences in culture, most notably values (Chun, Moos, & Cronkite, 2006; Taras, Kirkman, & Steel, 2010; Taras, Steel, & Kirkman, 2011a). In turn, differences in appraisals might well affect responses to stressful conditions.

Transactional stress theory (Lazarus, 1991) posits that employees are actively engaged in an appraisal process that monitors potential harm or threat in the environment (primary appraisal). When threat is appraised, employees engage in secondary appraisal to determine the available options to cope with the threat. Stress results not only from objective work conditions, but also from employees' idiosyncratic appraisal of their work environment (e.g., Elliott, Chartrand, & Harkins, 1994; Lazarus, 1991, 1999). In this study, we investigated whether the cultural value of individualism–collectivism (Hofstede, 2001) is an important factor in the occupational stress process. Specifically, we focused on how employees from countries that vary on individualism–collectivism may differentially appraise and react to work demands, including working hours, perceived workload, and organizational constraints. The appraisal of work demands seems particularly vulnerable to cultural influence, because cultural norms regarding the extent to which one should tolerate a heavy workload or other stressful job conditions likely vary across nations.

THEORETICAL FOUNDATIONS AND HYPOTHESIS DEVELOPMENT

Appraisals of Work Demands and Individualism–Collectivism

Individualism–collectivism (I-C) is a cultural value prescribing whether self-construal should follow socially independent or interdependent criteria (Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 1995). Our study endorses the unidimensional conceptualization of I-C, because a considerable number of studies on cross-cultural topics in the workplace have adopted such a conceptualization, and found support for its relevance to various employee and organizational outcomes (Kirkman,

Lowe, & Gibson, 2006; Ng, Sorensen, & Yim, 2009; Taras et al., 2010).

Appraisals of work demands are likely to be tainted by normative prescriptions regarding how individuals are expected to interact with their environment, including the groups to which they belong and other individuals in the workplace. In particular, normative prescriptions in individualistic nations emphasize the following attributes (Fischer et al., 2009; Markus & Kitayama, 1991; Weisz, Rothbaum, & Blackburn, 1984):

- expression of independence including uniqueness – that is, the *independent* (vs *interdependent*) *self-construal* attribute;
- considerations of personal loss and gain from relationships with others – that is, the *rational* (vs *relational*) attribute;
- expressing their personal attitudes via resisting social pressure – that is, the *attitudes* (vs *norms*) attribute; and
- prioritizing personal goals over group goals when they are in conflict – that is, the *personal* (vs *group*) *goals* attribute.

In collectivistic nations, however, individuals emphasize social interdependence, such as their belonging to certain groups, caring about fitting in relationships with others without concerning the balance of investment and return, following norms and rules prescribed by social groups important to them, and sacrificing personal goals when they are in conflict with group goals (Fischer et al., 2009; Triandis, 1995).

Differences in normative prescriptions stemming from national differences in I-C are likely to influence employees' cognitive, emotional, and attitudinal reactions to their work demands. That is, those normative prescriptions may shape employees' primary appraisals of what is harmful or even challenging (Levenson, Soto, & Pole, 2007; Vanman, Paul, Ito, & Miller, 1997), their secondary appraisals of how much social support is accepted or available (Oyserman, Coon, & Kimmelmeier, 2002), and what coping responses, emotions, and attitudes are appropriate at work (e.g., Earley & Francis, 2002).

I-C and Cross-National Differences in the Work Hours–Perceived Workload Relationship

The number of hours employees work per week should be a contributor to their level of perceived workload, because this number represents the objective amount of time employees spend at work.

Although work hours are not the only factor that affects perceived workload (e.g., the amount of effort it takes to do tasks is also important), they are certainly a key contributor (Ng & Feldman, 2008). For example, employees could feel exhausted towards the end of a long work day, and in turn assess their workload as high. In other words, employees' primary appraisal regarding the potential harm posed by their long work hours should account for the impact of work hours on perceived workload.

Prior research has indeed revealed a positive link between work hours and perceived workload among samples from various countries/regions such as the US, UK, Taiwan, and Israel (e.g., Britt, Castro, & Adler, 2005; Lu, Guilmour, Kao, & Huang, 2006; Lu, Kao, Chang, Wu, & Cooper, 2008; Shirom, Nirel, & Vinokur, 2006). However, there seem to be differences in the strength of this relationship across nations. For example, Lu et al. (2006) found a correlation of 0.35 between number of work hours and perceived workload in a British sample, whereas Lu et al. (2008) obtained a correlation of 0.16 in a Chinese sample. These two correlations are significantly different, based upon our z-test of two independent correlation coefficients (Howell, 2010). Although such cross-national differences might partially be accounted for by the use of less than perfectly equivalent samples across countries, they might also be explained by national differences in primary appraisal.

Based on a 43-nation data set, Smith, Dugan, and Trompenaars (1996) found that high individualism is related to less company involvement with employees' lives; in other words, individualists tend to prefer separating their work and nonwork domains, which is in line with their independent self-construal. Thus those in individualistic countries may appraise long work hours as threatening and harmful, because long hours make it harder for them to separate their work and nonwork life domains, or to spend quality time on nonwork domains (e.g., Lu et al., 2006; Spector et al., 2004, 2007). In addition, consistent with the *rational vs relational* attribute of I-C (Fischer et al., 2009; Triandis, 1995), employees in individualistic countries tend to calculate their investment in and return from the relationship with the organization (one of their social groups). That could account for their negative appraisals of long work hours (i.e., too much investment) and thereafter high perceived workload.

On the other hand, employees in collectivistic countries might view long work hours as less threatening, because they feel confident that family members will help take care of some of their nonwork-related obligations (e.g., Spector et al., 2007). In addition, employees in collectivistic countries are used to blurring the boundary of their work and nonwork domains (e.g., their companies' involvement with their lives; Smith et al., 1996), and thus working long hours with ingroup members (e.g., team members) may be perceived as a natural extension of their interdependent self-construal (Triandis, 1995). Alternatively, following Fischer et al. (2009) and Triandis (1995), those employees tend to maintain the relationship with the organization (one of their social groups) without calculating costs and benefits associated with it, which could account for their being willing to work overtime (for the organization) without feeling overloaded. In summary, workers in collectivistic countries may perceive lower workload than those in individualistic countries, in spite of working the same number of hours. Hence:

Hypothesis 1: Country I-C will moderate the relationship between work hours and perceived workload, such that the relationship will be stronger in individualistic countries than in collectivistic countries.

