Subjective Experience of Demands and Resources across O*NET Job Elements

Abstract

Much of our understanding of job demands and resources rests on an assumption that some aspects of jobs are resources and some are demands. This study documents variability in subjective ratings of O*Net job characteristics with respect to interpretation as resource and demand (defined as challenge/hindrance), and further predicts demands and resources will be differentially related to outcomes of engagement, stress, and burnout. We lastly explore the moderating role of resources. We found that job characteristics were not uniquely categorized as a resource or demand, but rather, some job characteristics were rated highly as both a resource and a demand. We consistently observed a pattern of job characteristics seen as challenging also being cited as a resource. While we did not find support for the prediction, that demands were differentially related to stress and burnout, we did find that resources moderated the challenge-engagement relationship, and further, resources moderated the hindrance-stress, and hindrance-burnout relationships as predicted. The findings broadly revealed that there was relatively more consistency in ratings of resource and challenge characteristics, and far more variability in job characteristics rated as hindrance demands. These findings have implications for job design and management particularly with regard to resource-laden elements that may also be experienced as demanding.

Keywords: O*Net, challenge-hindrance framework, job demands-resources, job characteristics

Word count: 4,942

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While we have accumulated a vast literature on how job demands and resources relate to and influence key organizational outcomes, recent work has called into question some of our basic assumptions regarding the experience of demands in particular. We build on the work of a small, but growing number of researchers who argue that work elements may be appraised simultaneously as resources and demands (Webster et al., 2011) or that appraisals may change over time (Rosen et al., 2020). Our primary aims explore whether: 1) variability exists in subjective ratings of job characteristics with respect to how much they serve as resources and demands, 2) some characteristics are more likely than others to vary across demand and resource, 3) whether subjective appraisals are differentially related to positive and negative outcomes, and lastly, 4) if resources buffer the relationships between demands (challenge and hindrance) and outcomes. To illuminate these questions, we consult the O*Net database, which provides a rich source of information about occupational requirements (i.e., work activities and context). We retain O*Net terminology of working condition elements throughout this paper (e.g., personal, contextual, or task-related conditions or elements of one's work).

The Job Demands-Resources Theory and Challenge-Hindrance Stressor Framework

Two related theories serve as the foundation for the current study: the job demands-resources theory (e.g., Bakker & Demerouti, 2014, 2017) and Cavanaugh et al. (2000)'s challenge-hindrance stressor framework. The job demands-resources theory (e.g., Bakker & Demerouti, 2014, 2017) highlights the importance of demands and resources on the experience of motivation and strain as well as other, more distal outcomes. *Resources* include physical, psychological, social, or organizational aspects of the job that may help an employee achieve work goals, reduce job demands, or promote personal growth and development (e.g., Bakker & Demerouti, 2014, 2017). In contrast, demands include

components of a job that require sustained effort, and as such, produce psychological or physiological strain (high work pressure, for example, is commonly cited as a demand, e.g., Demerouti et al., 2001). The perception of an element of one's job as a resource or demand activates one of two distinct processes: either health impairment (resulting from demands) or motivation (resulting from resources; Bakker and Demerouti (2014)).

Cavanaugh et al. (2000) proposed the idea that not all demands are equal with her challenge-hindrance stressor framework, which draws from Lazarus and Folkman (1984)'s perspectives on stress and coping. The challenge-hindrance stressor framework distinguishes between *two forms* of demands – *challenges* and *hindrances*. Both are considered stressors (e.g., Cavanaugh et al., 2000). Challenge demands promote mastery, personal growth, and future gains – these demands should lead to coping strategies that facilitate achievement. Work characteristics consistent with this definition, for example, include time pressure and responsibility (M. A. LePine, 2022). Hindrance demands, in contrast, inhibit growth, learning and goal achievement. Example hindrance demands in a work context include role conflict and role ambiguity (M. A. LePine, 2022).

The original work on this topic suggests that challenge demands are typically associated with positive outcomes and hindrance demands are associated with negative outcomes (e.g., Cavanaugh et al., 2000). Meta-analytic explorations of this the challenge-hindrance stressor framework have generally been supportive of the framework's propositions (see, for example, J. A. LePine et al. (2005) regarding performance and Crawford et al. (2010) regarding engagement).

M. A. LePine (2022) explain the mechanisms by which demands are related to performance and wellbeing outcomes. First, demands appraised as challenges typically result in a more positive appraisal, and engagement is likely to happen as a result. Engagement, in turn, is positively related to motivation, performance, growth, and wellbeing. Of note is that this energy may be depleted eventually, leading to strain.

demands appraised as hindrances elicit a different process. Disengagement is likely to result from a hindrance appraisal, which in contrast, negatively impacts motivation, performance, growth and wellbeing. This happens because resources are depleted via frustrations and other affectively negative reactions (M. A. LePine, 2022).

Recent work affirms these appraisal processes. Pindek et al. (2024) meta-analyzed diary studies of dynamic demands (i.e., short-term daily experiences of demands) and concluded that daily challenge demands had a positive *direct* association with performance, but a negative *indirect* association with performance through strain (as described by M. A. LePine (2022) above). As expected, hindrance demands had both direct and indirect (through strain) associations with performance (Pindek et al., 2024).

Are Perceptions of Job Resources, Challenge Demands, and Hindrance Demands Universal?

Interestingly, much of our existing knowledge regarding the way these relationships between resources/demands and outcomes (e.g., stress, engagement) function is grounded in the assumption that certain job characteristics can generally be considered to be (positive) resources while others can be considered demands. Even Pindek et al. (2024) notes this limitation of a priori classification of characteristics as demands, challenges, or hindrances, as do Horan et al. (2020). In fact, although much of our research on job demands based on a priori classifications (Searle & Auton, 2015), we contend that the classification of a work characteristic as a demand or resource is largely subjective by nature (e.g., an employee could most certainly perceive public speaking as a resource or as a demand).

Horan et al. (2020) and M. A. LePine (2022) specifically call out the need for additional research to incorporate the appraisal process described by Lazarus and Folkman (1984) into the challenge-hindrance stressor framework, which aligns with other calls to capture subjective ratings of demands and resources. In fact, Horan et al. (2020) state that "...stressors are only challenge or hindrance demands to the extent that they are perceived

as such by employees" (p. 3). They go on to suggest future research continue to move away from *a priori* classifications of demands, as doing so can be problematic for theoretical and empirical reasons. Theoretically, *a priori* classifications run counter to the original transactional theory of stress on which the challenge-hindrance stressor framework was based for which appraisals are a central component. Empirically, as shown above, we have some evidence suggesting people can appraise a work characteristic as both a hindrance and challenge at the same time (e.g., Searle & Auton, 2015).

As such, the first question we ask is whether people distinguish between resources, challenges, and hindrances, and whether a job characteristics might even be considered simultaneously as more than one of these (e.g., both a challenge and a resource). Evidence suggests the employees do, in fact, differentiate between challenge and hindrance demands (e.g., Bakker & Sanz-Vergel, 2013; Gerich, 2017; Webster et al., 2011), at least. For example, Bakker and Sanz-Vergel (2013) found that work pressure was perceived as a hindrance demand, and emotional demands as more of a challenge demand. Webster et al. (2011) approached this question with three common workplace demands: workload, role ambiguity, and role conflict. They found while that each could be appraised primarily as a challenge or hindrance demand, they could also simultaneously be perceived as being both a challenge and hindrance demand to different degrees. We aim to both replicate the above findings and extend them to include resources.

