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Culture, Burnout and Engagement: A Meta-Analysis on National Cultural Values as Moderators in JD-R Theory

Keywords: national culture, JD-R, meta-analysis, burnout, engagement

Abstract

Despite prominence and increasing application of the Job Demands-Resources (JD-R) theory across national contexts, the role of culture has not yet been systematically explored. We conducted a meta-analysis of 132 independent samples from 120 studies across 5 global regions (total N = 101,073) to fill this void. Our paper responds to longstanding concerns around neglecting differences in the relationships of workplace factors with burnout and engagement across national cultures by testing for a moderating role within JD-R theory. Results suggest strong support for the direct job demands-burnout and job resources-engagement pathways. Regarding the role of culture, our study reveals moderating roles for five out of six cultural dimensions using Hofstede's framework. Interestingly, these cultural dimensions present a moderating impact towards relationships with either job demands or job resources, yet not both. Our findings might serve as a valuable starting point for further theoretical developments. While these insights suggest a role of national cultural context in JD-R studies, sensitivity analyses showed that the findings were only partly stable.

Introduction

Globalisation requires organisations to understand how employees in and from different cultural contexts respond to increasingly international work settings. However, management theories are often applied without considering cultural sensitivity (Brewster, Sparrow & Harris, 2005; Van Veldhoven, Van den Broeck, Daniels, Bakker, Tavares & Ogonnaya, 2017). A recent call for papers in *Applied Psychology: An International Review* suggests a worthy contribution would be to understand why, when and for whom workplace factors have positive or negative effects, under what processes and in what contexts (Van Veldhoven et al., 2017). This raises the issue that the relationship between job characteristics and well-being/performance outcomes may in part depend on national contextual factors (Hauff, Richter &

Tressin, 2015; Parker, Van den Broeck & Holman, 2017; Van Veldhoven & Peccei, 2015) and suggests that further scrutiny and theoretical advancement may be beneficial in order to determine their impact.

The Job Demands-Resources (JD-R) theory (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Bakker & Demerouti, 2017) is a job design and wellbeing framework receiving increasing popularity, yet little effort has been made to ensure it aligns with the international dimension found in many organisations today. Despite recent calls for exploring cross-cultural validity in the types of relationships found within this theory (Stephan & Jones, 2017), JD-R literature shows limited effort to systematically consider the impact of cultural variance. Most JD-R research is conducted in single-national contexts, such as the Netherlands (e.g. Akkermans & Tims, 2017), Australia (e.g. Boyd, Bakker, Pignata, Winefield, Gillespie & Stough, 2011), and China (e.g. Hu, Schaufeli & Taris, 2013, 2017). Literature that might bring clarity on the role of culture in the relationship of job demands/resources with work-related outcomes is limited to comparative studies, usually involving two or three countries or a contrast of Western and Eastern cultures (e.g. see Diefendorff, Greguras & Fleenor, 2016; Sturman, Shao & Katz, 2012). Furthermore, there are a few exceptions highlighting potential problems of applying a Western-derived theory in non-Western contexts (e.g. Brough, Timms, Siu, Kalliath, O'Driscoll, Sit, Lo & Lu, 2013).

Despite the potentially important role of culture in scientific inquiry, teaching, and practice (Hult, Ketchen, Griffith, Finnegan, Gonzalez-Padron, Harmancioglu & Cavusgil, 2008; Kittler, 2018) plus literature suggesting similar working conditions might be perceived differently due to cultural variation (Hattrup, Mueller & Joens, 2007; Park, Jacob, Wagner & Baiden, 2014; Taras, Kirkman & Steel, 2010), only a few studies provide cross-cultural insight relating to JD-R theory (see Rattrie & Kittler, 2014). Furthermore, there is reason to believe organisations would benefit from frameworks valid beyond a national scope that function across multiple cultures (Stone-Romero, Stone & Salas, 2003). This study therefore aims to provide meta-analytical evidence on the role of national cultural values (using Hofstede's cultural conceptualisation) for influencing the relationships between job demands/resources and burnout/engagement (using JD-R theory as a prominent conceptualisation).

JD-R theory

Evidence suggests focusing on burnout prevention and enhancing work engagement leads to higher levels of employee functioning (Bakker & Leiter, 2010; Maslach, Schaufeli & Leiter, 2001), justifying widespread organisational interest in identifying and managing their antecedents (Alarcon, Eschleman & Bowling, 2009; Hechanova, Beehr & Christiansen, 2003). In line with this, JD-R theory has received considerable attention since the turn of the century (see Bakker & Demerouti, 2017) evidenced by increasing interest and utilisation within both the practitioner and scholarly communities (see Bakker & Demerouti, 2014, 2017). As the model emerged from a Western European context with rapid expansion across a variety of national contexts (Rattrie & Kittler, 2014) and it has been suggested “the theory can be applied to all work environments and can be tailored to the specific occupation under consideration” (Bakker, Demerouti & Sanz-Vergel, 2014, p.399), it seems an appropriate time to rigorously assess if – and if so, in what way - national culture plays a role within JD-R theoretical assumptions. This is particularly relevant as evidence now suggests this theory has longitudinal stability (Brauchli, Schaufeli, Jenny, Füllemann & Bauer, 2013), practical value for workplace diagnostics (Huo & Boxall, 2017) and interventions (Schaufeli, 2017).

The original JD-R assumptions suggest that employee wellbeing can be understood, explained, and predicted by job demands and resources, whereby job demands trigger a health impairment pathway towards burnout (or negative outcomes) and job resources trigger a motivational pathway to work engagement (or positive outcomes; Bakker & Demerouti, 2014). Job demands (e.g. high workload or role conflict) refer to “those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological [...] effort or skills and are therefore associated with certain physiological and/or psychological costs” (Demerouti & Bakker, 2011, p. 2) which typically carry positive associations with burnout (Bakker & Demerouti, 2007), being characterised by emotional exhaustion, cynicism (or depersonalisation) and reduced professional efficacy (RPE; Maslach, 2001). Job resources (e.g. job control or support) refer to physical, psychological, social, or organisational aspects of the job that have potential to be functional in achieving work goals, reduce the associated

physiological and psychological costs of job demands, stimulate personal growth, learning, and development (Demerouti & Bakker, 2011) and typically carry positive associations with work engagement, characterised by vigor, dedication and work absorption (Schaufeli & Bakker, 2004).