I-C and Cross-National Differences in the Relationships of Perceived Workload and Organizational Constraints with Strains

Perceived workload represents the sheer volume of work reported by employees themselves (Spector & Jex, 1998). Undoubtedly, high workloads consume employees' time and energy, which may in turn decrease their ability to participate in other life roles, thereby interfering with personal needs and goals. Indeed, employees who have high workloads tend to experience goal blocking and frustration, as well as dissatisfaction and turnover intentions (Fritz & Sonnentag, 2006; Spector & Jex, 1998). Once work overload becomes chronic, it may eventually endanger physical well-being as well (e.g., Sparks, Cooper, Fried, & Shirom, 1997; Torres Harding, 2001), as psychological strains are often followed by physical symptoms (Sanchez & Viswesvaran, 2002).

The extant literature reports a negative relationship between perceived workload and job satisfaction, and also a positive relationship of workload

with turnover intentions, emotional strains and physical strains (e.g., Spector & Jex, 1998). However, the strength of this relationship seems to vary across countries. For example, the correlation between workload and job satisfaction was -0.24 in a sample from Belgium (De Cuyper & De Witte, 2006), but only -0.08 in a Chinese sample (Yang, 2004). Similarly, the relationship between workload and physical symptoms was 0.21 in a German sample (Fritz & Sonnentag, 2006), but only 0.12 in a US sample (Jex & Bliese, 1999). The differences between these pairs of correlations are statistically significant, according to our z-tests. While these differences might have been at least partly explained by the use of nonequivalent samples across countries, they are also suggestive of national differences in the extent to which workers appraise and react to workload.

Organizational constraints denote aspects of the work environment that make it difficult for employees to do their jobs, such as insufficient communication and inadequate human resources or training (Peters & O'Connor, 1980; Spector & Jex, 1998). For example, constraints that involve insufficient training make tasks harder, because employees lack skills. Similarly, constraints due to insufficient communication make tasks more difficult, because individuals do not have the necessary information, which could lead to errors and repetition of tasks that were done incorrectly. Regardless of the type of constraint, employees are likely to experience negative emotions, including frustration and anxiety (Fox & Spector, 1999; Spector & Jex, 1998). Over time, such emotions would account for employees' decreased job satisfaction and increased turnover intentions (Fox & Spector, 1999), as well as more physical strains (e.g., physical symptoms; Sanchez & Viswesvaran, 2002; Spector & Jex, 1998).

The strength of the negative relationship between perceived organizational constraints and job satisfaction, and the strength of the positive relationships of constraints with turnover intentions, emotional and physical strains appear to vary across countries such as the US, Canada, UK, China, and Germany (Coffey, Dugdill, & Tattersall, 2004; Leitner & Resch, 2005; Liu, Spector, & Shi, 2007; O'Connor, 1984; Stetz, Stetz, & Bliese, 2006). For example, the relationship between organizational constraints and psychological distress was 0.42 in a British sample (Coffey et al., 2004), but it was 0.13 in a German sample (Leitner & Resch, 2005), the difference being statistically significant according

to our z-test. Again, these cross-national differences suggest the potential existence of cultural effects in the organizational constraints-strain relationship.

In accordance with the tenets of the transactional theory of work stress (Lazarus, 1991), we maintain that differences in national levels of I-C play a pivotal role in shaping employees' appraisals of work demands and, consequently, in their reactions to those demands. Specifically, I-C influences these appraisals in at least two interrelated ways, namely by shaping role expectations regarding the availability and appropriateness of social support, and by influencing attributions regarding the accountability for work demands.

In regard to role expectations, I-C reflects differences in self-construals concerning one's embeddedness within groups (Hofstede, 2001; Triandis, 1995). Individualists view themselves as being independent from other individuals and from social groups in their society, and therefore they value individual autonomy and personal achievement highly. Accordingly, employees in individualistic countries may be especially frustrated by a high workload and a lack of work-related resources, because these two stressors stand in the way of their personal goals. In addition, compared with their collectivistic-country counterparts, employees in individualistic countries are less inclined to expect and seek support, owing to normative prescriptions to solve problems as autonomously as possible (Goodwin & Plaza, 2000; Orpen, 1982). Also related to role expectations, I-C reflects differences in how one handles relationships with other individuals at work (rationally vs relationally; Fischer et al., 2009; Triandis, 1995). Employees in individualistic countries tend to maintain relationships with others by carefully balancing the costs and benefits of those relationships, and expect others to follow a similar principle for relationship maintenance (Fischer et al., 2009). Hence they tend not to expect colleagues at work to help with their high work demands, given that they do not have spare resources to reciprocate those colleagues' help. In sum, the role expectations of employees in individualistic countries may be shaped by their independent self-construal and their rational ways of handling relationships with others, in a way that accounts for their low expectations for and low tendencies to seek others' support. In other words, feelings of being overloaded at work and of lacking task-related resources, accompanied by a normative

prescription to accomplish tasks independently or without much reliance on others, might exacerbate strains amongst employees in individualistic countries.

Employees in collectivistic countries, on the other hand, generally feel that they and other members of their work group (or the whole organization) are interdependent with each other; they believe it is expected that colleagues support each other without being too concerned about the balance of investment and return. In other words, those employees' interdependent self-construals and relational ways of handling relationships with others may shape their expectations for and readiness to seek social support when necessary. They possibly count on their ingroups and their relationships at work as a result of social capital accrument (e.g., Lin, Ensel, & Vaughn, 1981; Warren, Dunfee, & Li, 2004). Therefore, under circumstances of work overload and lack of task-related resources, those employees tend to perceive more coping resources (e.g., social support) available (e.g., Triandis, Bontempo, Villareal, Asai, & Lucca, 1988), which could account for their less negative reactions to those work demands.

