1 Job Demands-Resources Model Components through the Lens of O*NET Classifications

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9   Abstract

10   Much of our understanding of job demands and resources rests on the assumption that

11   some aspects and components of one's job are resources and some are demands. We build

12   on a small but growing literature suggesting that individual differences may matter our

13   perception of characteristics as demands and resources. The primary aims were to explore

14   1) whether there is variability in subjective ratings of job characteristics with respect to

15   how much they served as resources and demands, and 2) whether or not there was a match

16   between the literature-implicated resources/demands and subjective ratings of these

17   characteristics. O*NET work characteristics were rated by 568 employed respondents in

18   terms of relevance, perception as a demand, and perception as a resource. The results

19   suggest that job characteristics differ in variability/stability regarding subjective worker

20   perceptions, particularly for hindrance demands which showed the most variability. Job

21   characteristics were not uniquely categorized as a resource or demand as evidenced by

22   correlations, and lastly, literature-implicated resources not consistently rated as job

23   resources or demands.

24   *Keywords:* O*Net, challenge-hindrance framework, job demands-resoures, job

25   characteristics

26   Word count: X

27   Job Demands-Resources Model Components through the Lens of O*NET Classifications

28   Research on the job demands-resources model (Demerouti et al., 2001) and later job

29 demands-resources theory (Bakker & Demerouti, 2017) highlights the importance of work

30 characteristics on the experience of motivation and strain, which subsequently have an

31 impact on job performance among other outcomes. However, much of our existing

32 knowledge regarding the way this model functions is grounded in the assumption that job

33 characteristics are generally considered resources or generally considered demands. We

34 build on the research of a small, but growing number of researchers who argue that the

35 characteristics of work may be appraised simultaneously as resources and demands

36 (Webster et al., 2011) or that appraisals may change over time (Rosen et al., 2020). We

37 extend this critical research to that of the subjective distinction between challenge and

38 hindrance demands (and resources) in the workplace, with a primary aims of exploring 1)

39 whether there is variability in subjective ratings of job characteristics with respect to how

40 much they serve as resources and demands, and 2) whether or not there is a match

41 between the literature-implicated resources/demands and subjective ratings of these

42 characteristics. Prior to presenting the current study in detail, we provide a brief overview

43 of the relevant theories and relevant empirical work on this topic.

44 **The Job demands-Resources Theory**

45   The overarching context for this study is that of the job demands-resources theory,

46 which is an expansion of the well-studied job demands-resources model (Demerouti et al.,

47 2001). One of the major advantages of the job demands-resources theory is that it allows

48 us to model both work environment and job characteristics via job resources and demands.

49 *Resources* include physical, psychological, social, or organizational aspects of the job that

50 may help an employee achieve work goals, reduce job demands, or promote personal growth

51 and development (Demerouti et al., 2001). In contrast, demands include components of a

52 job that require sustained effort, and as such, produce psychological or physiological strain

53 [e.g., high work pressure is frequently cited as a common demand; Demerouti et al. (2001)].

54 Cognitively, the perception of an element of one's job as a resource or demand activates

55 one of two distinct processes: either health impairment (resulting from demands) or

56 motivation (resulting from resources) (Bakker & Demerouti, 2014). Of particular

57 importance here is that it is the perception of a characteristic or situation determines

58 which process an employee will experience despite the typical apriori assignment of a

59 characteristic as objectively a "demand" or "resource." We explore this further below.

The Essential Role of Appraisal

61   As described in the last paragraph, job context and characteristics are assigned or

62 appraised as demands or resources. Although much of our research on job demands in

63 particular is based on apriori classifications (Searle & Auton, 2015), the classification of a

64 work characteristic as a demand or resource is largely subjective by nature (e.g., an

65 employee could most certainly perceive being a public figure as a resource or as a demand.

66 The stress process speaks to how such individual difference in appraisal is possible. Lazarus

67 and Folkman (1984) presented the transactional theory of stress and coping, which states

68 that people cognitively appraise stimuli in their environments on a continuous basis. Via

69 this process, meaning is assigned to stimuli based on potential for gain or loss. If appraised

70 as threatening, challenging, or possibly harmful, the resulting emotional distress initiates

71 coping. The cycle of appraisal then continues based on the action to cope with the stressor

72 (Lazarus & Folkman, 1984). Coping is considered a secondary appraisal and is the way

73 that someone chooses to manage a stressor. Although not suggested by the names, primary

74 and secondary appraisals can happen simultaneously. For instance, available resources to

75 cope with a stressor may influence an employee's initial appraisal of a stressor (e.g.,

76 amount of time [resource] available to prepare for the speech may influence one's primary

77 appraisal of this ask).

The Challenge-hindrance Stressor Framework

⁷⁹ Although there is a tendency to attach a negative connotation to the word "stress,"

⁸⁰ Selye (1936) defined stress as simple a response to change. We return to the employed

⁸¹ public figure for this next section. Consider two employees be called upon to serve as

⁸² spokespeople for their organization. One may appraise the circumstance as an opportunity

⁸³ to positively influence others, while the other may feel daunted by the task.