It is worth noting however that as JD-R research progressed, particularly in latter years, these original assumptions and the conceptualisation have been refined (see Bakker & Demerouti, 2017 for an overview). For instance, evidence now shows that challenge-based job demands have potential to increase work engagement (Crawford, Le Pine & Rich, 2010; Van den Broeck, De Cuyper, De Witte & Vansteenkiste, 2010) and job resources can reduce burnout (Akhtar & Lee, 2010; Bakker & Demerouti, 2007), suggesting it is more the link of work characteristics per se with burnout (resulting in a health impairment syndrome) and engagement (resulting in a motivational state) that is important. Whilst we acknowledge recent advancements of JD-R theory, we seek to maximise the evidence included in the assessment and therefore choose to focus on the original relationships. For the purpose of this meta-analysis, we therefore include all job demands in one category due to their demanding nature, but as they have a motivational component, we also explore the relationship to engagement. Likewise, we explore the relationship of job resources to both burnout and engagement. As such, we focus on and assume that the original (and somewhat central) assumptions of the JD-R theory find empirical support across international work contexts and discuss these as the relationships between job demands/resources and burnout/engagement.

Hypothesis 1a: Job demands are (i) negatively related to engagement and (ii) positively related to burnout.

Hypothesis 1b: Job resources are (i) positively related to engagement and (ii) negatively related to burnout.

Cultural Values and their impact on JD-R theory

The idea that national culture may influence the job demands/resources and burnout/engagement relationship aligns with previous research. For example, Hobfoll, Halbesleben, Neveu and Westman

(2018) suggest that an individuals' response to stress is embedded within cultural beliefs. Likewise, Earley and Mosakowski (2004, p. 151) suggest that in workplace contexts managers face "increasingly complex and subtle differences among employees that reflect cultural influences from their teams, professions, business units, corporate identities, and countries". A lot of management research has focused on the latter aggregate (i.e. countries), creating typologies of national cultures linked to management practices and employing national culture as an antecedent in mediational models or as moderating variables. Cultural values are therefore being accredited with a prominent role in various work-related predictor-outcome relationships, such as pay discrepancies and perceived relative deprivation (Toh & DeNisi, 2003), job-performance and turnover (Sturman et al., 2012), personality traits and organisational commitment (Choi, Oh & Colbert, 2015). Accordingly, we suggest cultural values may affect the job demands/resources and burnout/engagement relationships that sit within the JD-R theory.

There are various classifications attempting to quantify cultural values which include work by Hofstede (1980, 2001), Schwartz (1992, 1999), the World Values Survey and Inglehart (1997) and more recently the GLOBE study (House, Hanges, Javidan, Dorfman & Gupta, 2004; Chhokar, Brodbeck & House, 2008). This meta-analysis will use Hofstede's classification, which represents an extensive contribution with a five-dimensional approach to cultural variation that includes: power distance (PD), individualism/collectivism (IND/COL), masculinity/femininity (MAS/FEM), uncertainty avoidance (UA) and long-term/short-term orientation (LTO/STO; Hofstede, 2001; Hofstede & Bond, 1988). A sixth dimension was introduced and discussed later (see Hofstede & Minkov, 2010) yet we did not include it here due to the limited measurement across countries, meaning there is a limited database.

According to Hofstede (1994, p.1), culture can be understood as "the collective programming of the mind which distinguishes the members of one category of people from another". Scientific reference to and use of Hofstede's work worldwide keeps growing and it's frequently used in studies addressing national cultural differences e.g. when incorporating it as a moderating variable to account for differences in (cultural) context. Variation in scores of cultural value dimensions are argued to represent underlying cultural differences (Venaik & Brewer, 2010), which are viewed as influencing how

employees respond to working conditions, subsequently affecting work related outcomes (Liu, Spector & Shi, 2007; Taras et al., 2010; Taras, Steel & Kirkman, 2011). In the extreme, scholars argue that Hofstede's dimensions carry stronger predictive power than personality traits or demographics for outcomes relevant to organisational contexts (e.g. organisational commitment, team-related attitudes, feedback seeking) and are strongly related to emotions, attitudes, behaviours and performance outcomes (Taras et al., 2010). Additionally, cultures can be seen to vary along how tight or loose (Gelfand, Raver & Nishii, 2006) their members adhere to societal expectations and cultural values. Below, we provide an overview and hypothesise on the moderating role of each cultural dimension as a third variable affecting the strength of job demands/resources and burnout/engagement relationships.

Power Distance (PD). PD reflects "the degree to which the less powerful members of a society accept and expect that power is distributed unequally. The fundamental issue here is how a society handles inequalities among people" (Hofstede, n.d., para. 6) which is thought to have a moderating impact on a number of workplace relationships. For example, low PD was found to strengthen the relationships between perceived organisational support and work outcomes (Farh, Hackett & Liang, 2007) plus person-job fit and job satisfaction (Lee & Antonakis, 2014). PD has also been found to moderate the relationship of abusive supervision (representing a job demand) with employee well-being (i.e. psychological health and job satisfaction), in that employees with higher PD experienced weaker negative relationships, suggesting a protective element for well-being (Lin, Wang & Chen, 2012). However, some assumptions on the moderating role of PD were not supported. For instance, Wu & Chaturvedi (2009) could not find significant results for the interaction of high-performance work systems with PD in predicting affective commitment and job satisfaction. Hence, previous empirical work might not be consistent in its results on PD but does hint at a potential role as a moderator worthy of further scrutiny.

Masculinity/Femininity (MAS/FEM). MAS represents "a preference in society for achievement, heroism, assertiveness, and material rewards for success. Society at large is more competitive" (Hofstede, n.d., para. 10). FEM, its opposite, stands for a "preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented" (Hofstede, n.d., para. 10).