Second, employees' appraisals of their ability to cope with heavy workload and situational constraints at work will be influenced by their attributions concerning the accountability of these demands, because attributions are an important element of perceived ability to cope (Perrewé & Zellars, 1999). The attributional process has been shown to vary across individualistic and collectivistic cultures (Mezulis, Abramson, Hyde, & Hankin, 2004; Nisbett, Peng, Choi, & Norenzayan, 2001). Individualists are self-centered; they obey their personal contracts (as opposed to group norms), and expect their environment to be sensitive to their personal needs (Chiu, 1972; Fischer et al., 2009; Nisbett et al., 2001). When adverse events such as high work demands arise at work, employees perceive them to stand in the way of their needs for goal striving, thereby prompting a self-serving attribution bias (i.e., a tendency to attribute positive events to oneself and negative ones to other causes; Heider, 1976). For instance, work overload and organizational constraints would be attributed to poor organizational management or to co-workers' shortcomings (e.g., a similar argument was made by Thomas, Au, & Ravlin, 2003, who noted that individualists tend to attribute unmet expectations to organizational factors). Indeed, meta-analytic evidence supports

the existence of higher self-serving attribution bias amongst individualists than amongst collectivists (Mezulis et al., 2004). Such external attributions that the employees in individualistic countries have would exacerbate their negative appraisal of these stressors, and in turn account for more intensely expressed reactions to them (e.g., more negative job attitudes).

In contrast, employees in collectivistic countries may be more sensitive to their work environment than their counterparts in individualistic countries (Chiu, 1972; Nisbett et al., 2001), partially because they obey group norms and duties rather than personal contracts (Fischer et al., 2009; Jetten, Postmes, & McAuliffe, 2002; Triandis, 1995) – that is, more so than their counterparts in individualistic countries employees in collectivistic countries assess the work demands in the broader work context such as their colleagues' work demands and the extant norm of work overload in their organization. As a result, their attributions concerning the accountability of these stressors would be less self-serving (Mezulis et al., 2004), and would incorporate other parties' viewpoints (Witkin, Dyk, Faterson, Goodenough, & Karp, 1974). Given their tendencies to achieve social harmony through group cooperation (Gómez, Kirkman, & Shapiro, 2000; Kirkman & Shapiro, 2001), employees in collectivistic nations would attribute high work demands as a necessary part of their job, thus accepting a need to play their part within a larger unit. That would account for their less negative reactions to high work demands. Therefore we posit the following hypotheses:

Hypothesis 2: Country I-C will moderate the relationships between perceived workload and strains such that there will be a stronger negative association between perceived workload and (a) job satisfaction, and a stronger positive association of workload with (b) turnover intentions, (c) emotional strains, and (d) physical symptoms in individualistic countries than in their collectivistic-country counterparts.

Hypothesis 3: Country I-C will moderate the relationships between perceived organizational constraints and strains such that there will be a stronger negative association between perceived organizational constraints and (a) job satisfaction, and a stronger positive association of organizational constraints with (b) turnover intentions, (c) emotional strains, and (d) physical

symptoms in individualistic countries than in their collectivistic-country counterparts.

Our study extends prior research investigating the role of cultural values in the work stress process (e.g., Lu et al., 2010; Peterson et al., 1995; Ralston et al. 2010; Spector et al., 2002, 2004, 2007) by adopting a data-analytic strategy that recognizes the interdependence of individual-level data being nested within higher levels of units such as nations (Raudenbush & Bryk, 2002). In doing so, we respond to Tsui, Nifadkar, and Ou's (2007) call for more multilevel approaches in cross-national research. Theoretically, the present study contributes to both occupational stress and cross-cultural literatures by explicitly examining the role of a national-cultural variable (individualism–collectivism) in both stages of transactional stress theory from a process-oriented perspective.

METHOD

Sample

Participants were 6509 managers from 24 countries/geopolitical entities drawn from phase two of the Collaborative International Study of Managerial Stress (CISMS). Data collection mainly took place throughout 2004. Our samples from mainland China, Hong Kong, and Taiwan were treated as separate units of analysis for the purpose of this study. The sample sizes of each country/region varied from 171 to 502; 61.8% of the participants were male. Their average age was 40.4 (s.d.=9.7), and their average tenure was 112.5 months (s.d.=103.6). Additionally, 80.7% were married, and 67.4% had a college degree (bachelor's or above).

Procedure

A target of at least 200 managers from a broad range of local companies was set for participant recruitment in each country. Local companies were chosen to best represent the culture in a particular country. Heterogeneity was emphasized by recruiting participants from a variety of industries, and to avoid collecting data from a small number of companies. Research partners in different countries/regions used assorted strategies to recruit participants who were as representative as possible of managers in each country/region.

In countries where English was not the native language, the English version of the questionnaire

was translated into the native language and independently back-translated into English by research partners in those countries (van de Vijver & Leung, 1997). If any part of the translation was not appropriately back-translated upon an independent check performed by a native English speaker, research partners in that country modified the translation accordingly.

Measures

Organizational constraints

Perceived organizational constraints were measured by an 11-item scale (Spector & Jex, 1998) that was based upon Peters and O'Connor's (1980) framework. Response choices ranged from 1 (less than once per month or never) to 5 (several times per day). A sample item is "How often do you find it difficult or impossible to do your job because of poor equipment or supplies?" The coefficient α was above 0.78 in all 24 countries of our sample, except for the Bulgarian sample ($\alpha=0.67$). The average score of the 11 items was used to indicate the level of perceived constraints. Higher scores for this scale indicate more constraints.

Perceived workload

Perceived workload was assessed with Spector and Jex's (1998) five-item Quantitative Workload Inventory. There were five response choices, which ranged from 1 (less than once per month or never) to 5 (several times per day). A sample item is "How often does your job require you to work very fast?" The coefficient α was above 0.85 in all 24 countries of our sample. The average score of the five items was used to indicate the level of perceived workload. Higher scores for this scale indicate more workload.

Job satisfaction

Job satisfaction (JS) was assessed with the three-item Cammann, Fichman, Jenkins, and Klesh (1983) job satisfaction subscale from the Michigan Organizational Assessment Questionnaire. Because of problems in some of our samples with the negatively worded item that produced unacceptably low coefficient α s, only the two positively worded items were retained. The scale had six response choices, which ranged from 1 (strongly disagree) to 6 (strongly agree). A sample item is "All in all, I am satisfied with my job." The correlations between the two items within each country were generally acceptable (0.47 to 0.83). The average

score of the two items was used to indicate the level of job satisfaction. Higher scores indicate higher levels of job satisfaction.

Turnover intentions

Turnover intentions were assessed with a single item, "How often have you seriously considered quitting your current job over the past 6 months?," from Spector, Dwyer, and Jex (1988). Response choices ranged from 1 (never) to 6 (extremely often). High scores reflect strong intentions to quit the job.