Hypothesis 1: Job characteristics differ in consistancy regarding subjective worker perception as a challenge or hindrance demand, or resource.

Hypothesis 2: Job characteristics are not exclusively categorized as a resource or demand, but rather, some job characteristics are viewed as both a resource and a demand.

Connecting Appraisals to Workplace Outcomes

The second set of predictions focuses on associations with work-relevant outcomes frequently studied across via job demands-resources- (Bakker & Demerouti, 2017) and challenge-hindrance stressor-frameworks (Cavanaugh et al., 2000). Here, we specifically explore appraisals of O*Net-derived work characteristics as resources, challenges, and/or hindrances in association with engagement, strain and burnout. As argued above, appraisals are predicted to be associated with different forms of coping, and subsequently, outcomes. See Figure 1 for proposed associations.

Both the job demands-resources model and the challenge-hindrance stressor framework have been associated with a wide variety of organizational outcomes ranging from affective variables like job satisfaction, to motivation commitment, and performance (e.g., J. A. LePine et al., 2005). We provide only a sampling of associated outcome examples here for context but note that the current project will focus on three outcomes: engagement, strain, and burnout. Resources by definition include aspects of the job that may help an employee achieve work goals, reduce job demands, or promote personal growth and development (e.g., Bakker & Demerouti, 2014, 2017), and empirical work suggests that they are associated with positive outcomes. Relevant to the current study, for example, Hakanen et al. (2008) found job resources influenced future work engagement. Moreover, in a sample of teachers and dentists, Bakker et al. (2007) found that resources were most predictive of engagement when job demands were especially high. Meta analyses have also concluded that there is a positive association with a variety of resource categories and engagement (e.g., Schaufeli, 2017).

The findings regarding demands are more complex, presumably because the way challenge vs. hindrance appraisal influence coping strategies. Appraising a demand as a challenge has been positively associated with sources of motivation (i.e., sense of self-worth and work meaningful (Chen et al., 2021), engagement (Crawford et al., 2010), and strain

and turnover intentions (e.g., Abbas & Raja, 2019), for example. Challenge appraisals have been negatively associated with job search behaviors (e.g., Cavanaugh et al., 2000).

Hindrance demands (appraisals) are largely related to outcomes as the job demands-resources model predicts. When a demand was appraised as a hindrance – it was negatively associated with motivational resources (Kim & Beehr, 2020), engagement (Crawford et al., 2010), job search behaviors and job satisfaction, (Cavanaugh et al., 2000). Chen et al. (2021) found that daily hindrance demands were negatively associated with cognitive wellbeing and work family enrichment. Further, turnover intentions, turnover and withdrawal behaviors are negatively related to hindrance demands (Podsakoff et al., 2007)]. Interestingly, both challenges and hindrances have been shown to positively predict strain ((Abbas & Raja, 2019 Abbas & Raja, 2019; J. A. LePine et al., 2005; Podsakoff et al., 2007; Webster et al., 2010), which further highlights the complex association between appraisals and subsequent outcomes. Given the differential relationships described above, we make the following predictions:

Hypothesis 3a: Resources and challenges positively predict engagement.

Hypothesis 3b: Both challenge and hindrance demands positively predict stress and burnout.

In addition to the these direct relationships, we aim to extend work suggesting that resources can act as a buffer between job demands and strain (e.g., Bakker et al., 2005) and burnout (e.g., Xanthopoulou et al., 2007). Bakker and colleagues (2005) were the first to report empirical evidence to support the idea job resources could potentially buffer the negative impact of job demands on stress reactions like burnout. Bakker et al. (2005) explored the interaction between 4 demands (e.g., work overload, physical demands) and 4 resources (e.g., social support, feedback) and three dimensions of burnout (exhaustion, cynicism, and professional efficacy), and found some support for the prediction that high

demands with low resources predicted greater levels of cynicism and exhaustion among employees in higher education. Similarly, Xanthopoulou et al. (2007) also found some support for this interaction (high demands + low resources leads to greater burnout) among home healthcare employees. They concluded that a variety of resources, including autonomy, social support, performance feedback, and opportunities for professional development buttered the connection between demands (i.e., patient harassment, workload, physical and emotional demands) and burnout. We extend the established job demands-resources model buffer proposition to both challenge and hindrance demands as follows:

Hypothesis 4a:Resources moderate the relationship between challenge demands and the outcomes of strain and burnout such that these relationships become weaker as workers perceive more resources.

Hypothesis 4b:Resources moderate the relationship between hindrance demands and the outcomes of strain and burnout such that these relationships become weaker as workers perceive more resources.

Method

Participants

Of the 785 individuals who initially accessed the survey link, 112 indicated that they were not interested, had more than 200 missing responses, or had 20 or more identical consecutive sequential responses (Yentes & Wilhelm, 2021). Applying a further screen regarding attention checks (there were four attention checks embedded throughout, asking respondents to indicate a specific answer) resulted in the retention of 568 respondents who constitute the current sample. Regarding tenure, 13.57% had been in their referent job less than 6 months, 19.20% between 6 months and a year, 49.12% between one and five years,

13.27% between 5 and 10 years, and 4.87% more than 10 years. Respondent ages ranged from 18 to 65 with an average of 28.18 years old ($SD = 7.53$). The survey offered a free-field gender identity category, although the sample predominantly self-identified as female (52.58%) or male (46.83%).

Materials

The Occupational Information Network (O*Net) contains a comprehensive description of occupations (Peterson et al., 2001). This widely accessed database houses hundreds of standardized and occupation-specific descriptors of occupations in the US and these descriptions are continually updated. We focused on 98 work activity and context statements which O*Net groups into *activity* categories of information input (e.g., where and how are the information and data gained that are needed to perform this job?), interacting with others (e.g., what interactions with other persons or supervisory activities occur while performing this job?), mental processes (e.g., what processing, planning, problem-solving, decision-making, and innovating activities are performed with job-relevant information?) and work output (e.g., what physical activities are performed, what equipment and vehicles are operated/controlled, and what complex/technical activities are accomplished as job outputs?). Work *context* statements are grouped into interpersonal relationships (e.g., the context of the job in terms of human interaction processes), physical work conditions (e.g., the work context as it relates to the interactions between the worker and the physical job environment), and structural job characteristics (e.g., the relationships or interactions between the worker and the structural characteristics of the job).

O*Net collects information about these categories by periodically asking workers job characteristic questions, which often have unique response categories. For example, “How responsible is the worker for work outcomes and results of other workers?” has response options ranging from *no responsibility* to *very high responsibility*, while the question, “How often do you use electronic mail in this job?” has options ranging from *never* to *every day*.

We retained O*Net's response scales while asking for statement relevance, all of which shared the same 5-point scale regardless of semantic label difference. Other than minor grammatical editing (for example, changing "the worker" to "you"), we also retained the O*Net wording for our item stems.