Norms associated with FEM cultures (e.g. opportunity to fulfill multiple social roles without judgment) are thought to carry positive associations with a range of health outcomes (Barnett, 2004), whereas in MAS cultures, employees may be more susceptible to higher stress, burnout and job dissatisfaction (Hofstede, 1980), less likely to openly criticise the absence of sufficient resources (Hofstede, 2001), and suppressing their emotions, which has been shown to account for variation in burnout scores (Maslach et al., 2001). Furthermore, Pines, Ben-Ari, Utasi and Larson (2002) found that students in Israel (a culture with a comparatively high FEM score) consider the availability of job resources (e.g. listening and emotional support) as being important for lowering the risk of developing burnout, at a level higher than Israeli-Arab students and American students (as relatively MAS societies compared to Israel).

Uncertainty avoidance (UA). UA refers to “the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen?” (Hofstede, n.d., para. 12). Cultures high in UA are expected to focus more on rules, structured activities and employee security (Hofstede, 1984). Hofstede (2001) predicts that individuals from higher UA cultures seek greater security and stability in their professional careers and therefore tend to have longer job tenure and less turnover intention (see also Debus, Probst, König & Kleinmann, 2012; García-Cabrera & García-Soto, 2011; Staufenbiel & König, 2010). In a similar vein, Frazier, Fainshmidt, Klinger, Pezeshkan and Vracheva (2017) also found that work design characteristics and supportive work contexts showed significantly stronger effects on psychological safety in high UA cultures. Furthermore, examining participation in decision-making and organisational commitment, Singh, Bhagat and Mohanty (2011) empirically supported a moderating impact of UA on the participation-affective commitment relationship.

Long-term/short-term orientation (LTO/STO). Initially referred to as Confucian Dynamism, LTO/STO is a time-related element that was more recently identified as an important fifth dimension of variation across (national) cultures (Hofstede & Minkov, 2010; Minkov & Hofstede, 2012). LTO/STO refers to the degree a culture will “maintain some links with its own past while dealing with the challenges of the present and the future” (Hofstede, n.d., para. 14). Low scores, represented by a STO, prioritise

time-honored traditions and norms whilst considering societal change with suspicion. Conversely, LTO cultures are pragmatic, encouraging efforts in education as a way to prepare for the future. They also tend to embrace virtues such as perseverance and patience (over quick fixes) thus making LTO a widely cited framework of how people value time (Nevins, Bearden & Money, 2007). Employees from LTO-cultures are likely to be more receptive to harder work in the present in anticipation of future rewards, arguably weakening the short-term relationship of demands and burnout and engagement. Supporting this view, LTO is argued to help foster organisational well-being (Jung, Bass & Sosik, 1995). In contrast, employees in STO-cultures are likely to possess a more narrow-minded focus and sensitivity for immediate outcomes of their actions (Thorne & Saunders, 2002).

Individualism/Collectivism (IND/COL). Hofstede (2001, p. 225) refers to IND for societies in which “the ties between individuals are loose: everyone is expected to look after her/his immediate family only”. In COL societies, individuals “are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty” (Hofstede, 2001, p. 225). Consequently, employees from a highly COL culture might place greater emphasis on pursuing group goals, team-work and improving group level engagement, all aspects of the workplace associated with improved health (Ronen & Mikulincer, 2009). The IND/COL dimension is thought to establish variation in how job characteristics lead to outcome variables (e.g. Spector, Allens, Poelmans, Lapierre, Cooper, O’Driscoll & Widerszal-Bazyl, 2007), levels of commitment and even job tenure (Parkes, Bochner & Schneider, 2001). While IND/COL has emerged as a prominent dimension in cross-cultural literature, research suggests that the moderating role of IND/COL is complex, and interpretations of quantitative data could be overly simplistic. For example, Triandis (2000) observed that in IND cultures, unpleasant life events are not met with sufficient social support, suggesting a likelihood for higher burnout, but he also assumes higher optimism in those cultures, suggesting potential for less burnout.

Tightness/Looseness. In the works of Gelfand and colleagues, loose and tight refer to opposite poles of “the overall strength of social norms and tolerance of deviance” (Gelfand, Raver, Nishii, Leslie, Lun, Lim & Yamaguchi, 2011, p. 9). While Gelfand et al (2006, p. 1227) suggest that “tightness-looseness captures unique cultural variance” and render it as a societal antecedent towards

organisational outcomes and individual behaviour, others argue that IND could be associated with looseness and COL with tightness, suggesting a high extent of agreement to common social norms (e.g. Triandis, 1995). The complex relationships for IND/COL discussed above and a further understanding of IND as a preference for a loosely-knit and COL for a tightly-knit societal framework suggest this conceptualisation might deliver additional insight. As individuals in culturally tighter societies would have much less flexibility in deviating from social norms (Taras et al., 2010) with outgoing behaviour being less appreciated (Peltokorpi & Froese, 2014) it is likely they also remain silent about job demands which are perceived as overburdening. When struggling to meet job demands, they may then be less likely to address the issue with their managers or peers than individuals from loose cultures. Hence, we argue that tightness intensifies negative work-related outcomes in jobs characterised by high job demands.

The discussion above suggests a potential moderating role of national culture within the job demands/resources and burnout/engagement relationships found at the core of JD-R theory. In order to limit the complexity of our hypotheses, acknowledge ambiguity in previous findings and ensure clarity of this paper we do not propose hypotheses for individual dimensions of cultural values but suggest:

Hypothesis 2a: National cultural values moderate the effect of job demands on (i) burnout and (ii) engagement.

Hypothesis 2b: National cultural values moderate the effect of job resources on (i) engagement and (ii) burnout.

Method

Literature search

A search across EBSCO, SCOPUS, PsycINFO and Web of Knowledge databases was conducted, using combinations of the following terms: JD-R, job demands, job resources, burnout and engagement. To be included in analysis, articles had to meet the following criteria: 1) publication date 2001-2018; 2) analyzed job demands/resources with burnout/engagement relationship (i.e. representing the health

impairment or motivational pathways); 3) provision of adequate statistical data (i.e. quantitative data); 4) examination of individuals in formal work settings; 5) published in English.

The publication search included peer-reviewed journal articles, online previews of journal articles (doi available, yet not print), unpublished research reports, theses and conference publications/proceedings. When combined with manually searching reference sections of retrieved studies, 307 articles were identified. To enhance reliability, two researchers conducted searches and cross-referenced findings. Any queries on whether an article should be included were handled at identification stage on a case by case basis by discussing whether the publication met the criteria outlined above, exploring the article in more depth and comparing it to other publications that were/were not included. A similar approach was followed at the coding stage where the authors discussed details and, in some instances, contacted the authors of the publication in question for clarification.