Emotional strain

Emotional strain was assessed with a 13-item scale (Caplan, Cobb, French, Van Harrison, & Pinneau, 1980) that includes three subdimensions: anxiety (four items), depression (six items), and irritation (three items). The scale had four response choices, which ranged from 1 (never or a little) to 4 (most of the time). A sample item is "I feel sad." Its coefficient α was above 0.70 in all 24 samples. The average score of the 13 items was used to indicate the level of emotional strain. The overall emotional strain score was used rather than subscale scores. Higher scores for this scale indicate higher emotional strain.

Physical symptoms

A 13-item short version of the Physical Symptoms Inventory by Spector and Jex (1998) was used to measure physical symptoms. Participants were asked how often they had experienced each physical symptom over the prior six months. The response choices ranged from 1 (less than once per month or never) to 5 (several times per day). A sample item is "An upset stomach or nausea." We did not provide its α coefficient, given its being a formative rather than a reflective construct (e.g., Coltman, Devinney, Midgley, & Venaik, 2008). The average score of the 13 items was used to indicate the amount of physical symptoms. Higher scores suggest more frequent physical symptoms.

Individualism–collectivism¹

I-C was indexed at the country level by the combined scores of individualism–collectivism from both Hofstede's (1980) and Spector et al.'s (2001) studies, because neither source contained data for all of our samples. I-C scores from the two sources are compatible, in that they both utilized Hofstede's Values Survey Module as the measure. Furthermore, our comparison of both sources on

the 16 countries in common found a correlation of 0.80 between I-C raw scores. Finally, meta-analytical data have supported the adequate convergence of I-C scores as measured by Hofstede's VSM instrument with scores measured by other I-C instruments (Taras, Steel, & Kirkman, 2011b). For our study, a high score indicates high individualism.

Specifically, we utilized the original I-C scores from Spector et al.'s (2001) study for 15 of our 24 countries/regions, and then imputed the missing values with scores as predicted by the model, regressing Spector et al.'s (2001) data on Hofstede's (1980) data, for the remaining nine countries/regions (i.e., Argentina, Australia, Chile, Finland, Greece, South Korea, the Netherlands, Peru, and Turkey).² Because of the greater similarity in sample characteristics and data collection timeframe between Spector et al.'s (2001) study and the present one, we adopted the raw value scores from Spector et al.'s (2001) study for as many countries/regions as possible.

Control variables

Gross domestic product by purchasing power parity (PPP GDP), an index of national income, was used as a resource-relevant country-level control. National income was chosen as a potential confounding variable to control because of its potential relevance to employees' available resources to cope with work demands examined here, and its association with I-C shown in the literature (Chui & Kwok, 2008; Hofstede, 2001: 269–271; Tang & Koveos, 2008). Consistent with the data collection timeframe of the present study (Year 2004), PPP GDP³ (World Bank, 2005) was chosen as an index of national income, in that it takes into account relative cost of living and the inflation rate, and therefore measures national income more accurately than other indices (e.g., Rogoff, 1996; Rugman & Verbeke, 2004). As an alternate to PPP GDP, PPP GDP per capita was also retrieved from World Bank (2005), in that it reflects the possible amount of resources available for each individual person in a society, and is presumably relevant to one's ability to cope with daily work demands.

Additional country-level control variables were average number of work hours, and the other four cultural values described by Hofstede, namely power distance, uncertainty avoidance, masculinity, and long-term orientation (Hofstede, 2001). Our effort to rule out the possible confounding effect of



average weekly work hours at the country level was due to its close relevance to the number of weekly work hours at the individual level (the focal predictor related to Hypothesis 1), and its conceptual relevance to perceived workload as examined in Hypotheses 1 and 2. The data on the country-level average number of work hours per week in Year 2004 were retrieved online (International Labour Office, 2004). Our decision to rule out the potential confounds of the other four Hofstede cultural values is justified by past research suggesting a potential association of those values with the way in which workers manage work demands (e.g., Bond, 1988; Peterson & Smith, 1997). The raw scores of those four values were constructed based on the same procedure as used for constructing the I-C scores.

Individual level control variables were gender (1=male, 2=female), age (in years), educational level, marital status (1=unmarried/separated, 2=married/cohabiting), tenure (in months), managerial level (from first to top), weekly work hours, and perceived family demand. Perceived family demand was measured with a three-item scale (Aryee, Luk, Leung, & Lo, 1999). An example item is "How often do you feel that your family makes too many demands on you?" The response choices ranged from 1 (never) to 5 (very often). Its α was above 0.75 in all 24 samples except for Bulgaria ($\alpha=0.67$). Higher scores for this scale indicate higher perceived family demand. Following advice from Spector and Brannick (2011), we conducted all analyses with and without controls. Results changed little with the introduction of any of the control variables, with details on those additional analyses to be noted below.

Measurement Equivalence

As suggested by Fontaine and Fischer (2011) for cross-cultural studies, we conducted measurement equivalence analyses to establish internal structure isomorphism of focal measures before making any cross-cultural comparisons. As the first step of the equivalence test, for each of the three focal variables (organizational constraints, workload, and emotional strain), 24 pairwise variance-covariance equality tests were carried out using LISREL 8.8 (Jöreskog & Sörbom, 1998), where the variance-covariance matrix for each of the 24 samples was compared with the average matrix across the 24 samples (with group means partialled out). Job satisfaction and turnover intentions were not included in the equivalence tests because they

had fewer than three items, which is a minimum for such analyses (Jöreskog & Sörbom, 1998); physical symptoms were not included because it was a formative construct rather than a reflective construct (e.g., Coltman et al., 2008). The results of those analyses suggested that fit was adequate for the organizational constraints, workload, and emotional strain measures for a large majority of the equivalence tests, with fit indices close to or above the usually accepted cutoffs (i.e., 0.90 for comparative fit index – CFI, non-normed fit index – NNFI, and equal to or below 0.08 for root mean square error of approximation – RMSEA; Kline, 2004).

The second step of the equivalence test was conducted with three multilevel confirmatory factor analyses (CFA; one for each of the focal variables) in Mplus 5.21 (Muthén & Muthén, 2002), where the same factor/measurement structure was specified at the individual and country levels. Specifically, the CFA for organizational constraint yielded less than adequate fit indices ($\chi^2/df=37.98$; CFI=0.79; NNFI=0.74; RMSEA=0.08), while the CFAs for workload and emotional strain yielded adequate fit indices ($\chi^2/df=22.90$ vs 0.05; CFI=0.95 vs 0.97; NNFI=0.90 vs 0.96; RMSEA=0.06 vs 0.02, respectively). Given the limited number of countries/samples ($N=24$) available in the present study, the results from the above multilevel CFAs should be cross-validated in future research before we draw firm conclusions about the measurement equivalence of these measures across the two levels.