Procedure

Data were collected through Prolific, an online data collection platform. An email was sent to a random subset of all eligible participants in the Prolific respondent pool, notifying them about their eligibility for the study based on demographic information. Eligibility requirements included being 18 or older and holding either a full-time or part-time job. Participants then voluntarily chose to respond to the online survey after reading an informed consent. Participants were asked to think about their primary job, and the items they were presented with depended on the specific job characteristics they initially specified. Thus, if a respondent indicated that a characteristic was not part of their job, they were not subsequently asked to rate the level of resource (. . . this aspect of your job is a resource that can be functional in achieving work goals, reduce job demands, or stimulate personal growth/development), challenge (. . . this aspect of your job is a challenge that can promote mastery, personal growth, or future gains), or hindrance (. . . this aspect of your job is a hindrance that can inhibit personal growth, learning, and work goal attainment) in randomized order. The total number of items on the survey was less than 392 (98 characteristics x 4 repeated measurements) because we did not ask for demand and resource evaluations for 14 O*Net characteristics that we projected would have very low frequency of endorsement across respondents (one excluded characteristic, for example, was *. . . the extent to which the worker is exposed to radiation on the job*). Participants were compensated for their participation in this study estimated to require 45 minutes' time in the amount of six dollars through Prolific.

Results

H1 posits that static job characteristics are not necessarily always experienced similarly across workers - as hindrances, challenges, or resources. We explore this hypothesis first at the job characteristic level before presenting a broader perspective. Figures 2 and 3 present only extreme snapshots of characteristic variability in the form of the 8-most *consistently rated* and *inconsistently rated* resources, challenges, and demands.[1] These figures present average item ratings, but the central elements of interest are the standard deviations, which reflect the characteristics with the relative most and least consistency. Figure 2 presents the resources, challenges, and hindrances that are *most consistently agreed on* as indexed by (relatively) low standard deviations, while Figure 3 presents the characteristics with the greatest amount of *disagreement* across workers. The figures demonstrate that what is perceived as resource and challenge tends to be somewhat agreed upon (the range of the "lowest 8" resource standard deviations is 0.70 to 0.88 and the range of lowest 8 challenge standard deviations is 0.79 to 0.86). However, there is considerably less relative agreement regarding the degree to which job elements should be considered to be hindrances, with the 8 elements showing the *greatest agreement* still ranging in fairly large standard deviations (ranging from 1.12 to 1.16).

In addition to highlighting extremely agreed- or disagreed-upon characteristics, Figure 4 presents our standard deviation indices across all rated items. Here, discrepancies receive greater context, with the *spread* of difference exhibiting wider distributions of agreement for challenge and resource ratings (and relatively *bunched* levels of disagreement for hindrances; note the spread of the challenge and resource histograms relative to the hindrance histogram). Some characteristics are largely agreed upon as being challenges and

[1] A full list of item characteristic ratings, along with summary averages and standard deviations is available in supplementary online resources. The Figures 2 and 3 presentations are only limited to 8 characteristics per perceived category because of space restrictions (there are 252 individual characteristic ratings in the online resources).

resources, while all hindrance perceptions exhibit a relatively higher level of disagreement. This points to *hindrances*, in particular, as being likely amenable to future probing regarding moderating conditions. A Bartlett's test for homogeneity of variance across the challenge, hindrance, and resource ratings confirms this difference ($\chi^2 = 76.83$, $p < .01$). In sum, these results provide some collective support for H1, and particularly so for hindrances, which are differently experienced across our raters.

The second hypothesis stated that job characteristics would not be uniquely categorized as a resource or demand. Table 1 provides the correlations among the O*Net "scale"-level groupings across ratings of resource, challenge, and hindrance. We would expect to see minimal correlations if job characteristics *were* uniquely categorized. First, the average correlation within all resource categories (variables 1 through 7 in Table 1) was .43 ($SD = .13$, range from .15 to .64), and challenge categories exhibited similar associations (ranging from .12 to .70, $M = .43$, $SD = .16$). Hindrance categories, however, had less differentiation across categories, with relatively elevated correlations ranging from .33 to .86, $M = .62$, $SD = .17$. When people perceived hindrances, these seem to be shared across different types of job activities, whereas challenges and resources exhibit greater differentiation.

The mean resource to challenge correlations within the same dimension ranged from .62 to .66 ($M = .64$, $SD = .02$; for example, the association between information input ratings as a resource and as a challenge was .62). The correlations between resources and challenges *across* dimensions (for example, the correlation between mental processes and work output was .42 and .39) ranged from .08 to .50, $M = .32$, $SD = .12$. The resource-hindrance correlations within the same dimension ranged from -.16 to -.30 ($M = -.24$, $SD = .05$), while the correlations between resources and hindrances *across* dimensions ranged from .05 to -.27, $M = -.14$, $SD = .08$. The mean challenge to hindrance correlations within the same dimension ranged from -.04 to -.27 ($M = -.21$, $SD = .08$). The correlations between challenges to hindrances across dimensions ranged from .12 to -.26, $M = -.11$, SD

= .09. In summary, correlations were larger when what was being rated was the same type of characteristic. Challenge and hindrance demands demonstrated smaller relationships, but mostly negative. Challenges and resources within the same O*Net dimensions are strongly and positively related. These results provide support for H2, suggesting that there is overlap in how employees perceive job characteristics - particularly regarding what is perceived as a *resource* being also perceived as a *challenge*. Stated another way, job characteristics are not uniquely categorized as a resource or as a demand.

Challenges, Resources, and Outcomes

H3a predicted that both resources and challenges would predict engagement. Table 3 summarizes the results for engagement (as well as stress and burnout). Sum scores for the predictors were used here such that the overall amount of resource or demand is recognized, and these predictor variables were mean centered prior to running the regressions. First, challenges and resources explained a statistically significant amount of the variability in engagement, $R^2 = 0.15$, Adj. $R^2 = 0.15$, $F(2, 565) = 50.09$, $p < .001$. Here, the resource slope is significant, wheras the challenge slope is not significant (providing partial support for H3a). The inclusion of the interaction term in step two of the model contributed a significant addition to the model, $F(3, 564) = 35.62$, $p < .001$, $\Delta R^2 = 0.01$, ΔF (1, 564) = 5.82, and thus provides statistical support for the presence of moderation (Hypothesis 4a). Figure 5 illustrates the interaction. With low levels of resources, the relationship between challenges and engagement is relatively flat and engagement is comparatively low. With more resources, the relationship between challenges and engagement is negative, but engagement still remains higher with greater reported challenge when more resources are perceived.

Next, challenge demands and resources did not explain a significant amount of the variance in stress, $R^2 = 0.01$, Adj. $R^2 = 0$, $F(2, 565) = 1.67$, $p = .189$, failing to provide support for Hypothesis 3b. The inclusion of the interaction term in step two of the model

did not contribute a significant addition to the model, $F(3, 564) = 1.17$, $p = .320$, $\Delta R^2 = 0.00$, ΔF (1, 564) = 0.17, and thus does not support the presence of moderation.

Finally, challenge demands and resources explained a statistically significant amount of the variability in burnout, $R^2 = 0.04$, Adj. $R^2 = 0.04$, $F(2, 565) = 1.67$, $p = .189$. The inclusion of the interaction term in step two of the model did not contribute a significant addition to the model, $F(3, 564) = 1.17$, $p = .320$, $\Delta R^2 = 0.00$, ΔF (1, 564) = 2.25, and thus failing to provide statistical support for the presence of moderation (Hypothesis 4a). In sum, these findings do not provide support for the assertion that resources would moderate the relationships between challenge demands and the outcomes of strain and burnout.

Hindrances, Resources, and Outcomes

We also explored whether there was an interaction between hindrance demands and resources on the outcome variables. Sum scores for the predictors were used here again, and predictor variables were mean centered prior to running the regressions. First, hindrance demands and resources explained a statistically significant amount of the variability in engagement, $R^2 = 0.17$, Adj. $R^2 = 0.16$, $F(2, 565) = 55.90$, $p < .001$ [see Table 4]. The inclusion of the interaction term in step two of the model did not contribute a significant addition to the model, $F(3, 564) = 37.25$, $p < .001$, $\Delta R^2 = 0.00$, ΔF (1, 564) = 0.13. An interaction between hindrances and resources was not found.