Coding

The following characteristics were coded: sample size; percentage of females; age (mean and standard deviation); response rate; country where participants were located; cultural value dimensions. The cultural dimensions outlined earlier were coded with associated country scores from Hofstede's data (see Hofstede, Hofstede & Minkov, 2010). We operationalised demands/resources in accordance with the JD-R definitions above, checking their meaning, definitions and measurement to avoid data distortion. We finally coded the correlations between demand-burnout and resources-engagement.

In a few cases, we encountered outlying correlations characterised by a typical size of the correlation combined with a sign in the opposite direction to what was expected e.g. a medium-sized but *positive* correlation between resources and burnout. We contacted the authors of the respective six articles in order to clarify whether an error had occurred in print and changed the sign of the correlation where appropriate. When the same sample was used in more than one publication, we selected the publication that reported results aligning to our research question e.g. Angelo and Chambel (2012) was selected because it reported more results than Angelo and Chambel (2013).

Research grounded in JD-R theory almost exclusively used versions of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986) and Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). The MBI (Maslach & Jackson, 1986) offered scores for burnout, operationalised as exhaustion, cynicism (depersonalisation) and RPE. The UWES (Schaufeli & Bakker, 2003) offered scores for engagement, operationalised as vigor, dedication and absorption. All other measures offered a total score for 'burnout' e.g. UBOS (Schaufeli & Van Dierendonck, 2000), Oldenburg Burnout Inventory (OLBI; Halbesleben & Demerouti, 2005), The Gillespie-Numerof Burnout Inventory (GNBI; Gillespie & Numerof, 1984); and for 'engagement' e.g. OLBI; (Halbesleben & Demerouti, 2005), Positive and Negative Occupational States Scale (PNOSI; Barbier, Peters & Hansez, 2009). We computed composite scores when results for sub-constructs were provided (e.g. exhaustion and cynicism for burnout) and used general scores (i.e. results for 'burnout') when provided as an overall scale. In studies that used OLBI (Halbesleben & Demerouti, 2005) as a measure of engagement, we reverse coded the 'disengagement' dimension.

Research around JD-R theory has assessed a wide range of demands/resources as potential correlates of burnout/engagement. Sorting these specific measures into broader categories showed that demands were predominantly analyzed with measures for workload, followed by measures for emotional demands, work-life-balance and social demands (all present in >20% of the primary studies analyzed here). For resources, the most frequently used measures were capturing autonomy/control, followed by supervisor or colleague related resources, growth and career opportunities, feedback and recognition (see table 1).

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Insert table 1 about here

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The types of demands/resources scrutinised in primary studies might have affected the size of correlations with burnout/engagement, possibly introducing bias into meta-analytic computations.

Therefore, we checked for every category of demands/resources whether the inclusion in primary studies influenced the size of effects found. Aside from workload, all tests were not significant at an alpha level of 5%. Inclusion of a measure of workload significantly increased the association between demands and engagement ($\beta = 0.22^*$) i.e. a measure for workload brought the negative correlation between demands and engagement closer to zero. As a consequence, we added a variable indicating whether a measure of workload had been used or not in a study to analysis of the demand-engagement association when controlling for methodological moderators.

Statistical computations

We used Pearson correlation coefficients as a measure of effect size which were usually reported for the complete sample. In some cases, correlations were reported at the subgroup level e.g. separately for men and women. We coded subgroup data to avoid information loss associated with combining indices on study level and to retain more information for moderator tests (Hunter & Schmidt, 1990). When both were reported, we included trait level correlations but excluded day-level correlations to maintain consistency. For longitudinal designs, data was taken from the first measurement point to capture larger sample sizes and to avoid retest artefacts (Windle, 1954). Where more than one indicator variable of demands/resources had been measured, we combined correlations to obtain a single overall correlation for each sample. To do so, we transformed the correlations in Fisher-z-scores first and then averaged the Fisher-z-scores, a procedure recommended for averaging Pearson correlations (Lipsey & Wilson, 2001). Where authors reported results separately for sub-constructs of burnout or engagement, we averaged results in order to get a single overall correlation for the sample.

We used a random effects model in order to combine effect sizes meta-analytically, because we were interested in results that could be generalised to other studies that were not included in this meta-analytic data set (Hedges & Vevea, 1998). Random effects models are preferable to fixed effects models when the primary studies in a meta-analysis are not direct replications of each other. It should be noted that random effects models are relatively conservative, having lower power and larger

confidence intervals than fixed effects models (Cohn & Becker, 2003). For all meta-analytic computations, formulas and SPSS-syntaxes provided in Lipsey and Wilson (2001) were used. Moderator tests were conducted using the weighted regression method (Lipsey & Wilson, 2001), predicting effect sizes with the cultural dimensions, always using the values for the country where the respective study had been conducted.

Sensitivity analysis

Sensitivity analysis pertains to the assessment of the robustness of meta-analytic conclusions by checking how sensitive these conclusions are to changes in the analytical methods or to changes in the data (Greenhouse & Iyengar, 1994). With regard to our data we suspected two methodological moderators to possibly act as sources of bias and thus checked their influence on meta-analytic results by conducting additional analyses in which these moderators were controlled (see next section). Furthermore, we found the field of JD-R-research to be strongly influenced by a large number of studies from the Netherlands (more than a fifth of all samples in the dataset). This large number is not surprising, since the JD-R model was developed in the Netherlands. Nevertheless, particularities of Dutch culture could have an overly strong influence on our conclusions due to this multitude of studies. We therefore repeated all analyses after exclusion of the Dutch samples in order to check stability of findings.

Methodological moderators

Methodological moderators are characteristics of the design, sample, measurement methods, etc. of primary studies that might influence results and thus explain heterogeneity (Lipsey & Wilson, 2001). Since two potential methodological moderators in the dataset might be influenced by the culture of the respective country where they were conducted, there could be a problem of bias created through these moderators. We checked for possible moderating effects of (1) response rate and (2) proportion of female participants in the present sample and controlled them in additional analyses in case of significant moderating effects.