Multilevel Analyses

Individual-level and country-level variables were set at level 1 and level 2, respectively, for our hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002). Specifically, to predict perceived workload (dependent variable) in the case of Hypothesis 1, four models were run consecutively: first, a baseline model was run without any predictor; then work hours was added as a level 1 predictor; next, I-C was added as a level 2 predictor; and finally, PPP GDP was added as another level 2 predictor. For Hypotheses 2 and 3, a similar data analytic approach (four two-level models for each of the four outcome variables, i.e., job satisfaction, turnover intentions, emotional strains, and physical symptoms) was used where workload or organizational constraints was the level 1 predictor, and I-C and PPP GDP were the level 2 predictors. However, regarding each hypothesis, only the final model for each dependent variable was reported in

the tables, owing to space limitations.⁴ The individual-level predictors were group-mean centered, whereas the country-level predictors (I-C and PPP GDP) were grand-mean centered to enhance the model estimation and the interpretation of the results (Enders & Tofghi, 2007).

RESULTS

Descriptive Statistics

The pooled within-country correlations controlling for country mean differences among focal variables are shown in Table 1. All the pooled within-country correlations pertaining to the hypotheses reached significance except for the one between workload and job satisfaction.

As shown by γ_{10} estimates of the model in Table 2, there was a statistically significant

individual-level association of work hours and workload in the expected direction when all the individual-level data were pooled together. That relationship varied significantly across the 24 countries, as indicated by the evidence from one of the three omitted preliminary HLM models (i.e., Model 2) predicting workload by the individual-level work hours only.

As demonstrated by γ_{10} estimates of all the HLM models in Tables 3 and 4, there was a statistically significant individual-level association of workload and organizational constraints with job satisfaction, turnover intentions, emotional strains, and physical symptoms in the expected direction when all the individual-level data were pooled together. The workload–strain and constraints–strain relationships varied significantly across the 24 countries, as indicated by the evidence from the omitted preliminary

Table 1 Zero-order correlations among the focal variables

Variable	Mean	s.d.	1	2	3	4	5	6	7
1. Work hours	4.14	0.98	—						
2. Perceived workload	3.09	1.07	0.28**	—					
3. Perceived organizational constraints	1.85	0.72	0.07**	0.37**	—				
4. Job satisfaction	4.57	1.16	0.02	0.01	-0.29**	—			
5. Turnover intentions	2.34	1.37	0.05**	0.14**	0.32**	-0.46**	—		
6. Emotional strains	1.83	0.42	0.05**	0.08**	0.29**	-0.36**	0.30**	—	
7. Physical symptoms	1.65	0.49	0.07**	0.18**	0.34**	-0.24**	0.27**	0.49**	—

Notes: The mean and s.d. indicate, respectively, the mean and standard deviation of the total sample of 6509 managers from all 24 countries/regions. Correlations in the table are pooled within-group (i.e., within countries) correlations controlling for country mean differences among focal variables. * $p < 0.05$; ** $p < 0.01$.

Table 2 Hierarchical linear modeling with the number of work hours predicting workload

	Dependent variable
	Workload
<i>Fixed effects (individual, country, and cross-level)</i>	
Intercept (γ_{00})	3.063** (0.072)
I-C (γ_{01})	0.017** (0.004)
GDP (γ_{02})	-0.020 (0.026)
Work hours (γ_{10})	0.329** (0.023)
I-C \times Work hours (γ_{11})	0.003* (0.001)
GDP \times Work hours (γ_{12})	0.003 (0.009)
<i>Random effects (between-country residual variance)</i>	
Intercept (μ_0)	0.115**
Work hours slope (μ_1)	0.009**
Pseudo R^2	Incremental moderating effect of I-C 0.246

Notes: Values in parentheses are the errors. Pseudo R^2 denotes the proportion of the country-level variability of the work hours–workload relationship as uniquely explained by I-C. * $p < 0.05$; ** $p < 0.01$.

Table 3 Hierarchical linear modeling with workload as the focal stressor

Variable	Dependent variable				
	Job satisfaction	Turnover intentions	Emotional strains	Physical symptoms	
<i>Fixed effects (individual, country, and cross-level)</i>					
Intercept (γ_{00})	4.575** (0.088)	2.342** (0.080)	1.832** (0.033)	1.648** (0.029)	
I–C (γ_{01})	–0.006 (0.005)	0.004 (0.005)	–0.004* (0.002)	–0.003 (0.002)	
GDP (γ_{02})	–0.042 (0.031)	0.042 (0.028)	0.006 (0.012)	0.011 (0.010)	
Workload (γ_{10})	–0.060* (0.027)	0.191** (0.027)	0.066** (0.010)	0.113** (0.014)	
I–C × Workload (γ_{11})	0.004* (0.002)	–0.004* (0.002)	0.000 (0.001)	0.000 (0.001)	
GDP × Workload (γ_{12})	–0.008 (0.010)	0.009 (0.010)	0.004 (0.004)	0.007 (0.005)	
<i>Random effects</i>					
Intercept (μ_0)	0.172**	0.139**	0.024**	0.019**	
Workload slope (μ_1)	0.012**	0.009**	0.002**	0.004**	
Pseudo R^2	Incremental moderating effect of I–C	0.308	0.216	0.058	0.102

Notes: Values in parentheses are standard errors. The coefficients 0.000 in the table indicate values smaller than 0.001. Pseudo R^2 denotes the proportion of the country-level variability of the corresponding workload–strain relationship as uniquely explained by I–C.

* $p < 0.05$; ** $p < 0.01$.

