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## **Congruency of Resources and Demands and their Effects on Staff**

### **Turnover within the English Healthcare Sector**

Please note this is the author accepted version and should be cited as:

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#### **Abstract**

This study examines, at the organizational level, the congruency between job demands and resources and their effects on staff turnover within the English healthcare sector.

Polynomial regression analyses conducted on 164 acute hospitals trusts found support for the predictions that organizations with congruent levels of resources and demands would have relatively low staff turnover whereas those with incongruent levels would have relatively high staff turnover. Overall the study indicates that individual job design should be considered within a broader organizational design perspective.

Keywords: job demands, job resources, congruency effects, staff turnover, healthcare sector

#### **Practitioner Points**

- We examined the organizational-level relationships between job demands, job resources, and staff turnover within the English healthcare sector
- Organizations comprised of many highly demanding jobs should offer higher levels of resources in order to help retain staff.
- However, some organizations may still see relatively high levels of staff turnover even after offering higher levels of resources. Conversely, some may see low levels of staff turnover, yet poor motivation and performance. Therefore influencing levels of demands rather than simply offering more resources is important in these contexts.

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## **Background**

The Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) has been widely utilized to differentiate the effects of two distinct categories of work environmental conditions, namely: job demands and resources. Demands require sustained physical and/or psychological effort, whereas, resources help the individual to achieve work goals and to learn and personally grow. In advancing the model further, Bakker and Demerouti (2007) drew on Karasek's (1998) demand-control model to argue that demands and resources interact to influence a range of employee and organizational outcomes. Although many studies have shown support for these interaction effects (e.g., Hu, Schaufeli, & Taris, 2011), they have neglected to fully examine the effects of congruency between resources and demands on organizational level outcomes, such as actual staff turnover. Given that the reasons for staff turnover are varied and complex in nature (Hom, Mitchell, Lee, & Griffeth, 2012), there is a need to establish whether the extent to which job resources and demands are congruent has implications for an organization's ability to retain its staff.

Additionally, job demands and resources also emerge as shared characteristics within the organization as they are dependent upon the occupational, environmental, and managerial context (Morgeson, Dierforff, & Hmurovic, 2010). In the case of the English healthcare sector, there are a wide range of types and sizes of hospitals and healthcare organizations; each having varying pools of resources and unique sets of work demands associated with the different needs of patients (Appleby et al., 2011). Despite the increasing awareness of the multilevel nature of job demands and resources, most studies have focused on the individual level, with a small number at a team/departmental level (Bakker & Demerouti, 2017). Given that many workplace interventions focus on organizational assessments of job demands and resources (Bakker & Demerouti, 2017) it is pertinent to verify the impact that aggregated

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demands and resources at the organizational level have on strategically relevant outcomes, such as staff turnover. Indeed, while individual perceptions of demands and resources reside within each organizational member, such perceptions have been shown to integrate at a higher level through processes such as socialization, leadership and organizational practices (Dawson, González-Romá, Davis & West, 2008; González-Romá, Fortes-Ferreira, & Peiró, 2009). Following Schneider and colleagues (1998), we, therefore, theorize that at the organizational level, job demands and resources capture shared phenomena regarding employees' collective perceptions focused on the allocation and management of workload and responsibility (i.e., demands) and the availability of necessary resources for achieving work-related goals (i.e., resources).

### **The Present Study**

In sum, the present study aims to test the joint effect of organizational level job demands and resources on staff turnover to provide further evidence for the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) and Karasek's (1998) theorizing on the congruence between demands and resources. Moreover, it addresses recent calls within the literature that propose more rigorous tests of JD-R theory, particularly using objective outcome measures and utilizing an organizational level perspective (Bakker & Demerouti, 2017). In doing so, we contribute to the literature by a) focusing on the organizational level of analysis to extend existing theoretical understanding beyond the individual and group level, b) extending existing studies that look at the effect of job demands and resources on turnover intentions through examining actual turnover, and c) using an advanced statistical analytic technique that models quadratic relationships that goes beyond traditional linear moderation analyses (see also, van Ruysseveldt & van Dijke, 2011).