⁸⁴ The challenge-hindrance stressor framework suggests that the way we understand

⁸⁵ reactions to stressors requires consideration of how people feel about a given stressor

⁸⁶ (Cavanaugh et al., 2000). Cavanaugh et al. (2000) delineated between two forms of

⁸⁷ demands – that of *challenge* and *hindrance* demands. Challenge demands promote mastery,

⁸⁸ personal growth, and future gains – these stressors should lead to coping strategies that

⁸⁹ facilitate achievement. Stressors like time pressure and responsibility are considered

⁹⁰ challenge stressors/demands. Hindrance demands, in contrast, inhibit growth, learning and

⁹¹ goal achievement. Hindrance stressors (e.g., role conflict, role ambiguity, politics) are

⁹² associated with negative job behaviors and attitudes. This distinction between challenges

⁹³ and hindrances has been of value in determining which demands are related to various

⁹⁴ outcomes. The original work on this topic suggests that challenge stressors are typically

⁹⁵ associated with positive outcomes and hindrance stressors are associated with negative

⁹⁶ outcomes (e.g., Cavanaugh et al., 2000).

⁹⁷ Prior to considering the subsequent empirical work on this topic, it is of value to

⁹⁸ explore *why* different outcomes are expected with these forms of demands. M. A. LePine

⁹⁹ (2022) explain the mechanisms by which demands are related to performance and

¹⁰⁰ wellbeing outcomes. Similar to the job-demands resources theory (Bakker & Demerouti,

¹⁰¹ 2017), challenge and hindrance demands elicit two different paths or processes. First,

¹⁰² challenge stressors typically result in a challenge appraisal, and engagement is likely to

¹⁰³ 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. Hindrance stressors 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).

We next consider the empirical evidence on this topic. The first question we should ask is whether people distinguish between challenge vs. hindrance demands, or whether all demands are under a larger "demands" category. Evidence suggests the employees do, in fact, differentiate between challenge and hindrance stressors (e.g., Bakker & Sanz-Vergel, 2013; Gerich, 2017; Webster et al., 2011). 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 challenges or hindrances demands, they could also simultaneously be perceived as being both a challenge and hindrance demands to different degrees.

Appraisals are associated with different forms of coping, and subsequently, outcomes. The challenge-hindrance stressor framework has been associated with a wide variety of organizational outcomes ranging from affective variables like job satisfaction, to motivation, performance, and wellbeing. A sampling of variables and relationships are described below to provide a sense of scope of the work that has been on this topic. Kim and Beehr (2020) found that appraising a demand (in their study, workload, responsibility, and learning demands were measured) as a challenge was associated with motivational resources (i.e., sense of self-worth and work meaningfulness), which were positively related to flourishing. The opposite occurred when a demand was appraised as a hindrance – in those instances, the appraisal had a negative association with motivational resources. Cavanaugh et al. (2000), in a study of managers, found that challenge demands were positively related to job

satisfaction and negatively related to job search behaviors, while hindrance demands

demonstrated the opposite pattern. Chen et al. (2021) found that daily challenge demands

were positively related to cognitive wellbeing and work-family enrichment. Daily hindrance

demands were negatively related to these outcomes. In contrast, Abbas and Raja (2019)

found that challenge and hindrance stressors were *both* positively related to strain and

turnover intentions. We also have some evidence that challenge-hindrance appraisals are

related to engagement in the expected direction whereby hindrance appraisals are

negatively associated with engagement and challenge appraisals are positively associated

with it (Crawford et al., 2010). Challenge and hindrance appraisals have also been shown

to relate to citizenship and counterproductive performance, although indirectly via

emotions like anxiety (Rodell & Judge, 2009). Lastly, Gerich (2017) concluded that

employee wellbeing was also, in part, explained by appraised challenge or hindrance

demands such that working conditions of time pressure, qualitative demands, responsibility,

and interruptions, were partially mediated by challenge and hindrance demands.

We even have sufficient evidence to explore outcomes associated with challenge and

hindrance stressors meta-analytically at this point, and a rich collection of them support

differential associations across a variety of organizational outcomes as well. For example,

both challenges and hindrances have been shown to positively predict strain (J. A. LePine

et al., 2005; Podsakoff et al., 2007; Webster et al., 2010). Many other outcomes are

differentially related to challenges and hindrances, largely in the expected direction. For

example, motivation, job satisfaction, commitment, and performance have been shown to

positively relate to challenge stressors and negatively relate to hindrance stressor (J. A.

LePine et al., 2005). Turnover intentions, turnover and withdrawal behaviors are

negatively related to hindrance stressors (Podsakoff et al., 2007). Kim and Beehr (2020),

similarly, found evidence for the differential results via challenge and hindrance appraisals.

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

158 (1984) into the challenge-hindrance stressor framework, which aligns with other calls to

159 capture subjective ratings of demands and resources into our study of the overarching

160 JD-R model. In fact, Horan et al. (2020) state that "...stressors are only challenge or

161 hindrance stressors to the extent that they are perceived as such by employees" (p. 3). In

162 fact, Horan et al. (2020) suggest future research continue to move away from apriori

163 classifications of stressors, as doing so can be problematic for theoretical and empirical

164 reasons. Theoretically, apriori classifications run counter to the original transactional

165 theory of stress on which the challenge-hindrance stressor framework was based for which

166 appraisals are a central component. Empirically, as shown above, we have some evidence

167 suggesting people can appraise a stressor as both a hindrance and challenge at the same

168 time (e.g., Searle & Auton, 2015). TRANSITION NEEDED HERE. I DELETED THE

169 ONET PARAGRAPH.

Current Study and Hypotheses

171   The integration of the literature above results in two primary hypotheses. The first

172 addresses whether employees generally agree on their appraisals of job characteristics as

173 resources or challenge or hindrance demands. For instance, although challenge stressors

174 tend to be appraised more so as challenges, and hindrance stressors tend to be appraised

175 more as hindrances than challenges, others have reported variability in these appraisals (M.