Table 4 Hierarchical linear modeling with organizational constraints as the focal stressor

Variable	Dependent variable				
	Job satisfaction	Turnover intentions	Emotional strains	Physical symptoms	
<i>Fixed effects (individual, country, and cross-level)</i>					
Intercept (γ_{00})	4.572** (0.088)	2.344** (0.079)	1.833** (0.033)	1.647** (0.029)	
I–C (γ_{01})	0.006 (0.005)	0.003 (0.005)	–0.004* (0.002)	–0.003 (0.002)	
GDP (γ_{02})	–0.042 (0.031)	0.042 (0.028)	0.006 (0.012)	0.011 (0.010)	
Organizational constraints (γ_{10})	–0.044** (0.003)	0.054** (0.004)	0.175** (0.014)	0.231** (0.014)	
I–C × Constraints (γ_{11})	–0.001** (0.000)	0.001** (0.000)	0.001 (0.001)	–0.001 (0.001)	
GDP × Constraints (γ_{12})	–0.001 (0.001)	0.002 (0.002)	0.005 (0.005)	0.005 (0.005)	
<i>Random effects</i>					
Intercept (μ_0)	0.175**	0.138**	0.022**	0.019**	
Constraints slope (μ_1)	0.000**	0.000**	0.002**	0.003**	
Pseudo R^2	Incremental moderating effect of I–C	0.468	0.195	0.058	0.105

Notes: Values in parentheses are standard errors. The coefficients 0.000 in the table indicate numbers with absolute values smaller than 0.001. Pseudo R^2 denotes the proportion of the country-level variability of the corresponding organizational constraint–strain relationship as uniquely explained by I–C.

* $p < 0.05$; ** $p < 0.01$.

HLM models predicting corresponding strain variables (i.e., Model 2 for each strain variable).

More specifically, based on within-country regression analyses, we found that the relationship between work hours and workload was positive and significant for all countries/regions except Chile and South Korea. The relationship between workload and job satisfaction was *negative* for most

of the countries, such as the US, the UK, Hong Kong, and Australia, but *positive* for a few countries, such as Bulgaria, Chile, Peru, Poland, and Finland (not all were significant, however). Regarding the association of workload with turnover intentions, emotional strains and physical symptoms, the strength of *positive* association varied significantly across countries, with an opposite direction

(negative) for the significant workload–turnover intentions association in Bulgaria. The relationships of organizational constraints with job satisfaction, turnover intentions, emotional strains, and physical symptoms were mostly significant within the countries/regions, and all in the expected direction with a few exceptions (none of them were significant) in certain countries/regions, such as the *negative* relationship between constraints and turnover intentions in Peru.

I-C as a Moderator of the Relationship between Work Hours and Workload

Hypothesis 1 stated that country-level individualism–collectivism would moderate the relationship between the number of work hours per week and perceived workload such that employees in individualistic countries would have a stronger work hours–workload relationship than those in collectivistic countries. As suggested by the γ_{11} estimates in Table 2, the cross-level moderation effect of I-C on the level 1 relationship between work hours and workload was significant, over and above the effect of PPP GDP. In addition, following Singer and Willett (2003) and Raudenbush and Bryk (2002), the pseudo R^2 was calculated to indicate that the proportion of the country-level variability of the work hour–workload relationship was uniquely explained by I-C.

In accordance with the hypothesis, Figure 1 illustrates the work hours–workload relationship for the 25th and 75th percentiles on the I-C score continuum, respectively. That is, the relationship between work hours and workload was more positive for employees in individualistic countries (75th percentile on the I-C score continuum) than for those in collectivistic countries (25th percentile on the I-C score continuum). Therefore Hypothesis 1 was supported. Relatedly, Figure 1 illustrates the moderating effect in a conservative way, because

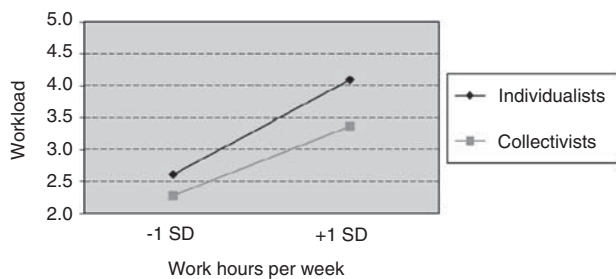


Figure 1 Individualism–collectivism moderates the work hours–workload relationship.

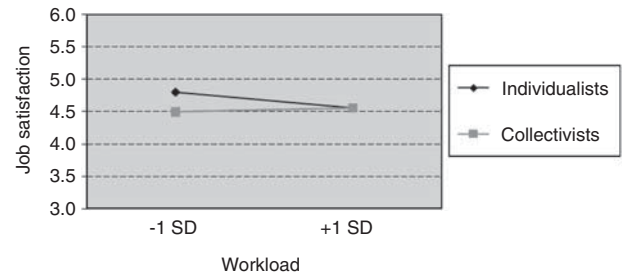


Figure 2 Individualism–collectivism moderates the workload–job satisfaction relationship.

the limited number of countries/regions might have constrained the range of the I-C continuum and restricted the contrast effect of the work hours–workload slope at the 25th percentile vs the 75th percentile I-C. The same principle applies to Figure 2.

I-C as a Moderator of the Relationships between Workload and Strains

Hypothesis 2 stated that country-level individualism–collectivism would moderate the relationships between workload and strains such that employees in individualistic countries would have stronger workload–strain relationships than those in collectivistic countries. As suggested by the γ_{11} estimates in Table 3, the cross-level moderation effect of I-C on the level 1 relationships between workload and strains was significant when predicting job satisfaction (JS) and turnover intentions. Similarly, the pseudo- R^2 s in Table 3 indicate that the proportion of the country-level variability of the corresponding workload–strain relationship as uniquely explained by I-C was higher for the models predicting JS and turnover intentions than that for those predicting emotional and physical strains.

In accordance with the direction predicted in Hypothesis 2, Figure 2 illustrates the workload–JS relationship for the 25th and 75th percentiles on the I-C score continuum, respectively. That is, the relationship between workload and job satisfaction was more *negative* for employees in individualistic countries than for those in collectivistic countries. Similarly, the relationship between workload and turnover intentions was more *positive* in individualistic countries than it was in collectivistic countries. However, there was no evidence to support the interaction between I-C and workload in predicting emotional strains and physical



symptoms. Therefore Hypothesis 2 was partially supported.

I-C as a Moderator of the Relationships between Organizational Constraints and Strains

Hypothesis 3 posited that country-level individualism–collectivism would moderate the relationships between organizational constraints and strains such that employees in individualistic countries would have stronger constraints–strain relationships than those in collectivistic countries. As suggested by the γ_{11} estimates in Table 4, the cross-level moderation effect of I-C on the level 1 relationships between organizational constraints and strains was significant when predicting job satisfaction (JS) and turnover intentions. Similarly, the pseudo- R^2 s in Table 4 indicate that the proportion of the country-level variability of the corresponding constraints–strain relationship as uniquely explained by I-C was higher for the models predicting job satisfaction and turnover intentions than for those predicting emotional and physical strains.