Next exploring stress, hindrance demands and resources explained a statistically significant amount of the variability in stress, $R^2 = 0.01$, Adj. $R^2 = 0.01$, $F(2, 565) = 3.13$, $p = .045$. The inclusion of the interaction term in step two of the model contributed a significant addition to the model, $F(3, 564) = 6.89$, $p < .001$, $\Delta R^2 = 0.03$, ΔF (1, 564) = 14.28, supporting the presence of a moderated effect. See Figure 6. As expected, the relationship between hindrance demands and strain becomes weaker as workers perceive more resources.

Similarly, hindrance demands and resources explained a statistically significant amount of the variability in burnout, $R^2 = 0.04$, Adj. $R^2 = 0.03$, $F(2, 565) = 10.68$, $p < .001$. The inclusion of the interaction term in step two of the model contributed a significant addition to the model, $F(3, 564) = 9.49$, $p < .001$, $\Delta R^2 = 0.01$, ΔF (1, 564) = 6.89, supporting the presence of a moderated effect [see Figure 7]. As expected, the relationship between hindrance demands and burnout becomes weaker as workers perceive more resources. Summatively these findings provide support for the assertion that resources would moderate the relationships between hindrance demands and the outcomes of strain and burnout.

Discussion

The major aims of this paper were to explore whether: 1) there was variability in subjective ratings of job characteristics as resources and demands, 2) some characteristics were more likely to vary across demand and resource, 3) subjective appraisals were differentially related to positive and negative outcomes, and lastly, 4) if resources buffer the relationships between demands (challenge and hindrance) and outcomes. We found that job characteristics were not uniquely categorized as a resource or demand, but rather, some job characteristics were rated highly as both a resource and a demand. We consistently observed a pattern of job characteristics seen as challenging also being cited as a resource. While we did not find support for the prediction, that demands were differentially related to stress and burnout, we did find that resources moderated the challenge-engagement relationship, and further, resources moderated the hindrance-stress, and hindrance-burnout relationships as predicted. The findings broadly revealed that there was relatively more consistency in ratings of resource and challenge characteristics, and far more variability in job characteristics rated as hindrance demands. This finding lends additional evidence to Horan et al. (2020)'s conclusion that "...stressors are only challenge or hindrance stressors to the extent that they are perceived as such by employees" (p. 3).

In addition to the above findings, this paper made several additional important contributions. We utilized a diverse sample of employees across industries, who responded to common O*Net items. While O*Net provides detailed information about frequency and importance ratings among employees, we begin the process of expanding what we know of job characteristics to ratings of demands and resources. Further, we provide a repository for other researchers with listing of item level *perceived* demands and resources across activity and context items for the benefit of all future researchers. We also explored not only context and activity holistically, but at the dimension level, which enhances our knowledge of how employees perceive different categories of resources, challenges, and hindrances at work, as well as the relationships among them.

Implications

The findings presented above have implications for both theory and practice. First, this research is couched within the well-studied job demands-resources theory (Demerouti et al., 2001). We argue that static assignment of characteristics as a demand or resource may be useful, additional emphasis should be placed on individual differences in perceptions of job characteristics. In fact, our findings support the related literature suggesting that perceptions of resources and demands, broadly, are not universal - there are individual differences in how employees experience the characteristics of their jobs (Webster et al., 2011). This finding aligns quite well with both the transactional theory of stress and coping, and the challenge-hindrance stressor framework, which collectively argue that employees perceive stimuli (i.e., job characteristics) uniquely (Lazarus & Folkman, 1984), and thus, could appraise them as either a challenge or hindrance to their job performance (Cavanaugh et al., 2000). Further, Cavanaugh et al. (2000) suggests that challenge demands are typically associated with positive outcomes and hindrance demands are associated with negative outcomes (e.g., Cavanaugh et al., 2000).

Our results suggest that what is generally seen as a resource and challenge tends to

be agreed upon more so that what is seen a hindrance. In fact, hindrance demands are rated more variably and thus, it may be important to have conversations about job characteristics and expectations at multiple time points after hire. For example, having open conversations with employees regarding their subjective perceptions of characteristics that may be unique in limiting their performance or comfort. Such conversations could happen during an annual performance review or more informally. In addition, J. A. LePine et al. (2005) and Podsakoff et al. (2007) encourage organizations to incorporate strain-reducing activities like training and support to offset the negative effects of challenging job demands, which may be associated with increased performance in the short term, but strain when prolonged. The current results suggest that these activities and training sessions would ideally be personalized.

Resources did predict engagement, and did moderate several of the challenge-outcome, and hindrance-outcome relationships. As such, we provide further evidence of the importance of perceived resources, particularly when a job is high in hindrance demands, as resources acted as a buffer in both instances. It is worth noting that this paper focused on *perceived* resources, challenges, and hindrances. Differences in outcomes depending on whether or not an employee perceives a job characteristic to be a challenge or hindrance have practical implications especially for managers. Helping employees to manage expectations and frame the work is quite likely to shape how activities are appraised (e.g., as a challenge, or as a resource). Of course, in some instances, framing an activity or job context variable as an opportunity or positive aspect of work is unrealistic, and so interventions aimed at supporting employees (e.g., stress interventions) may be necessary.

Limitations and Future Directions

As with all individual studies, this project was limited in scope, and as such, there are a number of avenues for future study worth exploring. First, although we aggregated to

both literature-derived as well as O*Net groupings, essentially we were dealing with single-item scales. Although not ideal psychometrically, this provided a strong linkage to the established O*Net framework. Related to that, we intentionally worked within the O*Net database, and in selecting job context and activity items, did not include other types of job characteristics that may be important resources/demands. Therefore, to the extent that O*Net is not an exhaustive repository, there are existing characteristics that we did not capture. For example, O*Net also includes styles and values, which we did not sample. Future studies may want to expand to explore these additional aspects of work, and perhaps longitudinally.

We also retained the literature-derived definitions of resources, challenges, and hindrances (Demerouti et al., 2001). Given the high associations observed between ratings of resource and challenge, it is possible that respondents did not distinguish between these definitions as cleanly as we intended. Future investigations may wish to explore the colloquial versus academic phrasing of these questions and how that may impact observed associations between resources and challenges. It would also be prudent to consider work-relevant outcomes associated with similar job characteristic ratings. We also note that effect sizes were small and thus it is important to consider the practical significance when thinking about potential interventions. We encourage future thought on how consideration of resource and demand perceptions might be combined with additional levers to reduce employee stress and burnout, as well as enhance engagement.

Lastly, there may be some practical utility to pursue training interventions aimed at *how* characteristics are appraised. Perhaps the clinical literature may be informative - for example, within cognitive behavioral therapeutic applications, the way in which situations are appraised can be a mechanism to help battle affective disorders such as depression. Given the current findings, where the same characteristic may be viewed similarly as both a demand and resource, it is possible that framing interventions may ameliorate negative outcomes of demands such as, for example, stress or strain.