176 A. LePine, 2022). M. A. LePine (2022), in fact, argues that the challenge-hindrance

177 stressor framework acknowledges that these appraisals are not universal. Thus, it is quite

178 possible, given the theoretical and empirical evidence presented above, that there is wide

179 variability in individual appraisal of work activities and context such that some people may

180 rate a given activity as a resource and others a hindrance.

181   Hypothesis 1: Job characteristics differ in consistancy regarding subjective

182   worker perception as a demand or resource.

183   Hypothesis 2: Job characteristics are not exclusively categorized as a resource

184   or demand, but rather, some job characteristics are viewed as both a resource

185   and a demand.

186   Two exploratory questions further address whether our *literature-implicated* resources

187 (e.g., autonomy) and demands are consistently rated as our research models suggest across

188 the job-demands resources theory (Bakker & Demerouti, 2017) and challenge-hindrance

189 stressor framework (Cavanaugh et al., 2000).

190   *Research Question 1*: Do literature-implicated resources materialize as

191   perceived resources?

192   *Research Question 2*: Do literature-implicated demands materialize as job

193   demands?

Method

Participants

196   Of the 785 individuals who initially accessed the survey link, 112 indicated that they

197 were not interested, had more than 200 missing responses, or had 20 or more identical

198 consecutive sequential responses (Yentes & Wilhelm, 2021). Applying a further screen

199 regarding attention checks (there were four attention checks embedded throughout, asking

200 respondents to indicate a specific answer) resulted in the retention of 568 respondents who

201 constitute the current sample. Regarding tenure, 13.57% had been in their referent job less

202 than 6 months, 19.20% between 6 months and a year, 49.12% between one and five years,

203 13.27% between 5 and 10 years, and 4.87% more than 10 years. Respondent ages ranged

204 from 18 to 65 with an average of 28.18 years old ($SD = 7.53$). The survey offered a

205 free-field gender identity category, although the sample predominantly self-identified as

206 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 retained 98 work activity and context classifications 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 (i.e., the context of the job in terms of human interaction processes), physical work conditions (i.e., the work context as it relates to the interactions between the worker and the physical job environment), and structural job characteristics (i.e., 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 statements/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, 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 (statements/questions).

Procedure

²³⁴ Data were collected through Prolific, a data collection platform. An email was sent to ²³⁵ a random subset of all eligible participants in the Prolific respondent pool, notifying them ²³⁶ about their eligibility for the study based on demographic information. Eligibility ²³⁷ requirements included being 18+ and holding either a full-time or part-time job. ²³⁸ Participants then voluntarily chose to respond to the online survey. Participants were ²³⁹ asked to think about their primary job while answering the survey, and the items they were ²⁴⁰ presented with depended on the specific job characteristics they initially specified. Thus, if ²⁴¹ a respondent indicated that a characteristic was not part of their job, they were not ²⁴² subsequently asked to rate the level of resource (i.e., . . . this aspect of your job is a resource ²⁴³ that can be functional in achieving work goals, reduce job demands, or stimulate personal ²⁴⁴ growth/development), challenge (i.e., . . . this aspect of your job is a challenge that can ²⁴⁵ promote mastery, personal growth, or future gains), or hindrance (i.e., . . . this aspect of ²⁴⁶ your job is a hindrance that can inhibit personal growth, learning, and work goal ²⁴⁷ attainment) in randomized order. The total number of items on the survey was less than ²⁴⁸ 392 (98 characteristics x 4 repeated measurements) because we did not ask for demand and ²⁴⁹ resource evaluations for 14 O*Net characteristics that we projected would have very low ²⁵⁰ frequency of endorsement across respondents (one excluded characteristic, for example, was ²⁵¹ . . . *the extent to which the worker is exposed to radiation on the job*). Participants were ²⁵² compensated for their participation in this study estimated to require 45 minutes' time in ²⁵³ the amount of six dollars through Prolific.

²⁵⁴ <div align="center">**Results**</div>

²⁵⁵ H1 posits that static job characteristics are not necessarily always experienced ²⁵⁶ similarly across workers - as hindrances, challenges, or resources. We explore this ²⁵⁷ hypothesis first at the job characteristic level before presenting a broader perspective.

²⁵⁸ Figures 1 and 2 present only extreme snapshots of characteristic variability in the form of

²⁵⁹ the 8-most *consistently rated* and *inconsistently rated* resources, challenges, and demands.[1]

²⁶⁰ These figures present average item ratings, but the central elements of interest are the

²⁶¹ standard deviations, which reflect the characteristics with the relative greatest and least

²⁶² consistency. Figure 1 presents the resources, challenges, and hindrances characteristics that

²⁶³ are *most consistently agreed on* as indexed by (relatively) low standard deviations, while

²⁶⁴ Figure 2 presents the characteristics with the greatest amount of *disagreement* across

²⁶⁵ workers.