In accordance with the direction predicted in Hypothesis 3, the relationship between organizational constraints and job satisfaction was more *negative* for employees in individualistic countries than for those in collectivistic countries. Similarly, the relationship between organizational constraints and turnover intentions was more *positive* in individualistic countries than it was in collectivistic countries. However, there was no evidence to support the interaction between I-C and organizational constraints in predicting emotional strains and physical symptoms. Therefore Hypothesis 3 was partially supported.

We reran all hypothesis tests with PPP GDP replaced by PPP GDP per capita (World Bank, 2005), with a purpose of cross-validating the operationalization of national income. The significant moderating effects of I-C (Hypotheses 1–3) remained significant. We then repeated our analyses with each of the additional country-level controls added (one at a time to preserve statistical power), finding results that differed little from the analyses without controls. At the individual level, all the statistically significant moderating effects of I-C remained significant after simultaneously controlling for the individual level control variables. In sum, the moderating effects of I-C on the work hours–workload, workload–strain, or organizational constraints–strain relationships could not be systematically explained by the control variables.

Because of space limitations, the results of the multilevel analyses with the aforementioned variables controlled are not reported in the tables.⁵

Supplementary Analyses

In order to test preliminarily whether country-level I-C moderates the entire process of occupational stress described in the two-stage transactional stress theory, a multilevel moderated mediation analysis was carried out for each of the four strain variables: job satisfaction, turnover intentions, emotional strains, and physical symptoms (Bauer, Preacher, & Gil, 2006). Given the design of the present study, we were only able to test the presumed mediator role of workload between work hours and strains in such multilevel moderated mediation analyses. In other words, the two-level moderated mediation model specifies that, at the individual level, weekly work hours predict perceived workload, which then contributes to strains. Country-level I-C moderates both the work hours–workload and workload–strains paths. Consistent with the theoretical framework and the results of the multilevel moderation tests, the moderated mediation model was significant when predicting job satisfaction or turnover intentions (Bauer et al., 2006).

The simple indirect effect of work hours on job satisfaction (or turnover intentions) through workload was evaluated among the individualistic and collectivistic samples (12 countries for each sample, split at the median point of the I-C score continuum), respectively. Sobel's (1982) tests showed that the indirect effect of work hours on job satisfaction was significant (Sobel $Z = -3.60$, $p < 0.01$) in the individualistic sample, but non-significant in the collectivistic one (Sobel $Z = -0.18$, n.s.). In addition, the indirect effect of work hours on turnover intentions was significant in both individualistic and collectivistic samples (Sobel $Z = 5.62$ vs 3.30 , $p < 0.01$, for the individualistic and collectivistic sample, respectively). However, the indirect effect for the individualistic sample was significantly higher than that for the collectivistic sample: that is, the 95% confidence intervals of the indirect effect in each subsample did not overlap with each other, according to our supplementary bootstrapping analysis (Muthén & Muthén, 2002). This suggested a stronger indirect effect of work hours on turnover intentions in the individualistic sample than in the collectivistic one.

DISCUSSION

This study adds a cross-national dimension to transactional stress theory (Lazarus, 1991) by examining the extent to which the relationships between work demands and employee strains are moderated by country-level I-C. As predicted, we found evidence for the moderating effect of I-C on the relationship between factual and perceived work demands (i.e., the number of work hours per week and employees' perceived workload), such that employees in individualistic countries had a stronger relationship than their collectivistic-country counterparts. Furthermore, we found support for the hypothesized moderating effect of I-C on the relationships of perceived work demands (i.e., workload and organizational constraints) with job satisfaction and turnover intentions, such that employees in individualistic countries demonstrated stronger relationships than their collectivistic-country counterparts. More importantly, the moderating effects of I-C could not be systematically accounted for by national income and average number of work hours per week, by other relevant cultural values, or by employees' background variables. Interestingly, however, I-C did not demonstrate the same moderating effect on the relationships of work demands with emotional and physical strains.

The Moderating Effect of I-C on the Work Hours–Workload Relationship

Our results suggest that employees in individualistic countries tend to perceive a higher workload than their collectivistic-country counterparts while working the same number of hours. Spending long hours at work may be appraised by employees in individualistic countries as competing with nonwork life domains for personal resources such as time and energy (e.g., Hobfoll, 1988, 2001; Spector et al., 2007). Such an appraisal could threaten those employees' perceived availability of personal resources and, in turn, account for their perceived high workload. Additionally, being accustomed to handling relationships with others in the society via a rational approach (balanced investment and return), employees in individualistic countries may also view long work hours as too much investment in their relationship with the organization, and hold it responsible for their high workload (Fischer et al., 2009; Triandis, 1995).

In contrast, those employees in collectivistic countries may view long work hours as less of a competition with their nonwork domains for personal resources because of presumably available

support from nonwork domains (Karimi & Nouri, 2009), as prescribed by their interdependent self-construal. In accordance with their relational way of handling relationships with others and ingroups, employees in collectivistic countries may also view working long hours as necessary for maintaining their relationships with the organization or their team, without carefully calculating the potential costs and benefits. Therefore those employees tend not to perceive long work hours as high workload.

The Moderating Effects of I-C on the Workload–Strain and Constraints–Strain Relationships

As expected, our results suggested that employees in individualistic countries tend to react to high workload and organizational constraints more negatively than their collectivistic country counterparts, in that they demonstrated lower job satisfaction and higher turnover intentions in response to those demands. Conceivably, employees in individualistic countries appraise a high workload and a lack of work-related resources as especially difficult to handle because their independent self-construal categorizes stressors that stand in the way of their goals as particularly stressful. Any delay in work processes because of too much work or resource constraint would be in conflict with those employees' personal-goal-driven self-construal (Ashforth, Harrison, & Corley, 2008). This in turn contributes to employees' negative reactions to the sources of the delay (work overload or organizational constraints). Moreover, they might be less likely to expect or seek social support from others while coping with these two stressors, owing to their role expectations as prescribed by the individualistic cultural context. Thus, perceiving low availability of social support as a stress-coping resource, employees in individualistic countries might demonstrate more job dissatisfaction and have more frequent thoughts of leaving their current position in response to either a high workload or perceived scarcity of organizational resources.