Conclusion

In sum, this endeavor builds on the job-demands-resources, and challenge-hindrance stressor literature from a unique lens from within a universally accessible framework. We showed that there are far more individual differences in how employees perceive demands and resources than much of our current research suggests. While resources and challenges idiosyncratic more similarly experienced, what is experienced as a hindrance tends to be idiosyncratic. We further provide additional evidence highlighting the value of perceived resources in the workplace, as they were demonstrated to moderate both challenge-engagement, and hindrance-stress/hindrance burnout relationships as we would expect.

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Table 1

Challenge, hindrance, and resource bivariate correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. onet.resource.ii	-																			
2. onet.resource.mp	.61**	-																		
3. onet.resource.wo	.46**	.50**	-																	
4. onet.resource.io	.49**	.64**	.45**	-																
5. onet.resource.ir	.46**	.55**	.37**	.60**	-															
6. onet.resource.pc	.19**	.15**	.32**	.18**	.37**	-														
7. onet.resource.sc	.43**	.46**	.41**	.45**	.48**	.37**	-													
8. onet.challenge.ii	.62**	.49**	.37**	.41**	.33**	.08	.33**	-												
9. onet.challenge.mp	.47**	.63**	.42**	.50**	.41**	.09*	.38**	.65**	-											
10. onet.challenge.wo	.34**	.39**	.64**	.34**	.30**	.29**	.38**	.45**	.49**	-										
11. onet.challenge.io	.34**	.48**	.33**	.65**	.48**	.13**	.40**	.50**	.68**	.43**	-									
12. onet.challenge.ir	.32**	.40**	.26**	.48**	.63**	.23**	.39**	.46**	.60**	.39**	.70**	-								
13. onet.challenge.pc	.12**	.08	.21**	.13**	.26**	.66**	.29**	.14**	.12**	.33**	.20**	.31**	-							
14. onet.challenge.sc	.27**	.31**	.28**	.38**	.40**	.27**	.62**	.36**	.41**	.38**	.51**	.45**	.40**	-						
15. onet.hindrance.ii	-.26**	-.26**	-.17**	-.24**	-.18**	-.02	-.08	-.27**	-.26**	-.10*	-.19**	-.16**	.06	-.10*	-					
16. onet.hindrance.mp	-.23**	-.30**	-.17**	-.22**	-.15**	.05	-.07	-.22**	-.27**	-.10*	-.18**	-.15**	.12**	-.06	.86**	-				
17. onet.hindrance.wo	-.21**	-.25**	-.22**	-.22**	-.06	-.02	-.12**	-.14**	-.21**	-.23**	-.15**	-.09*	.05	-.10*	.66**	.69**	-			
18. onet.hindrance.io	-.22**	-.27**	-.14**	-.29**	-.18**	-.01	-.10*	-.21**	-.25**	-.10*	-.27**	-.19**	.07	-.10*	.79**	.86**	.69**	-		
19. onet.hindrance.ir	-.22**	-.24**	-.15**	-.24**	-.25**	-.06	-.11**	-.19**	-.21**	-.08*	-.20**	-.23**	.04	-.12**	.79**	.80**	.61**	.82**	-	
20. onet.hindrance.pc	-.04	-.08*	-.09*	-.11**	-.10*	-.16**	-.13**	-.03	-.04	-.06	-.08*	-.10*	-.04	-.13**	.38**	.33**	.47**	.35**	.47**	-
21. onet.hindrance.sc	-.13**	-.15**	-.13**	-.19**	-.13**	-.09*	-.23**	-.12**	-.10*	-.05	-.16**	-.12**	-.01	-.17**	.62**	.62**	.56**	.64**	.66**	.45**

Note. $*$ p $<$ .05, $**$ p $<$ .01; The seven O*Net grouping categories represented here are: Information Input (ii), Mental Processes (mp), Work Output (wo), Interacting with Others (io), Interpersonal Relationships (ir), Physical Work Conditions (pc), and Structural Job Characteristics (sc)

Table 2

Overall variable bivariate correlations.

	1	2	3	4	5	*M*	*SD*
1. Challenge	-					3.75	0.50
2. Hindrance	-.21***	-				2.39	0.78
3. Resource	.74***	-.25***	-			3.77	0.48
4. Stress	-.03	.11**	-.08	-		2.59	0.97
5. Burnout	-.05	.08	-.08	.70***	-	3.04	0.87
6. Engagement	.28***	-.11**	.33***	-.24***	-.30***	4.03	0.79

Note. $*$ p $<$ .05, $**$ p $<$ .01, $***$ p $<$ .001

Table 3

Moderated regression summary of outcomes regressed on challenges and resources

DV	Step	Model	β	R^2	ΔR^2
Engagement	1	Challenge	-0.08		
		Resource	0.37 **	0.15 **	
	2	Challenge	-0.08		
		Resource	0.37 **		
		Challenge X Resource	-0.07 *	0.16 **	0.01 *
Stress	1	Challenge	0.12		
		Resource	-0.06	0.01	
	2	Challenge	0.12		
		Resource	-0.06		
		Challenge X Resource	0.02	0.01	0.00
Burnout	1	Challenge	0.28 **		
		Resource	-0.12	0.04 **	
	2	Challenge	0.28 **		
		Resource	-0.12		
		Challenge X Resource	0.05	0.04 **	0.00

Note. * = p < .05; ** = p < .01

Table 4

Moderated regression summary of outcomes regressed on hindrances and resources

DV	Step	Model	β	R^2	ΔR^2
Engagement	1	Hindrance	-0.11 **		
		Resource	0.35 **	0.17 **	
	2	Hindrance	-0.10 **		
		Resource	0.34 **		
		Hindrance X Resource	-0.01	0.17 **	0.00
Stress	1	Hindrance	0.08 *		
		Resource	0.01	0.01 *	
	2	Hindrance	0.16 **		
		Resource	-0.10		
		Hindrance X Resource	-0.17 **	0.04 **	0.03 **
Burnout	1	Hindrance	0.09 *		
		Resource	0.10 *	0.04 **	
	2	Hindrance	0.13 *		
		Resource	0.03		
		Hindrance X Resource	-0.11 **	0.05 **	0.01 **