²⁶⁶   As can be seen in the figures, what is widely seen as a resource and challenge tends to

²⁶⁷ be somewhat agreed upon (the range of the "lowest 8" resource standard deviations is 0.70

²⁶⁸ to 0.88 and the range of lowest 8 challenge standard deviations is 0.79 to 0.86). However,

²⁶⁹ there is considerable less agreement regarding the degree to which job elements should be

²⁷⁰ considered to be hindrances, with the 8 elements showing the *greatest agreement* still

²⁷¹ ranging in fairly large standard deviations (ranging from 1.12 to 1.16).

²⁷² In addition to highlighting extremely agreed- or disagreed-upon items, Figure 3

²⁷³ presents our standard deviation indices across all rated items. Here, the Figure 1

²⁷⁴ discrepancies receive illumination, with the *spread* of difference exhibiting wider

²⁷⁵ distributions of agreement for challenge and resource ratings (and relatively *bunched* levels

²⁷⁶ of disagreement for hindrances; note the spread of the challenge and resource histograms

²⁷⁷ relative to the hindrance histogram). Some characteristics are largely agreed upon as being

²⁷⁸ challenges and resources, while all hindrance perceptions exhibit a relatively higher level of

²⁷⁹ disagreement. This points to *hindrances*, in particular, as being likely amenable to future

²⁸⁰ probing regarding moderating conditions. A Bartlett's test for homogeneity of variance

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

across the challenge, hindrance, and resource ratings confirms this difference ($\chi^2 = 76.83$, p $= 0.00$). In sum, these results provide some collective support for H1, and particularly so for hindrances, which are consistently viewed as "different."

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 item groupings by resource, challenge and hindrance demand. We would expect to see minimal correlations if job characteristics *were* uniquely categorized. Here, we do expected to see more than minimal correlations. First, the mean correlation within resource categories was _____, _____ within challenge categories, and _____ within hindrance categories. We would expect these to be the highest. The mean resource to challenge correlation was _____. The mean resource to hindrance correlation was _____. Finally, the mean challenge to hindrance correlation was _____. These were expected to be moderate in size, but smaller than within the same category. In sum, Challenge and hindrance demands demonstrated smaller relationships, but mostly negative. Challenge and resource 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.

In addition to the two hypotheses, two related research questions were proposed: 1) do literature-implicated resources materialize as perceived resources and 2) do literature-implicated demands materialize as perceived demands? To answer these questions, authors first categorized O*Net items into the JD-R elements listed in the JD-R literature. For example, autonomy is frequently described as a resource in the JD-R literature. An O*Net item in the autonomy category is, "How much decision making freedom, without supervision, does your job offer?" This O*Net item was therefore retained within the "autonomy" category. Mean ratings of the O*Net items were then

308 computed by element (e.g., all of the items representing autonomy) to explore whether

309 literature-implicated resources and demands were evaluated as such.

310   Repeated-measures ANOVAs were computed for the group of literature-implicated

311 *resources* first (see the right hand side of Figure 4). The effect for `Job Control` was

312 $F_{(2,1134)} = 52.78$ ($\eta^2 = 0.08$). The effect for `Participation` was $F_{(2,1124)} = 991.16$ ($\eta^2 =$

313 0.64). The effect for `Autonomy` was $F_{(2,1074)} = 951.90$ ($\eta^2 = 0.64$). The effect for `Team`

314 `Cohesion` was $F_{(2,1120)} = 853.39$ ($\eta^2 = 0.60$).Statistical significance was less then .001 for all

315 four category comparisons. Here, the pattern was as expected. Across categories, resources

316 were rated the highest (see white bars representing resources in Figure 4). However, as can

317 be seen, mean challenge (which is a demand) was rated quite similarly and above the

318 midpoint of 3 across JD-R categories.

319   Next, repeated-measures ANOVAs were then run for the group of

320 literature-implicated *demands*. See the left hand side of Figure 4. The effect for `Overwork`

321 was $F_{(2,1134)} = 17.71$, partial eta squared (η^2) was 0.03. The effect for `Physical`

322 `Environment` was $F_{(2,1108)} = 112.97$ ($\eta^2 = 0.17$). The effect for `Time Pressure` was $F_{(2,1090)}$

323 $= 82.22$ ($\eta^2 = 0.13$). The effect for `Emotional Demands` was $F_{(2,1098)} = 393.43$ ($\eta^2 = 0.42$).

324 The effect for `Recipient Contact` was $F_{(2,1126)} = 1,031.73$ ($\eta^2 = 0.65$). The effect for `Work`

325 `Pressure` was $F_{(2,1132)} = 718.12$ ($\eta^2 = 0.56$). In all cases, statistical significance was less

326 then .001. However, the findings revealed that what the literature implicates as a demand

327 was actually evaluated as a *resource* (all resource means are above the midpoint). This is

328 contrary to the expectation that ratings would match our assumption of what a demand

329 constitutes. Looking at demands, there is a large difference between whether a

330 characteristic is viewed as a challenge or hindrance. See the pattern of white resource bars

331 on the left hand side of Figure 4.

332   Figure 4 presents these comparisons visually. First exploring the right side of Figure

333 4, there is a clearer pattern of the highest level ratings being that of resources on the right

334 side of Figure 4 showing literature-derived resources (e.g., job control) and the

335 corresponding average category ratings. The white bars representing resources are

336 consistently higher. As described above, the left side of Figure 4 shows literature-derived

337 demand categories (e.g., work pressure). However, in contrast, we do not see a clear

338 demarcation of resource and challenge, as would be expected if the job characteristics

339 evidenced consistency (the literature-driven consistency would manifest as "high" gray and

340 black bars and "low" white bars). In alignment with what we observed regarding

341 variability in ratings of hindrance stressors in H1, there is much less consistency in how

342 employees rated what should objectively be "hindrances" at work. In sum, these results

343 provide some support for RQ 1 and 2.