### **Congruence between Job Demands and Resources**

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It would be anticipated that jobs represented by relatively high levels of demands coupled with high levels of resources provide a supportive, yet challenging work context that facilitates staff retention (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Hu et al., 2011). Therefore, organizations with a similarly high proportion of such jobs are also likely to have relatively low staff turnover. In contrast, jobs connoting low levels of both demands and resources, could lead to lost skills and lack of job challenges, which could have a negative impact on efficacy beliefs and long-term motivation, yet are unlikely to lead to people feeling compelled to actually leave (Karasek, 1998). Therefore, it is expected that organizations with a higher proportion of these jobs are also likely to have relatively low staff turnover.

### **Incongruence between Job Demands and Resources.**

It would be anticipated that jobs represented by high levels of job demands would require an individual to keep expending mental, physical, and emotional energies to meet the high levels of demands, and when coupled with low levels of resources individuals lack the opportunities to regulate or replenish those energies (Karasek, 1998). These individuals might, therefore, withdraw themselves from their job in order to protect themselves from further resource loss and degradation of their well-being/health (Hobfoll, 2011). As a result, jobs characterized by high demands/low resources show stronger turnover intentions (Chiu, Chung, Wu, & Ho, 2009). Accordingly, it is expected that organizations with a higher proportion of these types of jobs will also have higher staff turnover. The other form of incongruence is where there are low levels of demands, yet high levels of resources (Karasek, 1998). Having plentiful resources but little opportunity to mobilize them through challenging work demands is likely to cause dissonance and dissatisfaction, which could motivate those individuals to find another job that fulfills their needs for growth and mastery (Lai &

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Kapstad, 2009). If amplified at the organizational level, it is expected that organizations with a higher proportion of these jobs would likely display higher staff turnover.

Based on the theorizing above we would hypothesize<sup>1</sup>:

**Hypothesis 1:** *Along the line of congruence between job demands and resources staff turnover will be **dome-shaped**, such that as the levels of both demands and resources increase staff turnover will increase; staff turnover will then gradually flatten out and then decrease as the levels of demands and resources continue to increase.*

**Hypothesis 2:** *Along the line of incongruence (or discrepancy) between job demands and resources staff turnover will be **bowl-shaped**, such that as the levels of demands increase towards the level of resources staff turnover will decrease; staff turnover will gradually increase as the level of demands exceeds the level of resources.*

## Methods

### Setting, Procedure, and Participants

This paper focuses on 164 acute hospital trusts in England which provide similar inpatient and outpatient secondary health services. The data used was collected from two sources; the first, staff turnover rates were collected from material obtained from the NHS Information Centre (<http://www.ic.nhs.uk/>): the second, on perceived job demands and resources, was collected as part of the NHS Staff Survey ([www.nhstaffsurveys.com](http://www.nhstaffsurveys.com)). This was based on questionnaires distributed between October and December 2010 to 133,986 eligible staff members with a total of 66,500 returned across these hospitals.

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<sup>1</sup> In line with terminology used by Bashshur, Hernández and González-Romá (2011) we refer to ‘bowl’ and ‘dome’ shaped relationships as those depicting respective ‘concave’ and ‘convex’ quadratic surface plots as described by Edwards and Parry (1993)

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### Measures

#### **Independent variables.**

*Job demands* was measured by four items designed to capture the extent to which respondents felt under time pressure, experienced conflicting demands, and felt unable to do their job effectively. An example item was '*I cannot meet all the conflicting demands on my time*'. *Job resources* was measured by eight items designed to capture the extent to which respondents have clear goals, receive support, have opportunities to show initiative and have influence within their work environment. An example item was '*I have clear, planned goals and objectives for my job*'. All items were rated on a 5-point Likert scale (1 = '*strongly disagree*', 5 = '*strongly agree*') and used the direct consensus approach (Wallace et al., 2016). Exploratory factor analyses were performed finding two separate factors for job demands and resources. As our analysis was conducted at the organizational level we calculated ICC(2) (Bliese, 2000) and  $r_{wg(j)}$  (James, Demaree, & Wolf, 1993) values. The ICC(2) values for job demands (.85) and job resources (.81), and the mean  $r_{wg(j)}$  values for job demands (.74) and job resources (.88) were all satisfactory thereby supporting data aggregation.