Note. * = p $<$ .05; ** = p $<$ .01

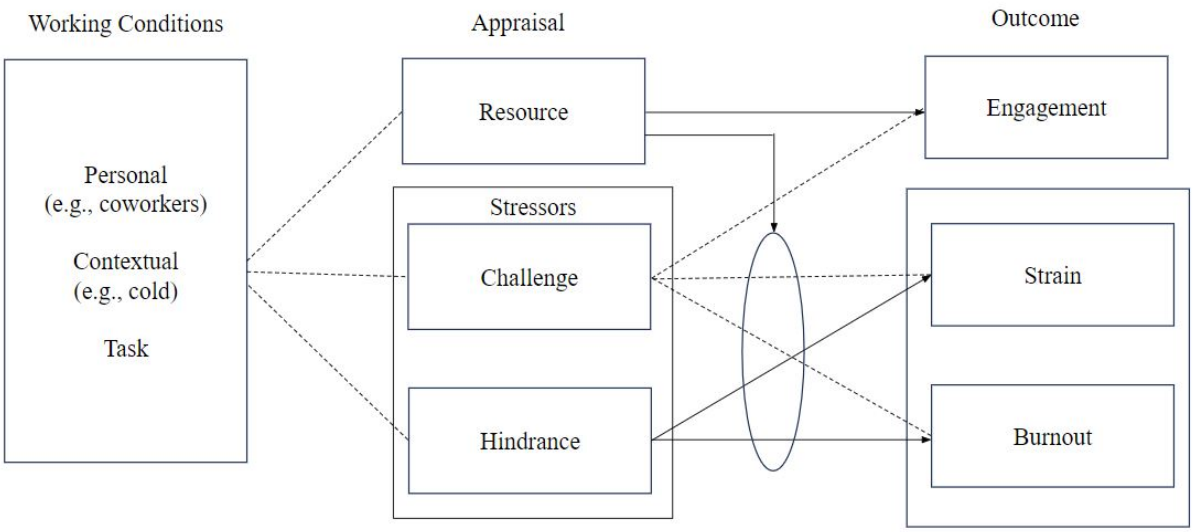

Figure 1

Focal constructs and associations of interest

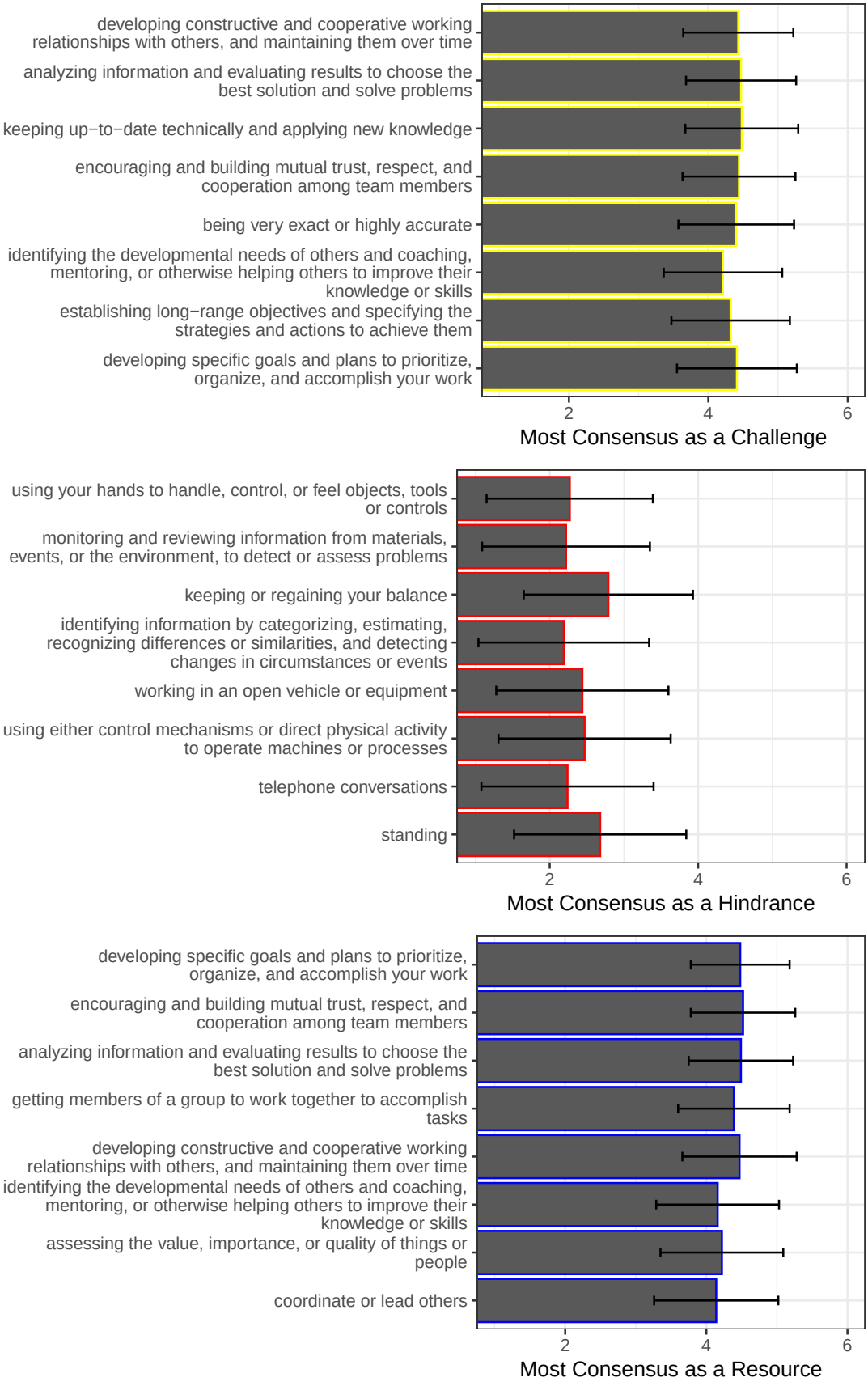

Figure 2

Characteristics percieved most similarly (lowest standard deviations).

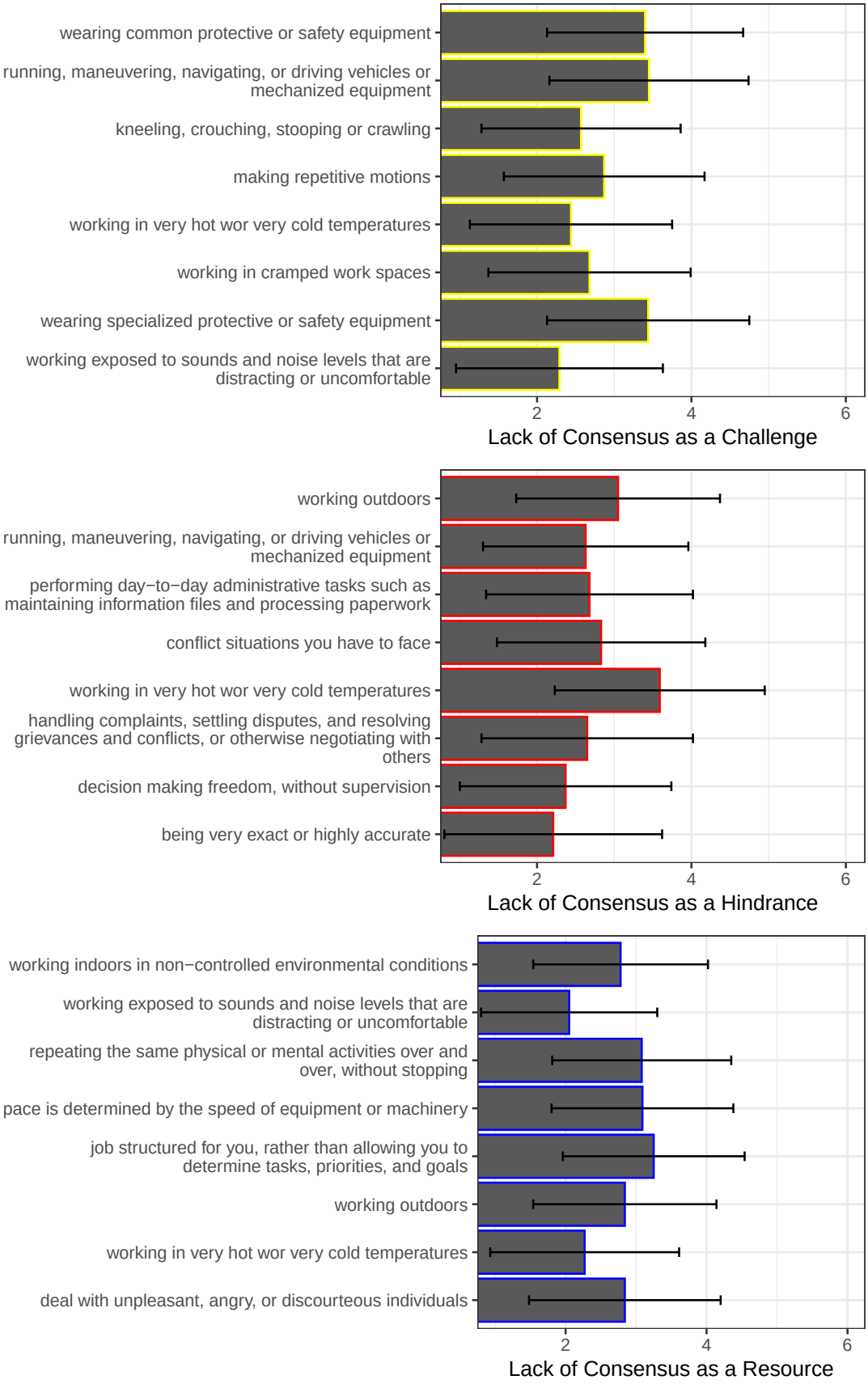

Figure 3

Characteristics percieved most ***dissimilarly*** *(largest standard deviations).*