<center>**Discussion**</center>

345   The major aim and contribution of this paper was to examine whether there was

346 variability in subjective ratings of job characteristics with respect to how much they serve

347 as resources and demands (both challenge and hindrance), and also whether or not there is

348 a match between the literature-implicated resources/demands and subjective ratings of

349 these characteristics using a sample of items from O*Net. The findings broadly revealed

350 that there was relatively more consistency in ratings of resources and challenges

351 characteristics, and far more variability in job characteristics rated as hindrance stressors.

352 This finding lends additional evidence to Horan et al. (2020)'s conclusion that "...stressors

353 are only challenge or hindrance stressors to the extent that they are perceived as such by

354 employees" (p. 3). The research questions regarding the match between

355 literature-implicated demand and resource categories and empirical ratings aligns with the

356 consistency/variability we observed in H1. Interestingly, we consistently observed that job

357 characteristics rated as resources were also rated highly as challenge stressors, which are

358 not inherently negative in the way that hindrance stressors are. Lastly, we also found

359 support for the hypothesis that job characteristics are not uniquely categorized as a

360 resource or demand, but rather, some job characteristics are rated highly as both a

361 resource and a demand (H2).

Implications

363   Theoretically, these findings support growing body of literature suggesting that

364 perceptions of resources and demands, broadly, are not universal. There is individual

365 difference in how employees experience the characteristics of their jobs. Much of our

366 existing research on job demands and resources has been done from the perspective that

367 job characteristics could be classified in advance as a "resource" or "demand."

368   These results have implications for managers as well. The reality that there is more

369 individual difference in what employees perceive to be a hindrance and less in what is

370 perceived to be a resource or challenge stressor is in some ways encouraging. These findings

371 provide comforting support for the idea that managers and supervisors can predict which

372 characteristics are perceived as supportive to employees' performance. Somewhat

373 surprisingly, hindrances are rated more variably. As such, one important implication is that

374 of frequent communication with employees regarding their perceptions of characteristics

375 that limit their performance. J. A. LePine et al. (2005) and Podsakoff et al. (2007)

376 encourage organizations to incorporate strain-reducing activities like train and support to

377 offset the negative effects of challenging job demands.

Limitations and Future Directions

379   As with all individual studies, this project was limited in scope, and as such, there

380 are a number of avenues for future study worth exploring here. First, we captured only a

381 small number of job characteristics given the nature of our research questions. Because we

382 asked up to four questions about each characteristics, we were limited in the number of job

383 characteristics we could reasonably include. 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. For example, we included minimal "social" resources or interactions with one's supervisor, which the literature would suggest are important resources. Future study should explore this aspect of work. We also used the exact definitions of resource, challenge, and hindrance. It is possible that respondents did not distinguish between the challenge and resource definition as cleanly as we intended and so future research should explore this question differently. It would also be interesting to consider outcomes associated with subjective ratings. 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.[^check] 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 explored the job-demands-resources literature from a unique lens, showing 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 are more similarly experienced, hindrance demands show a wide amount of variability.

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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	M	SD
1. onet.resource.ii	-																				3.98	0.80
2. onet.resource.mp	.61*	-																			4.19	0.60
3. onet.resource.wo	.46*	.50*	-																		3.79	0.84
4. onet.resource.io	.49*	.64*	.45*	-																	4.10	0.60
5. onet.resource.ir	.46*	.55*	.37*	.60*	-																3.80	0.61
6. onet.resource.pc	.19*	.15*	.32*	.18*	.37*	-															2.99	0.77
7. onet.resource.sc	.43*	.46*	.41*	.45*	.48*	.37*	-														3.65	0.61
8. onet.challenge.ii	.62*	.49*	.37*	.41*	.33*		.33*	-													3.98	0.80
9. onet.challenge.mp	.47*	.63*	.42*	.50*	.41*	.09*	.38*	.65*	-												4.20	0.64
10. onet.challenge.wo	.34*	.39*	.64*	.34*	.30*	.29*	.38*	.45*	.49*	-											3.65	0.88
11. onet.challenge.io	.34*	.48*	.33*	.65*	.48*	.13*	.40*	.50*	.68*	.43*	-										4.07	0.64
12. onet.challenge.ir	.32*	.40*	.26*	.48*	.63*	.23*	.39*	.46*	.60*	.39*	.70*	-									3.85	0.63
13. onet.challenge.pc	.12*	.08	.21*	.13*	.26*	.66*	.29*	.14*	.12*	.33*	.20*	.31*	-								2.85	0.79
14. onet.challenge.sc	.27*	.31*	.28*	.38*	.40*	.27*	.62*	.36*	.41*	.38*	.51*	.45*	.40*	-							3.66	0.59
15. onet.hindrance.ii	-.26*	-.26*	-.17*	-.24*	-.18*	-.02	-.08	-.27*	-.26*	-.10*	-.19*	-.16*	.06	-.10*	-						2.15	1.01
16. onet.hindrance.mp	-.23*	-.30*	-.17*	-.22*	-.15*	.05	-.07	-.22*	-.27*	-.10*	-.18*	-.15*	.12*	-.06	.86*	-					2.10	1.05
17. onet.hindrance.wo	-.21*	-.25*	-.22*	-.22*	-.06	-.02	-.12*	-.14*	-.21*	-.23*	-.15*	-.09*	.05	-.10*	.66*	.69*	-				2.31	1.02
18. onet.hindrance.io	-.22*	-.27*	-.14*	-.29*	-.18*	-.01	-.10*	-.21*	-.25*	-.10*	-.27*	-.19*	.07	-.10*	.79*	.86*	.69*	-			2.23	1.03
19. onet.hindrance.ir	-.22*	-.24*	-.15*	-.24*	-.25*	-.06	-.11*	-.19*	-.21*	-.08*	-.20*	-.23*	.04	-.12*	.79*	.80*	.61*	.82*	-		2.35	0.89
20. onet.hindrance.pc	-.04	-.08*	-.09*	-.11*	-.10*	-.16*	-.13*	-.03	-.04	-.06	-.08*	-.10*	-.04	-.13*	.38*	.33*	.47*	.35*	.47*	-	2.66	0.83
21. onet.hindrance.sc																					2.64	0.80