Employees in more collectivistic countries, by contrast, tend to form an interdependent work self-construal embedded within their group relationships (Markus & Kitayama, 1991; Triandis, 1995). In addition, those employees tend to feel comfortable in seeking other colleagues' help at work when dealing with high work demands, given their belief of a commonly used relational way of maintaining relationships between colleagues at work (Fischer et al., 2009; Triandis, 1995). Therefore perceived



high workload and lack of work resources could be less overwhelming for those employees, because their perceived high availability of social and relational resources should benefit their coping with those demands (Lazarus, 1991).

Additionally, when high workload and lack of organizational resources occur, employees in individualistic countries may tend to attribute the situation to factors related to the organization or their colleagues as opposed to their own coping capacities (Mezulis et al., 2004; Nisbett et al., 2001). Such external attribution could partially account for those employees' more intensely expressed job dissatisfaction towards the demanding work conditions. And, consistent with their typical way of following personal contracts/attitudes, they could then have more frequent thoughts of escaping the job (turn-over intentions). In contrast, employees in collectivistic countries may be less compelled to blame the organization for high work demands (Mezulis et al., 2004; Nisbett et al., 2001). As influenced by their interdependent cultural context, those employees may tend to obey the group norms and fulfill their obligations to the group (e.g., the organization) by accepting the necessity to handle high work demands (Fischer et al., 2009; Triandis, 1995).

Interestingly, we did not find evidence supporting the moderating effect of I-C on the relationships of workload or organizational constraints with emotional strains or physical symptoms. That is, employees from both individualistic and collectivistic countries reported higher levels of emotional strain (i.e., anxiety, irritation, and depression) and somatic symptoms when they perceived higher workloads and scarcity of work-related resources. As suggested by the Biocultural Model of Emotion (Levenson et al., 2007), perceived high workload and inadequate work-related resources may uniformly match the prototype of a stressor in the minds of employees across different cultures. That matched prototype would automatically activate these employees' autonomic reaction systems, including the visceral and somatic sensations that contribute to the subjective experience of various emotions, including anxiety, irritation, and depression. Such physio-psychological tension would accumulate and turn into somatic symptoms.

The notion that employees from culturally dissimilar countries might share similar emotional and somatic reactions to high workload and organizational constraints was supported by the relatively small cross-national variability in the relationships of workload and constraints with

emotional strains and physical symptoms as shown in our data. Given the fast time cycle of emotional processing (Lord & Harvey, 2002) and autonomic responses (including somatic reactions; Levenson et al., 2007; Mandler, 1984), it is not altogether surprising that cultural values (or potential cognitive appraisals) did not change the onset of employees' emotional strains and somatic symptoms when facing high work demands.

Limitations and Implications

This study was not free of limitations. First, it used a cross-sectional design that limited our ability to draw conclusions regarding whether the influence of I-C on the work hours–workload relationship precedes its influence on the workload–strain relationship, in spite of theoretical arguments and our preliminary evidence supporting this sequence (Lazarus, 1991). Second, this study did not have data about objective organizational conditions gathered from independent sources that might constrain employees' task completion. This absence precluded the possibility of testing the potential moderating role of I-C in the relationships between objective constraint and perceived constraint. Third, future studies should include measures of specific coping strategies, and the sources to which stressors are attributed (Perrewé & Zellars, 1999; Siu, Spector, & Cooper, 2006), which would facilitate tests of more fine-grained elements of the stress-coping process from a cross-national perspective. Continued research should also investigate the possibility suggested here that emotional and somatic experiences escape the cognitive appraisal process through which I-C influences attitudinal reactions to demanding work conditions (Kitayama & Uskul, 2011; Levenson et al., 2007).

Fourth, the I-C value was not directly measured in the present study (i.e., archival I-C scores were used), which could have contributed to a smaller size of the I-C's moderating effect than it would have been with a direct measure used. Indeed, Taras, Kirkman, and Steel's (2010) meta-analysis showed that, in terms of the relationships between I-C and organizational phenomena, effect sizes based on archival I-C data were smaller than those based on first-hand I-C data. Additionally, limited statistical power at level 2 due to only 24 country units (Hedges & Hedberg, 2007) rendered our hypothesis tests quite conservative.

The present study makes an important contribution to the integration of Lazarus's transactional stress theory and a key cross-cultural framework

(Hofstede, 1980; Triandis, 1995) from process-oriented and multilevel perspectives. In addition, our findings echo the importance of considering the role that cultural context (e.g., values) plays in everyday workplace cognition, including appraisals of the work environment (e.g., Schliemann, Carragher, & Ceci, 1997; Soskolne, Halevy-Levin, & Cohen, 2007). It is also critical to recognize that the present study enriches research on employee work demands by including organizational constraints in addition to weekly work hours and workload. Lastly, from a practical standpoint, multinational corporations could benefit from this study in terms of understanding how cultural nuances (i.e., different levels of I-C) shape attitudinal reactions to high workload and constraints, which could offer valuable insights in designing culturally sensitive programs capable of increasing employee retention in culturally dissimilar countries.

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NOTES

¹Given that the rating of I-C as an institutional value from House, Hanges, Javidan, Dorfman, and Gupta's

(2004) Global Leadership and Organizational Behavior Effectiveness (GLOBE) study was available for only 19 out of our 26 countries/regions, we decided to choose the combined I-C scores for 24 units from Spector et al. (2001) and Hofstede's (1980) studies, in order to preserve the statistical power of our analysis. In addition, following the suggestion by Brewer and Venaik (2011), Hofstede's framework of I-C is more appropriate for the present study, focusing on work demands, as opposed to that of GLOBE. As a matter of fact, we ran all analysis with GLOBE's ratings used for country-level I-C, and found a result pattern similar to that we present in this manuscript, except that the interactions between I-C and focal level 1 predictor were marginally significant ($p < 0.10$) in most models we tested when GLOBE data were used.

²Details about the imputation process of I-C scores are available upon request to the senior author.

³In the archive of the World Bank, the PPP GDP, and PPP GDP per capita data for Taiwan were missing.

⁴The results of the first three HLM models related to each hypothesis were not presented in the tables, for the consideration of space limits. However, the results are available upon request to the senior author.

⁵The results with those relevant individual- or country-level variables controlled are available upon request to the senior author.

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