Response rates

Firstly, response rates in studies on job stress could be influenced by the culture of the country where the study was conducted. For example, most forms of pro-social behaviour are positively related to collectivism (Lampridis & Papastylianou, 2017), possibly leading to higher response rates in studies from collectivistic countries, if we assume voluntary participation in a scientific study to be a form of pro-social behaviour. This could lead to bias in our meta-analytic results if response rates are associated with effect sizes, as we assume (see next paragraph). In the present dataset, response rate was negatively related to Individualism ($r = -.34^{**}$), as expected. Furthermore, it was also positively related to long-term orientation ($r = .27^{**}$) and to power distance ($r = .24^{**}$), and negatively related to masculinity ($r = -.24^{**}$).

A recent study with a population with mental health problems indicated that survey responders tend to have better mental health than non-responders (Stolzmann, Meterko, Miller, Belanger, Seibert & Bauer, 2018). Anecdotal evidence from a German study on the health effects of unemployment pointed in the same direction: researchers went from house to house asking tenants for participation in their study. They reported that people who gave an impression of feeling psychologically unwell or severely distressed tended to decline participation, while people with an ostensibly better psychological shape were happier to participate (Kieselbach, 1987). If this is a general effect and people with symptoms of psychological impairment are more difficult to motivate for a survey, they are likely to be underrepresented in studies with low response rates and likely to be more frequent in studies with high response rates. Furthermore, in line with findings that burnout is more frequent among people who score high on neuroticism (Maslach, 2001), we assume that individuals who are prone to experiencing distress are also more vulnerable for the burnout-inducing effects of job demands and might be less perceptive for the beneficial effects of resources. Thus, we expected a moderating effect of response rate with high response rates strengthening the positive correlation of demands to burnout and exacerbating (i.e. making it more negative) their negative correlation with engagement. We also expected response rates to weaken the positive association between resources and engagement and to weaken the negative effect of resources on burnout (i.e. bringing it closer to zero).

Proportion of women

Secondly, gender roles are more different in MAS than FEM cultures (Hofstede, 2001), possibly resulting in comparatively lower labour force participation rates for women in MAS cultures. This might lead to lower proportions of women in studies on job stress and burnout/engagement in such countries, possibly introducing bias in our meta-analytic results if the proportion of women influences primary studies' effect sizes.

Against our expectations, however, the proportion of women was not correlated to MAS/FEM in the present dataset ($r = .06$, n.s.). Yet, the expected negative association could be identified when the influence of the other cultural dimensions was controlled ($\beta = -0.30^*$). Among the other cultural dimensions, long-term orientation showed a marginally significant association with the proportion of women in the sample ($r = .13^+$). Thus, the analyses concerning a possible influence of culture on the proportion of women in studies on the JD-R theory were inconclusive. We nevertheless decided to use this variable as a control variable, provided it emerged as a significant predictor of the association between demands/resources with burnout/engagement.

According to gender role theory (Wood, Christensen, Hebl & Rothgerber, 1997), women in contemporary western societies are expected to express emotional experiences more openly in comparison to men. This includes feelings of stress and exhaustion, as represented in burnout. Men, on the other hand, are expected to show a tendency to avoid the open display of emotions, particularly if that would imply weakness, as is likely under stress. In line with these expectations, meta-analyses have shown that women report significantly more exhaustion - the central component of burnout (Maslach, 2001) - and significantly more overall burnout than men (Purvanova & Muros, 2010). This general tendency to experience more burnout could lead to a higher readiness to develop burnout under conditions of high demands and low resources leading to a stronger relationship of demands and resources, respectively, with burnout among women. A stronger association might also be expected for

engagement, which is closely related to burnout and was originally seen as its positive pole (Maslach, 2001).

We therefore expected studies with a large percentage of female participants to have stronger positive correlations between demands and burnout, and a more negative association between resources and burnout than studies with a small proportion of female participants. Furthermore, studies with a large percentage of female participants were also expected to have stronger negative correlations between demands and engagement and stronger positive correlations between resources and engagement than studies with a small proportion of female participants.

Results

Sample

Our literature search and the application of filters outlined above resulted in 132 independent samples from 120 studies across 5 global regions (total N = 101,073) which were included for main and moderator effects. 101 provided data allowing estimates for the job demands-burnout, 84 for the job demands-engagement, 82 for the job resources-engagement and 85 for the job resources-burnout relationships. The mean percentage of female employees was 57.71% (26.77). The average age was 37.88 (6.85) years. Response rates ranged from 13% to 94%, with a mean of 55%.

The 25 countries in the dataset were: Australia, Austria, Belgium, Canada, China, Finland, Germany, Greece, Hungary, India, Italy, Netherlands, Norway, Peru, Poland, Portugal, South Africa, South Korea, Spain, Sweden, Switzerland, Turkey, Uruguay, USA and Zimbabwe. Thus, although Western countries were clearly in the majority, all continents were represented with at least one country.

With 29 samples (22%), the Netherlands provided the largest number. As this could be seen as a country bias, the domination of studies focusing on the Netherlands was addressed in our analysis and discussed accordingly. Furthermore, it is noted that all cultural dimensions showed a considerable range in the present sample: PD, 11 to 80; MAS/FEM, 5 to 88; UA, 29 to 112; LTO/STO, 19 to 118; IND/COL, 16 to 91; Tightness/Looseness: 2,90 to 11,00.

Methodological moderators

We found three significant moderating effects of design characteristics on the relationships in the JD-R-model, all of which were in line with our expectations: The gender composition of the sample had a significant effect on the size of the correlation between demands and burnout with a high proportion of female participants leading to a significantly increased correlation between demands and burnout ($\beta=0.28^*$, see table 2). For the correlation between demands and engagement, a moderating effect for the proportion of females was found, too, whereby samples with a high percentage of females showed stronger negative associations than samples with few females ($\beta= -0.32^{**}$). For the correlation between resources and engagement, a significant moderating effect for response rate was found, whereby studies with high response rates reported weaker positive associations between resources and engagement than studies with low response rates ($\beta= -0.24^*$, see table 3).