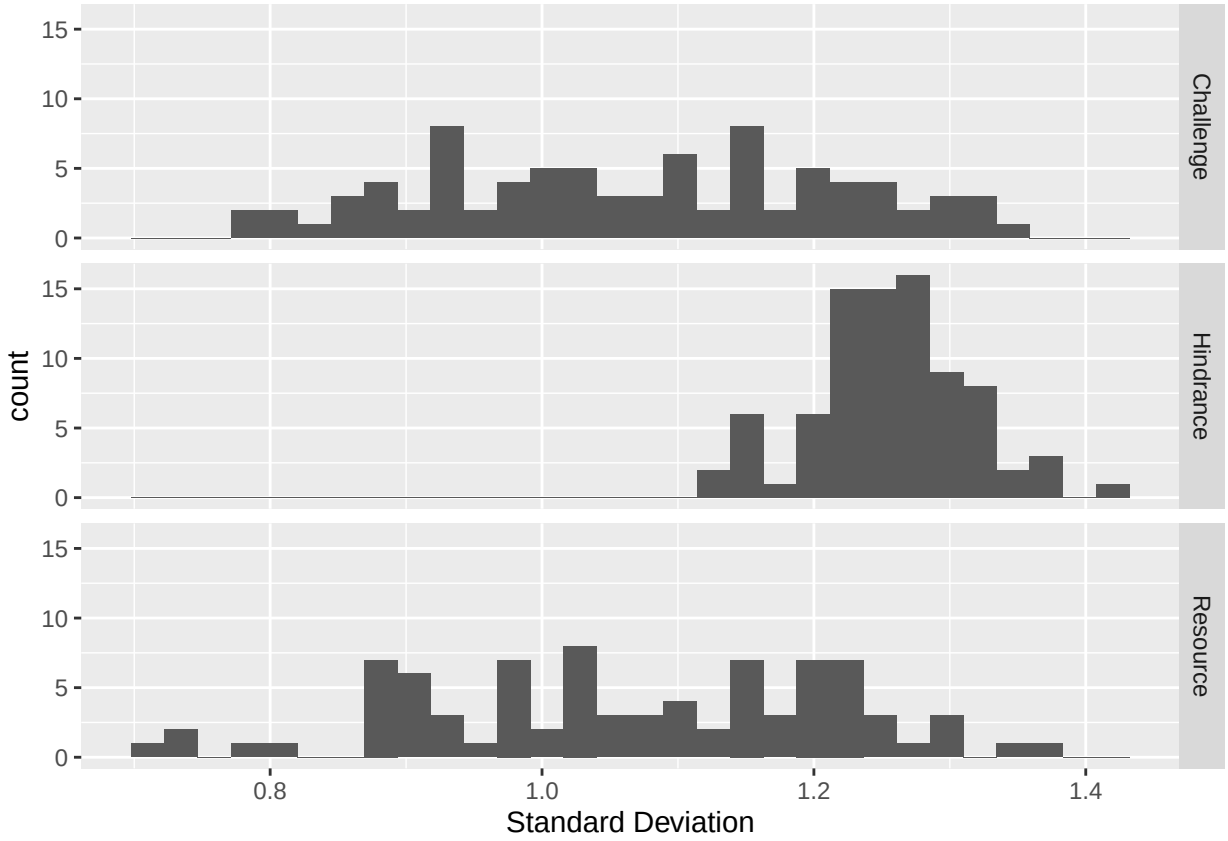

Figure 4

Frequency distribution of standard deviations across characteristics deemed resources, challenges, and demands.