Note. 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)
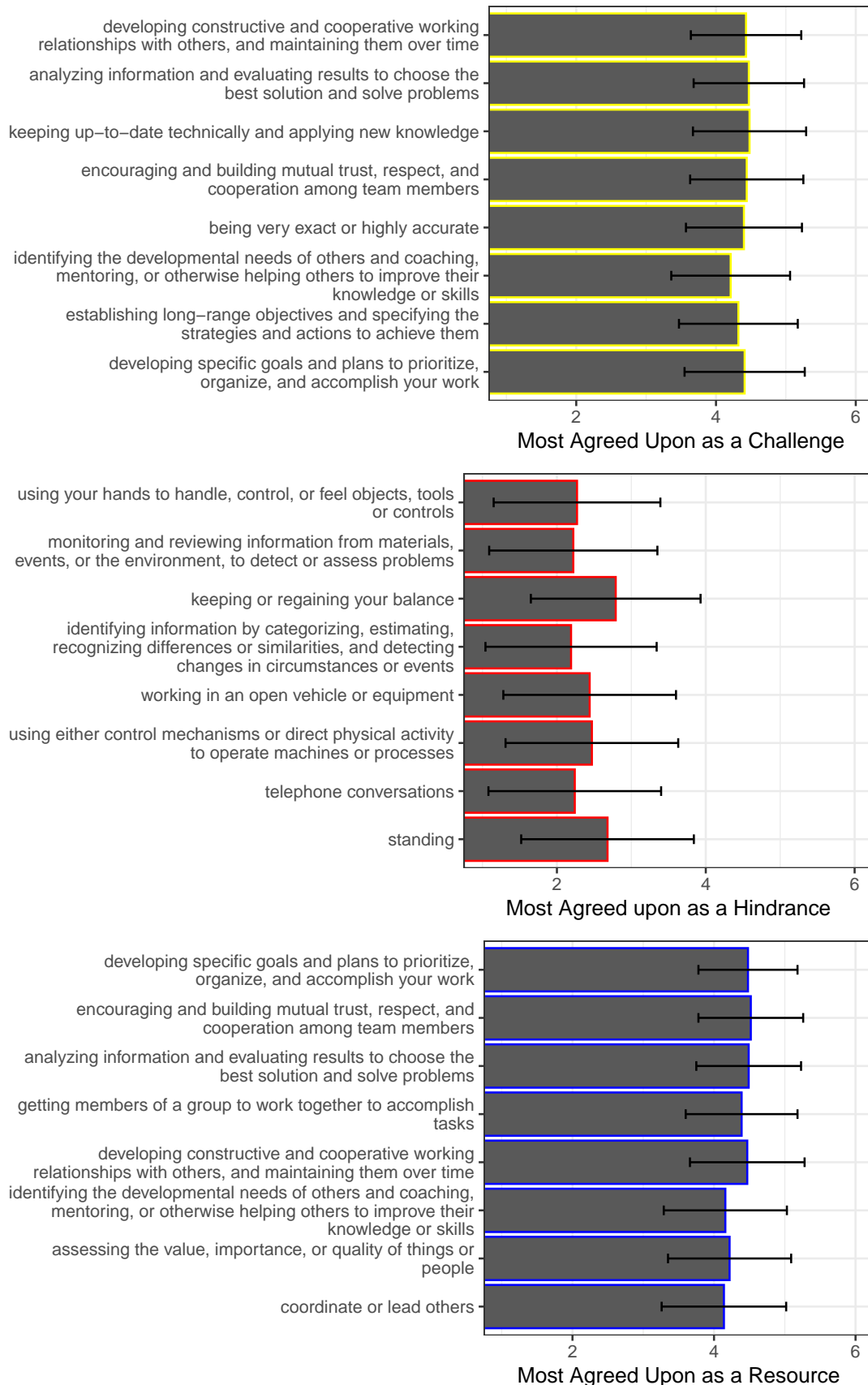
Figure 1. Characteristics percieved most similarly (lowest standard deviations).