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Insert tables 2 and 3 about here

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Direct pathways of the JD-R theory

The mean correlations between job demands/resources and burnout/engagement are presented in table 4. The specific job demands/resources are available as supplementary online information (table 11). Resources showed statistically significant associations with burnout ($r = -0.25$, $P < 0.001$) and engagement ($r = 0.34$, $p < 0.001$), supporting hypothesis 1a. Demands showed statistically significant

associations with burnout ($r = 0.32, P < 0.001$) and engagement ($r = -0.06, p < 0.001$), supporting hypothesis 1b. Findings also supported the idea that resources are more important than demands for engagement and demands have a stronger relationship with burnout than resources.

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Insert table 4 about here
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Moderating role of cultural values

First, we conducted a series of moderator tests with only one predictor i.e. one of the cultural dimensions, per test. Analyses with demands resulted in two significant moderator effects (see table 5): MAS/FEM had a significant positive effect on the association between demands and burnout ($\beta = .25^{**}$), meaning that the association between demands and feelings of burnout is even more pronounced in masculine societies. This finding was mirrored by a marginally significant moderating trend with a negative sign for the association between demands and engagement ($\beta = -0.20^{+}$), indicating that the reduction in engagement that is associated with high levels of demands tends to be even stronger in masculine countries compared to feminine countries.

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Insert table 5 about here
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Furthermore, this analysis revealed a significant influence of tightness/looseness on the negative association between demands on engagement ($\beta = -0.36^{**}$) as well as a marginally significant positive influence of tightness on the association of demands and burnout ($\beta = 0.17^{+}$). Thus, the harmful effects of demands with regard to burnout and engagement were exacerbated in tight societies compared to loose societies. No other significant effects were found. Analogous bivariate moderator

tests for the analysis of resources did not result in any significant or marginally significant findings (see table 6).

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Insert table 6 about here

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Next, we conducted moderator tests including all cultural variables simultaneously. For the analysis of demands, this resulted in one marginally significant trend for the influence of MAS/FEM on the association between demands and burnout ($\beta = 0.22^+$), with masculine cultures being characterised by a stronger effect of demands on burnout, similar to the bivariate analysis (see table 7). No other significant or marginally significant moderator effect was found for the association of demands with burnout or engagement. Note, however, that the inclusion of the looseness dimension, for which no scores were available for several countries, lead to a strong reduction of the number of samples in this analysis and thus to a reduction of test power.

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Insert table 7 about here

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An additional analysis excluding this dimension but including the other five cultural dimensions resulted in a significant moderator effect of MAS/FEM on the demands*burnout correlation ($\beta = 0.25^*$) as well as a marginally significant negative moderating effect of MAS/FEM on the demands*engagement correlation ($\beta = -0.23^+$). Thus, these analyses resulted in some evidence supporting the moderating effect of MAS/FEM found in the bivariate analysis, with MAS intensifying the harmful effects of demands regarding burnout and engagement. Furthermore, in an analogous analysis for resources, no significant

or marginally significant moderator effects emerged (see table 8). Exclusion of the tightness/looseness-dimension did not change this result.

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Insert table 8 about here

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Next, we conducted additional analyses controlling for possible confounding influences. In order to do this, we controlled for design characteristics that emerged as significant methodological moderators i.e. response rate and proportion of female participants in the sample. For the analysis concerning the association of demands and engagement, the inclusion/exclusion of a measure for workload was also controlled, because these measures had been found to influence the effect sizes of primary studies (see methods section).

These additional analyses with control variables brought further support for a moderating effect of MAS/FEM (see table 9): the association between demands and burnout tended to be larger in MAS societies compared to FEM societies, even when design characteristics were controlled ($\beta = 0.26^*$). In addition, in two cases significant moderating effects of tightness/looseness were found analogous to the ones found in the analyses without controls: the positive correlation between demands and burnout was strengthened ($\beta = 0.31^*$) and the negative effect of demands on engagement was intensified in societies characterised more by tightness than looseness ($\beta = -0.35^*$).

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Insert table 9 about here

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When these controlled analyses were also conducted for resources, three cultural dimensions emerged as significant moderators (see table 10). Controlling for design characteristics, high PD undermined the beneficial influence of resources, because the helpful negative effect of resources on

burnout tended to be weaker (i.e. the association was closer to zero) when power distance was high ($\beta = 0.27^+$). Furthermore, high LTO tended to reduce the positive influence of resources on engagement ($\beta = -0.23^+$), when design characteristics were controlled. Finally, we found IND to have a significant moderating effect on the association of resources with burnout/engagement when study characteristics were controlled: IND significantly strengthened the positive effect of resources on engagement ($\beta = 0.27^*$) and intensified the negative (i.e. beneficial) effect of resources on burnout ($\beta = -0.29^+$).

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Insert table 10 about here

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In order to control for the strong influence of the Netherlands on our analyses (due to the large number of Dutch studies in the sample), we repeated all analyses after exclusion of the Dutch samples as an additional sensitivity analysis (as indicated in the notes within respective tables). Many significant effects became insignificant after this step, concerning all moderating effects of MAS/FEM and all moderating effects of tightness/looseness. However, several moderator effects remained stable. Specifically, the following effects were still (marginally) significant when design characteristics were controlled, and Dutch studies excluded: the harmful effect of PD ($\beta = 0.27^+$) and the beneficial effect of IND ($\beta = -0.29^+$) on the association between resources and burnout and the beneficial effects of IND ($\beta = 0.44^{**}$) on the association between resources and engagement.

Finally, in the analysis where all cultural dimensions were tested simultaneously, PD showed a marginally significant moderating effect ($\beta = -.45^+$) on the resources*burnout relationship after exclusion of the Dutch samples, indicating that PD tends to diminish the beneficial influence of resources on burnout. The latter effects were not significant when all samples were included.

Discussion

This meta-analysis aggregated empirical studies that used JD-R theory to explore job demands/resources with burnout/engagement relationships and to analyze the moderating role of national cultural values (Hofstede, 2001). Findings yield support for the job demands/resources and burnout/engagement relationships (representing the core of JD-R theory) and partial support for the moderating role of culture.

Our findings for hypotheses 1a and 1b are in line with the extensive literature base supporting JD-R assumptions for the relationship between demands/resources and burnout/engagement. Similar to our results, Nahrgang et al (2011) in their meta-analysis (linking JD-R theory with safety outcomes in the workplace) find large support for the demands/resources relationship with burnout/engagement, where only physical demands do not show significant results for the relationship between demands and burnout. Likewise, with the exception for a distinction in hindrance and challenge demands regarding their differing impact on engagement, the Crawford et al. (2010) meta-analysis also supports these key assumptions. Despite robust meta-analytic support for the core assumptions of the JD-R model, the moderating role of (national) culture (as reflected in hypotheses 2a and 2b) has not yet been empirically assessed.