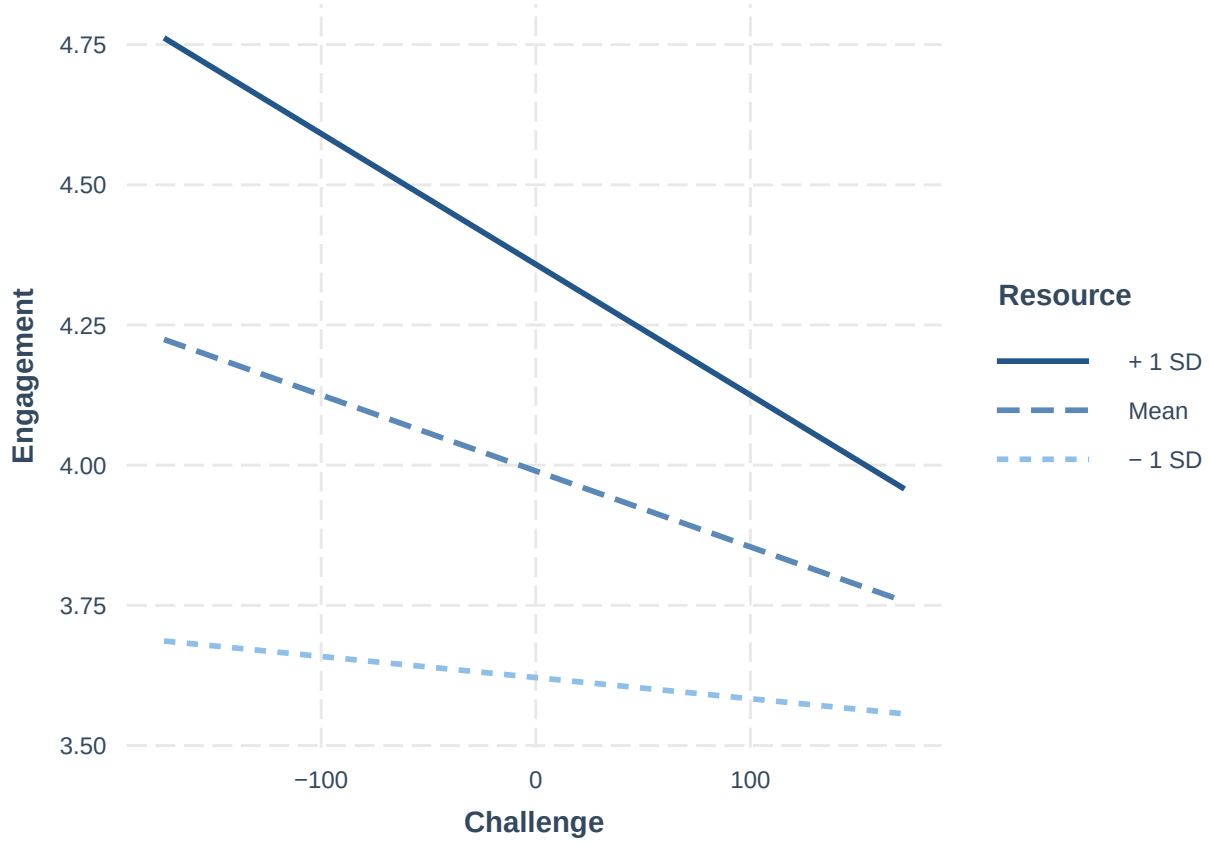

Figure 5

Interaction between Challenge and Resources on Engagement

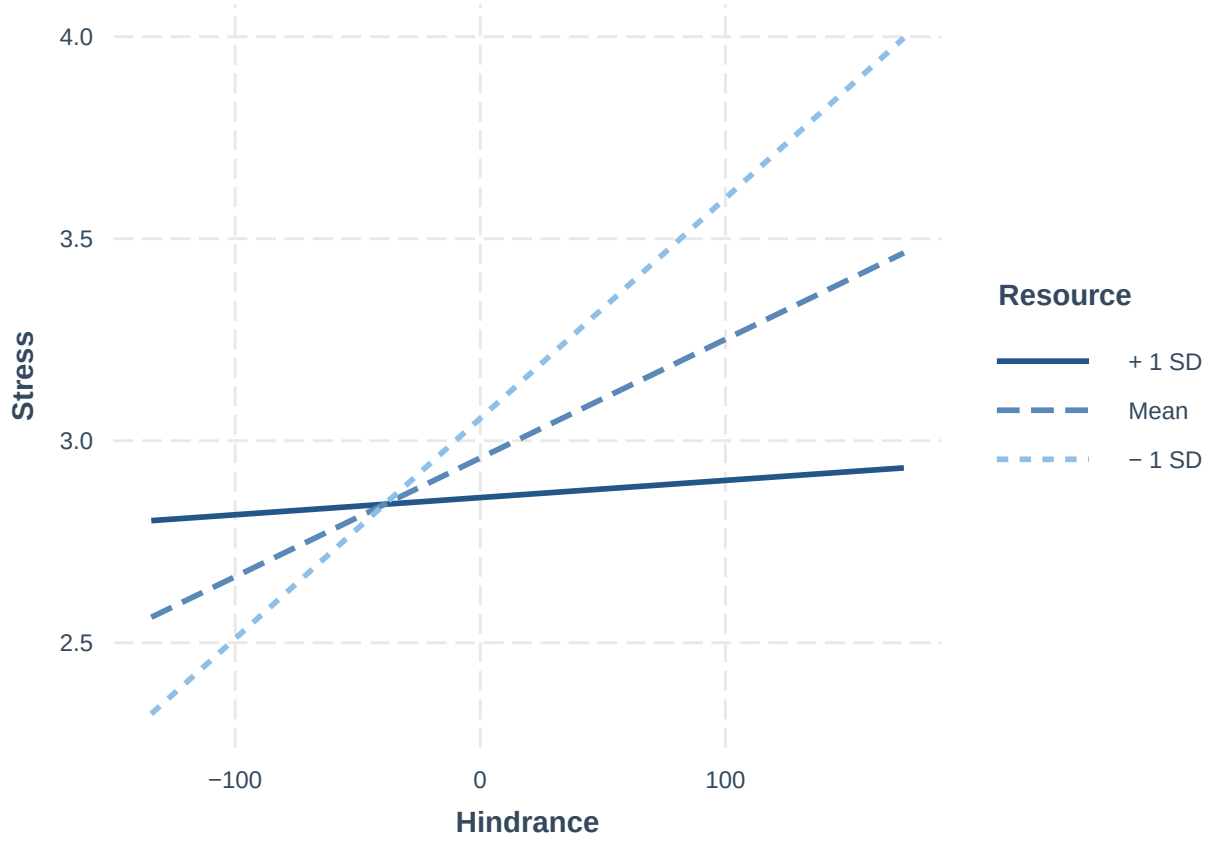

Figure 6

Interaction between Hindrances and Resources on Stress

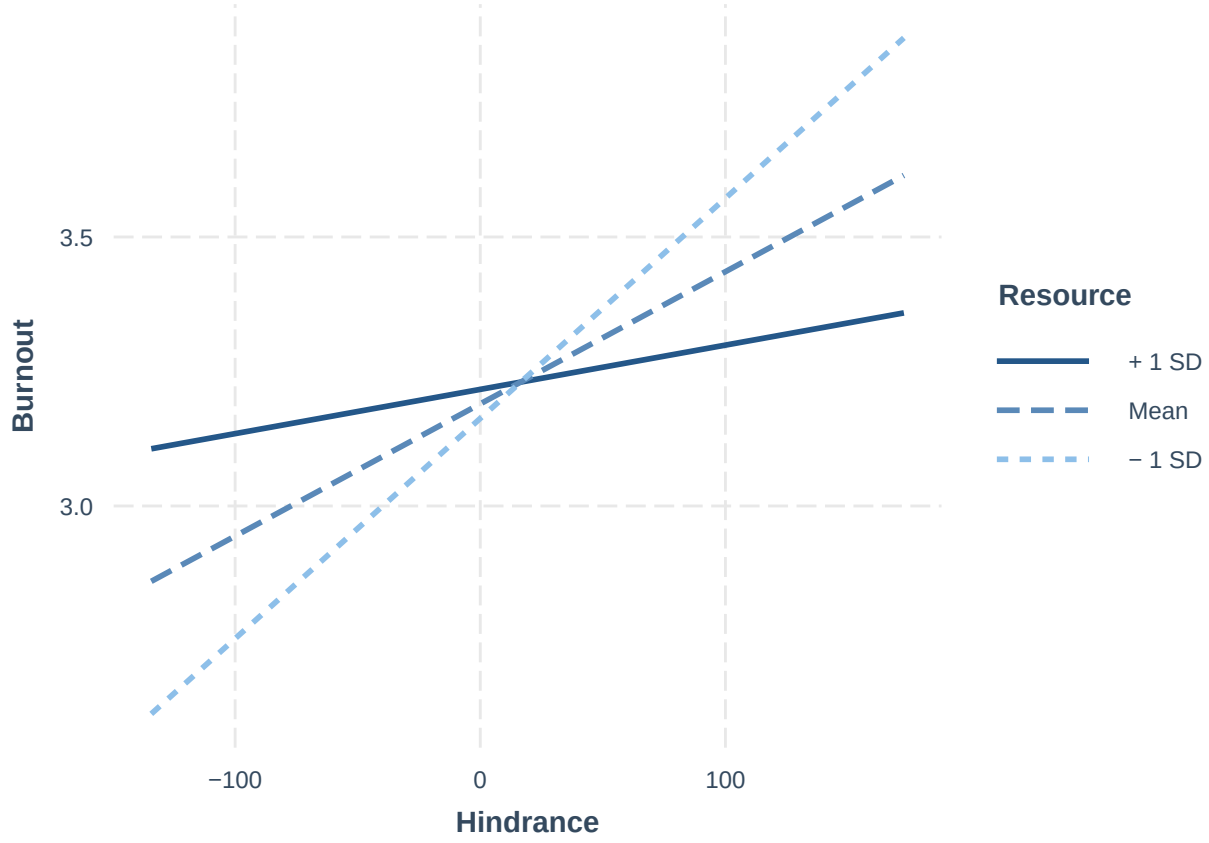

Figure 7

Interaction between Hindrances and Resources on Burnout