#### **Dependent variable.**

*Staff turnover* was based on a headcount of leavers during a three month period before ( $M = 3.12\%$ ; range = 1.61% to 5.75%), and after ( $M = 2.39\%$ ; range 1.06% to 4.32%) the NHS staff survey was conducted. However, it was not possible to identify the reason *why* staff turnover had occurred.

#### **Control variables.**

We controlled for prior turnover rates in each hospital, as well as location, type, and size of hospital where respondents worked, given that these factors have been shown to impact hospital outcomes.

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*Table 1 about here*  
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*Table 2 about here*  
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### Results

In Table 1, we report the descriptive statistics and correlations. In Table 2 we report details of polynomial regression analysis<sup>2</sup> (Edwards & Parry, 1993) with all variables mean centered. Control measures were entered into ‘Model One’ of the regression equation. There was no evidence of a linear effect ( $R^2$  change was non-significant in ‘Model Two’), but the quadratic effects accounted for an additional 4.9% of the variance ( $p < .05$ ) in ‘Model Three’. We next used the response surface methodology to plot the lines of congruence and incongruence. Figure 1 shows job demands on the X-axis; job resources on the Y-axis; and staff turnover on the Z-axis.

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*Insert Figure 1 about here*  
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*Insert Table 3 about here*  
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<sup>2</sup> Polynominal regression models a non-linear (i.e. quadratic) relationship between  $X$  (in this case job demands) and  $Y$  (in this case job resources). The first stage tests whether the quadratic effect accounts for a significant amount of additional variance in  $Z$  (in this case turnover). The second stage examines the shape of the surface plots between  $X$ ,  $Y$ , and  $Z$  using response surface methodology. For more details of the analytic method see Edwards and Parry (1993)



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To test Hypothesis 1, we explored the shape of the surface along the  $X = Y$  line (e.g. from the nearest to the furthest corner). The curvature of the surface along the  $X = Y$  line is represented by  $(a_2 = b_3 + b_4 + b_5)$ , and the slope of the surface by  $(a_1 = b_1 + b_2)$ . If staff turnover increases in a **linear** relationship from the nearest corner to furthest corner, the slope would be positive along the  $X = Y$  line and would have no curvature, such that the slope  $(a_1 = b_1 + b_2)$  would be positive and the curvature  $(a_2 = b_3 + b_4 + b_5)$  would not differ from zero. Table 3 shows that the slope of the line did not differ from zero (slope =  $-.192$ , *n.s.*); however, the curvature was negative (curvature =  $-26.092$ ,  $p = .058$ ) which supports Hypothesis 1.

To test Hypothesis 2 regarding the incongruence between job demands and resources we explored the shape of the surface along the  $X = -Y$  line (e.g. from the left to the right corner). On the left side of the surface, resources exceed demands and on the right side, demands exceed resources. The curvature of the surface along the  $X = -Y$  line is represented by  $(a_4 = b_3 - b_4 + b_5)$ , and the slope by  $(a_3 = b_1 - b_2)$ . Table 3 shows that the slope of the line did not differ from zero (slope =  $-.583$ , *n.s.*); however, the curvature was positive (curvature =  $9.286$ ,  $p < .05$ ) which supports Hypothesis 2.

### Discussion

Our study shows that staff turnover rates are lowest where there is congruence between job demands and resources at either low levels or high levels. Additionally, staff turnover is highest where there is incongruence between job demands and resources. Importantly a high proportion of jobs characterized by low demands/low resources appears to elicit high levels of retention, yet such a combination is unlikely to optimize motivation, performance, or well-being (Bakker & Demerouti, 2007; Karasek, 1998; van Ruysseveldt & van Dijke, 2011). Therefore, an organization may not be outwardly concerned by low levels of turnover, yet there could be underlying ‘hidden’ issues with the design and management of work. In

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contrast, a high proportion of jobs characterized by low demands/high resources jobs may result in higher levels of turnover. This suggests that although such jobs have plentiful resources, individuals may not be able to fully utilize these in a way that makes them want to stay with the organization (cf. Lai & Kapstad, 2009).