To summarise, five out of six dimensions were repeatedly identified as significant or marginally significant moderators for the associations within JD-R theory in the present meta-analysis. Interestingly, the moderating effect of each cultural dimension was strongly focussed on either the consequences of demands on burnout/engagement, or on the effects of resources on burnout/engagement but did not affect both. MAS and tightness were both found to influence only the association between demands and either burnout or engagement and both exacerbated the disadvantageous effects of high job demands. In other words: high job demands have particularly negative effects in countries with a MAS culture and/or a tightly-knit culture, because the positive associations between demands and burnout and the negative association with engagement is stronger there than in countries with FEM or loosely-knit cultures. Our results therefore suggest that being free of demands is more important in MAS or tightly knit cultures. This finding might indicate that it is advantageous to work in FEM or loosely knit countries if one has a role with high demands (i.e. due to the lack of negative impact on engagement levels). At

the same time, jobs that are not challenging (i.e. are characterised by few demands) are better located in MAS or tightly-knit cultures.

Interestingly, after controlling for design variables, there was still considerable support for the moderating role of these variables and additional support for PD, LTO/STO and IND/COL, which were found to exert a moderating influence only on the resources-burnout/engagement relationships. High PD and COL weakened the negative association between resources and burnout i.e. they undermined the protective role of resources against burnout. Furthermore, LTO and COL weakened the positive effect of resources on engagement. Thus, in societies characterised by high PD, COL and LTO, the motivating effects of job resources appear to be somewhat muted in comparison to societies with a low PD, STO and IND culture.

The question arises of how the differential effects of cultural dimensions on either demands (MAS/FEM and tightness/looseness) or resources (PD, IND/COLL and LTO/STO) could be explained. One possible explanation concerning the former two dimensions could be the psychological possibility that one may distance oneself from work-related goals and norms that might be impeded by certain cultural contexts. Distancing oneself from stressful life situations (e.g. unemployment) has been shown to be beneficial for mental health (Lin & Leung, 2010). In tight cultures, which are restrictive and do not tolerate deviations from the norm easily, distancing oneself or questioning the value of specific work-related goals (or even intentionally neglecting requirements of the work role) might be more difficult than in loose cultures. Thus, a psychological mechanism possibly buffering the malign effects of high work demands might be less available for people in tight cultures. Similarly, MAS cultures put a very high value on aspects of success in the work role, such as earnings, career advancements and recognition, while FEM cultures put more value on social aspects, such as cooperation, which might also be available outside of work, and on values that are only peripherally connected to work, such as living "in an area desirable to you and your family" (Hofstede, 2001, p. 284). Similar to tight cultures, coping by distancing oneself from the overly demanding requirements of the work role might thus be more difficult in MAS cultures compared to FEM cultures.

A different mechanism might explain why resources are more useful regarding engagement and avoidance of burnout in IND, low PD and STO cultures. The common factor could possibly be seen in the individuals' motivation to use knowledge about available resources at their workplace: in an IND culture, the person will usually keep their personal interests in the focus of attention, leading to the use of resources whenever that might appear useful for one's motivation or well-being. A member of a COL culture might, on the other hand, be more preoccupied with group goals and the work progress of people he/she feels close to, possibly neglecting resources that could be beneficial for his/her own well-being and motivation at work. Similarly, a STO could lead to a focus on aspects of the present situation that could be instantly helpful with regard to one's mood and motivation, while LTO might in contrast lead to a preoccupation with the future and long-term goals at the expense of the individuals' current well-being and motivation. Finally, PD is, at the core, the fear of expressing disagreement with one's superiors (Hofstede, 2001, p.85). In cultures with high PD, workers tend to perceive the behaviour of managers as autocratic. They also prefer this kind of leadership style and do not wish to participate in management's decision making. This might influence the availability of resources at work: a lack of open communication with the boss could lead to a lack of knowledge among employees about the kinds of resources available, in what amounts they are available, whether one is allowed to use them, how intensively etc., hindering successful use of resources in workplaces in high PD cultures.

These deliberations are highly speculative and an early attempt at developing a theoretical account that could explain effects of culture on the stress processes described in JD-R theory. Further theoretical work leading to specific testable hypotheses is necessary. However, the stability of moderator effects identified across different kinds of analysis was low for most cultural dimensions. The moderating effect of MAS/FEM on the demands-burnout/engagement relationships represented the only finding that could be identified in the bivariate analysis as well as in several multivariate analyses, where different forms of possible confounding influences were controlled, specifically the influence of other cultural variables and the influence of design characteristics. However, even this moderator effect was not completely robust, because it depended on the inclusion in the analysis of studies from the Netherlands, with their comparatively low level of MAS.

Limitations

Possible limitations of the meta-analytic moderator tests can be seen in: the potentially biasing influence of specific features from primary studies included that might be correlated with their results; the overlap of the cultural dimensions which are empirically not independent from each other; and the strong influence that many Dutch studies had on test results. We tackled these problems by adding a series of sensitivity analysis controlling for the aforementioned possible biases. The strong influence of the Dutch studies is a problem that can only be satisfactorily solved with additional studies from other countries. Each of these tests has their own particularities (for example, controlling the design characteristics reduced the number of studies included in the analysis due to missing data, reducing test power). However, we believe that in combination they complement each other and represent a thorough test of a possible moderator effect of culture on the relationships of demands/resources to burnout/engagement and therefore within the widely applied JD-R theory. A moderator effect that could be detected simultaneously in all analysis would have likely been due to a stable phenomenon not caused by methodological artefacts or peculiarities of this dataset. The fact that none of the moderating effects identified here fulfilled this criterion is a caveat. Further research is needed and primary studies from countries not represented in our dataset would be helpful in coming to a stable conclusion concerning the validity of the moderating effects of culture reported here.