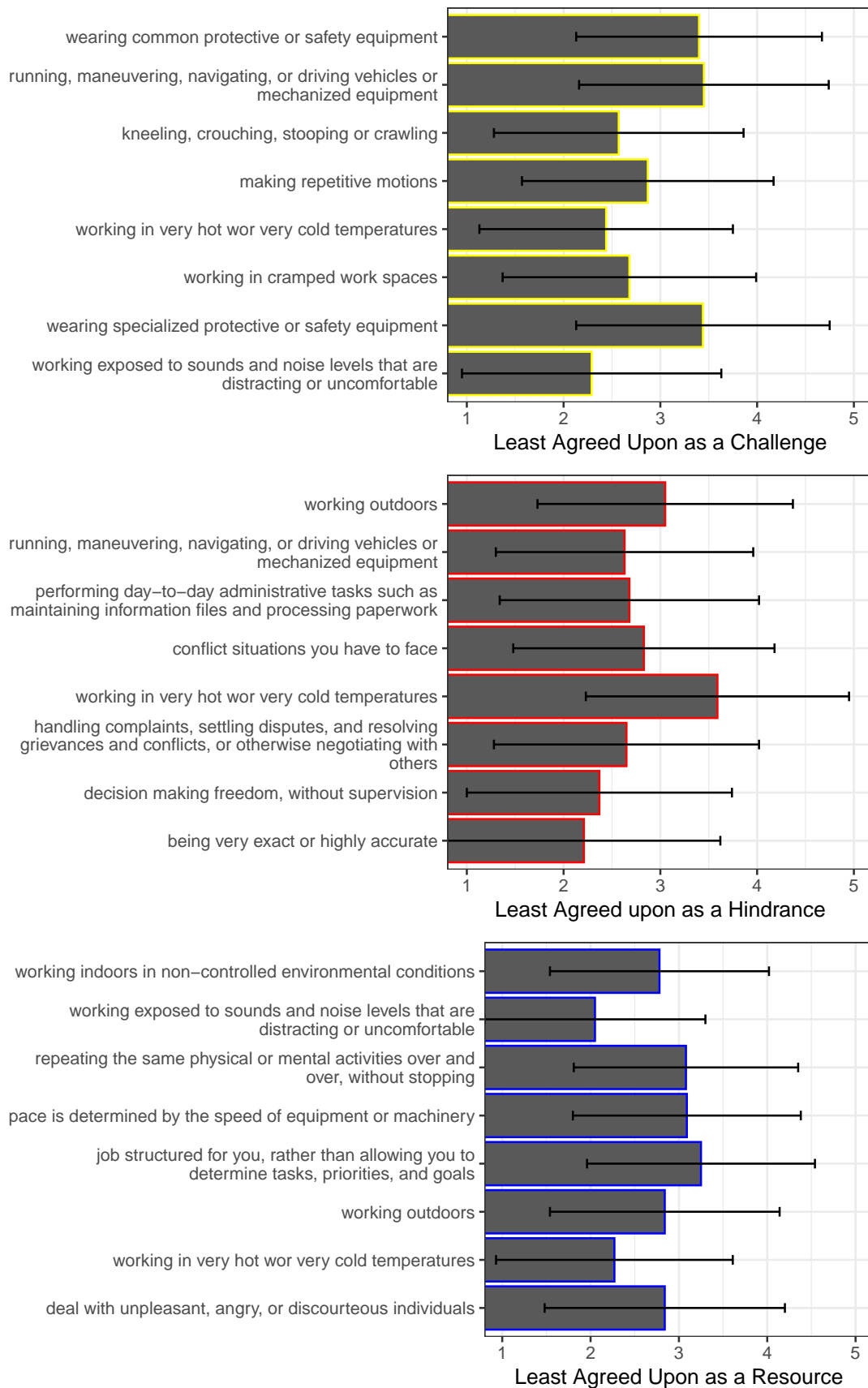
Figure 2. Characteristics percieved most *DIS*similarly (lowest standard deviations).
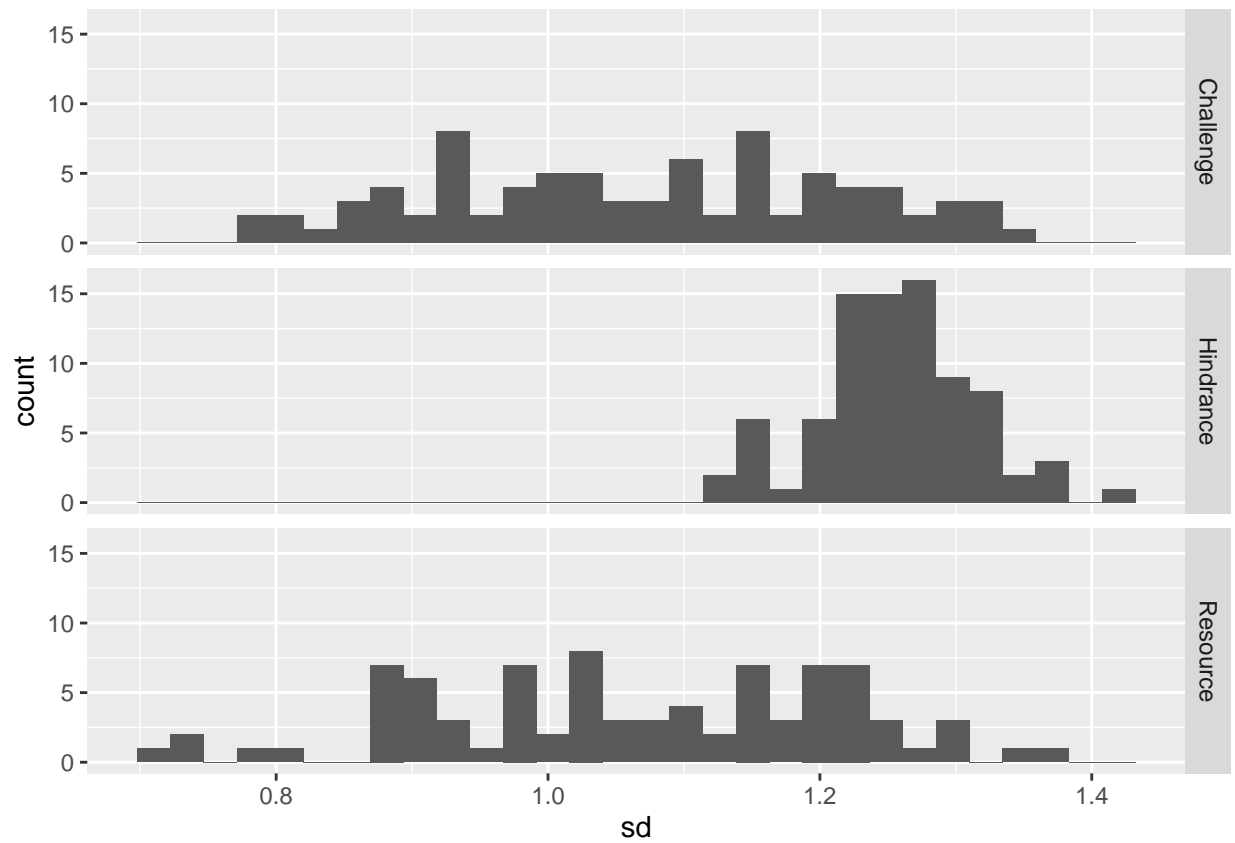
Figure 3. Frequency distribution of standard deviations