Another limitation sits in the methodological decision to analyze firstly, job demands and resources as two broad all-encompassing categories and secondly, burnout and engagement as full constructs. However, we were interested in patterns of relationships proposed within JD-R theory, so focusing on how demands and resources per se operate was straightforward and in line with our theoretical foundation. This approach is also in line with Holman (2013) who suggests that cultural (i.e. national) differences across Europe influence job quality, when viewing patterns of working as opposed to specific demands/resources. Furthermore, whilst accumulating cynicism/exhaustion/RPE and vigor/dedication/absorption scores may not be ideal and reduces the richness of our findings, the small number of samples per moderator test would not have provided enough power for tests of the sub-constructs (Field, 2001).

We also acknowledge some criticism over Hofstede's work and the existing debate between Hofstede and GLOBE scholars (e.g. Earley, 2006; Hofstede, 2006; Smith, 2006). For example, Earley (2006) highlighted that Hofstede's original data was focused on cross-national societal differences i.e. between IBM respondents from different countries. The issue of whether cultural scores are stable over time has also been raised, yet we follow Beugelsdijk, Maseland and Van Hoorn (2015) who found that changes in national culture (e.g. the observation that societies today tend to show increased scores of individualism) are absolute rather than relative in that scores have not changed much in relation to the scores of other countries. More recently, revisions and advancements are suggested by Beugelsdijk, Kostova & Roth (2017), Beugelsdijk and Welzel (2018) or Minkov (2018) to respond to other potential shortcomings such as overestimating the number of dimensions and misinterpreting them. However, we felt the latter concerns are less relevant for the purpose of our meta-analysis.

While comparing cultural values can be considered critical for business (Hofstede, 1991), "many nations contain more than one sub-cultural group, so a single characterisation based on a representative national sample is still misleading" (Schwartz, 1999, p. 34), which may become problematic when the nations observed are rather heterogeneous and dynamic (e.g. Erez, 2002). However, we share this limitation with most international management research incorporating culture and – for our meta-analytic approach – the national aggregation appears to have no practical alternative.

Implications and conclusions

Our results showed (for almost all dimensions) a moderating impact of national culture on the relationships between job demands/resources and burnout/engagement and thus, the core of JD-R theory. This influence was restricted to either job demands or job resources, yet not both for each cultural dimension. Therefore, an organisation should consider that interventions and their different focal points for managing work conditions towards decreasing burnout or increasing engagement are likely to be effective to varying degrees. Our research has shown that possible variation can depend on the national culture that exists, with the management of job demands considering MAS/FEM and

tightness/looseness and the management of job resources considering PD, IND/COL and LTO/STO. We would suggest, practically, when designing these interventions, to consider the cultural values of relevance first and making necessary adjustments. For example, the moderating role of MAS/FEM indicates that managers could expect the impact of demands to be perceived differently by employees within different cultural contexts, or from different cultural contexts whom are not fully adjusted to the newer foreign cultural contexts.

Our findings are valuable to both the scholarly dialogue and the application of JD-R theory by practitioners. The apparent role of culture for both the work characteristics-engagement (e.g. motivational pathway) and work characteristics-burnout (e.g. health-impairment pathway) could be particularly relevant to larger international firms, who are able to allocate work across different national contexts and want to take guidance from extant JD-R research. With regards to future research, we suggest exploring potential effectiveness of interventions for managing burnout/engagement with consideration to different cultures and their effect on the JD-R framework. Likewise, it would be valuable to explore the role of culture in wellbeing-related outcomes, for individuals who consistently work across different countries as part of global mobility (e.g. business travelers, expatriates) or within an organisation with a particularly multi-cultural exposure - both increasingly common in a globalised world - to shed light on whether, for example, it is the individual's cultural origin or the culture they operate in that has most influence and how that interacts with the job and personal characteristics. This is in line with Richter, Hauff, Schlaegel, Gudergan, Ringle and Gunkel (2016) who point out that national culture is multi-dimensional, not necessarily corresponding to one country and it is fair to suggest, we may be naive to turn a blind eye to cultural diversity within one country when looking at the influence of culture on organisational behaviours (or in this case, wellbeing and performance related outcomes).

The current study is the first to meta-analytically assess the moderating impact of national culture on the job demands/resources relationship with burnout/engagement, offering a theoretical contribution stemming from a contextualised understanding of JD-R theory, a more comprehensive assessment and trust in its robustness across cultures. While our initial target was to analyze the moderating role of culture, we do not deny that national culture might be a potential antecedent for the

perception of job demands and resources. In addition, future JD-R research might go beyond etic and comparative cultural frameworks such as Hofstede's work and other prominent national cultural perspectives. While the latter etic approaches are based on an outsider perspective, emic approaches taking an insider perspective on culture might provide further insights into the complexities and nuances of culture and their role for work-related outcomes (Stahl & Tung, 2015). This would also resonate with recommendations within the wider organisational and occupational psychology literature, such as the observation of Hobfoll et al. (2018) highlighting that micro-cultures could shed additional light on the role of culture for understanding stress in organisations.

Beyond the role of cultural perspectives for JD-R theory, the present analysis might stimulate further attempts to conduct JD-R studies in underexplored national contexts (particularly inviting studies in African or South American contexts) and secondly, conduct further empirical assessments of JD-R theory with other moderating variables. While our study focuses on a moderating impact of a national aggregate (culture), we certainly do not deny a potential impact of associated phenomena on different dimensions of aggregation. For instance, this study does not include the role of variation across professional or organisational cultures, which we presume to be another potential moderator if – and this we see as a major challenge – conceptualised in a systematic and meaningful way. Another interesting venue is to further the debate on the impact of gender on the strength of key assumptions within JD-R theory.

To conclude, our meta-analysis assessed the moderating role of cultural values within the work characteristics-burnout/engagement relationships, as conceptualised at the core of JD-R theory. The importance of this topic emerged from the increasing application of JD-R theory across different national contexts in response to a globally intensified need to reduce burnout and enhance engagement, without consideration for whether it adequately responds to cultural variations. We show there is evidence of national culture moderating the relationships between job demands/resources and burnout/engagement, potentially advancing how JD-R theory can be applied in research and practice. Our results should be considered when applying JD-R theory to different national settings and enhance its applicability to international work settings. As context is seen to influence key assumptions within the

theory, as shown for the case of culture, the potential impact of context, we posit, needs to be addressed (or at least acknowledged) in future research.

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