across characteristics deemed re-
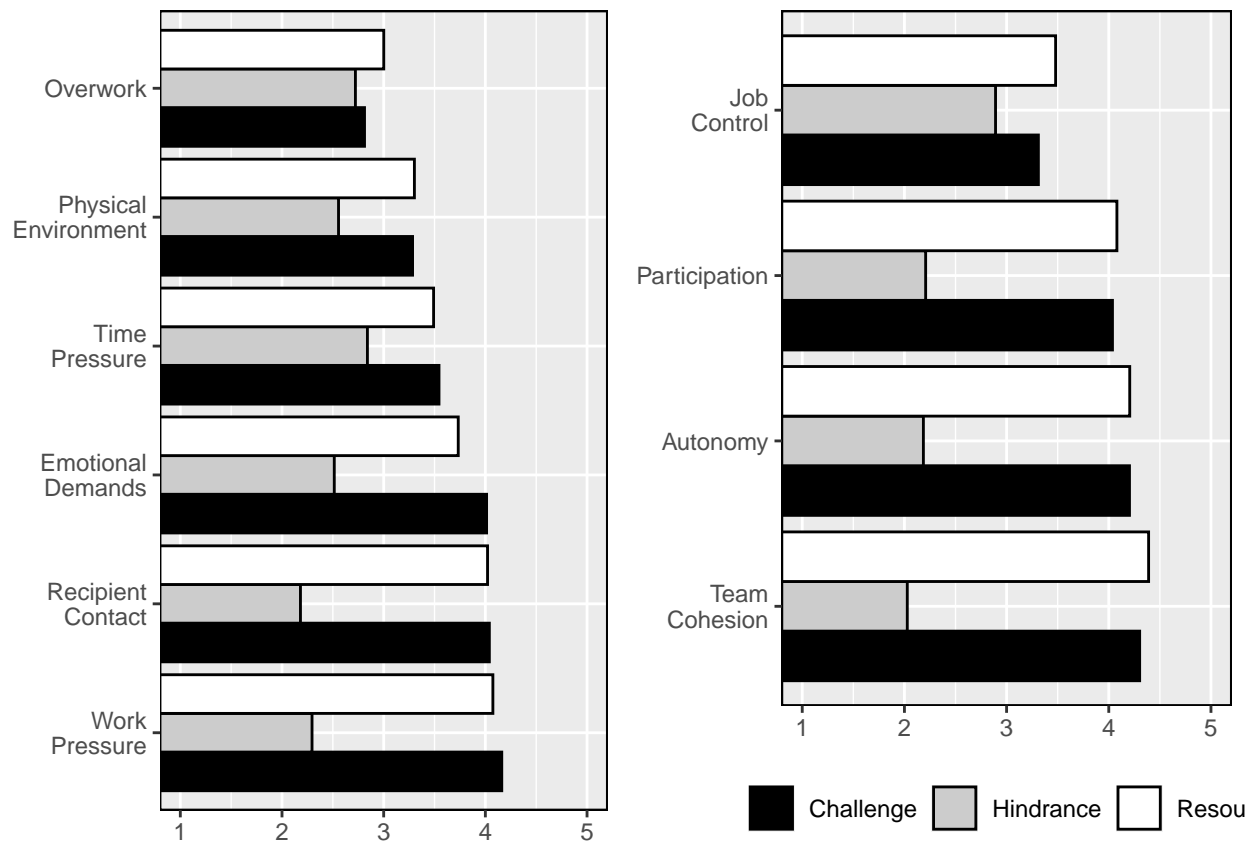sources, challenges, and demands.

Figure 4. Average characteristic rating grouped by literature-implicated categorizations.