Contemporary models of turnover highlight that the decision to leave is a time-based process that is influenced by a range of motivational and contextual ‘forces’ which indirectly lead to turnover through eliciting proximal withdrawal states, i.e. a desire to leave, and reactions, such as dissatisfaction (Hom et al., 2012). Therefore, there is a need to understand how wider contextual factors may also impact on the relationships between resources/demands and turnover. Within the public healthcare sector, staff may choose to remain even when faced with low levels of demands because they feel ‘motivated’ to stay by intrinsic forces, such as public service motivation that provides a strong sense of person-organization fit (Bright, 2008). In contrast, staff within the public healthcare sector may choose to leave even when faced with high levels of resources because they may be ‘coerced’ by extrinsic forces, such as a desire to retrain or increased family responsibilities (Estryn-Behar, van der Heijden, Fry, & Hasselhorn, 2010). These are interesting avenues to explore in future research given the changing political and institutional context of public healthcare (Torchia, Calabrò, & Morner, 2015).

To conclude, we examined demands, resources, and turnover at the organizational level, which contributed, empirically, towards understanding of the multilevel nature of J D-R theory (Bakker & Demerouti, 2017). However, we could not fully compare different turnover categories, different levels, or longitudinal relationships, and so it would be important to explore how demands and resources within distinct teams may change over time, and whether these could influence specific staff turnover categories. Variability in demands and resources (i.e., climate strength) also provides an interesting avenue for future research.

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Table 1

*Means, standard deviations, and intercorrelations of study variables*

		<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1	Location <sup>a</sup>	0.17	0.38						
2	Teaching status <sup>b</sup>	0.24	0.43	.12					
3	Size <sup>c</sup>	4.30	2.48	-.07	.50**				
4	Job Demands	3.05	0.11	-.25**	-.15 <sup>†</sup>	.10			
5	Job Resources	3.39	0.08	.29**	.14 <sup>†</sup>	-.25**	-.58**		
6	Prior turnover	3.12	0.75	.28**	-.05	-.22**	.14 <sup>†</sup>	.13 <sup>†</sup>	
7	Turnover	2.39	0.59	.44**	.00	-.23**	-.14 <sup>†</sup>	.27**	.45**

*Notes.* <sup>a</sup> location: 1= London, 0 = non-London; <sup>b</sup> Teaching status: 1 = teaching 0 = non-teaching; <sup>c</sup> size: 0000s; <sup>†</sup>

$p < .10$ , \*  $p < .05$ , \*\*  $p < .01$

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Table 2

*Polynomial regression analysis for job demands and resources predicting staff turnover rates*

	Change R <sup>2</sup>	B
<b>Model One</b>	<b>.328**</b>	
Prior turnover		.25 (.05)**
Location <sup>a</sup>		.51 (.11)**
Teaching status <sup>b</sup>		.08 (.10)
Size <sup>c</sup>		-.04 (.02)
<b>Model Two</b>	<b>.011</b>	
Job Demands (b <sub>1</sub> )		-.32 (.45)
Job Resources (b <sub>2</sub> )		.51 (.60)
<b>Model Three</b>	<b>.049**</b>	
Job Demands squared (b <sub>3</sub> )		-1.36 (3.50)
Job Resources x Job Demands (b <sub>4</sub> )		-17.69 (6.95)**
Job Resources squared (b <sub>5</sub> )		-7.04 (5.32)

*Notes.* <sup>a</sup> location: 1= London, 0 = non-London; <sup>b</sup> Teaching status: 1 = teaching 0 = non-teaching; <sup>c</sup> size: 0000s; coefficients reported are unstandardized regression coefficients (standard errors in parentheses); †  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$



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Table 3

*Shape and curvature of the response surface along the lines of interest for job demands and resources*

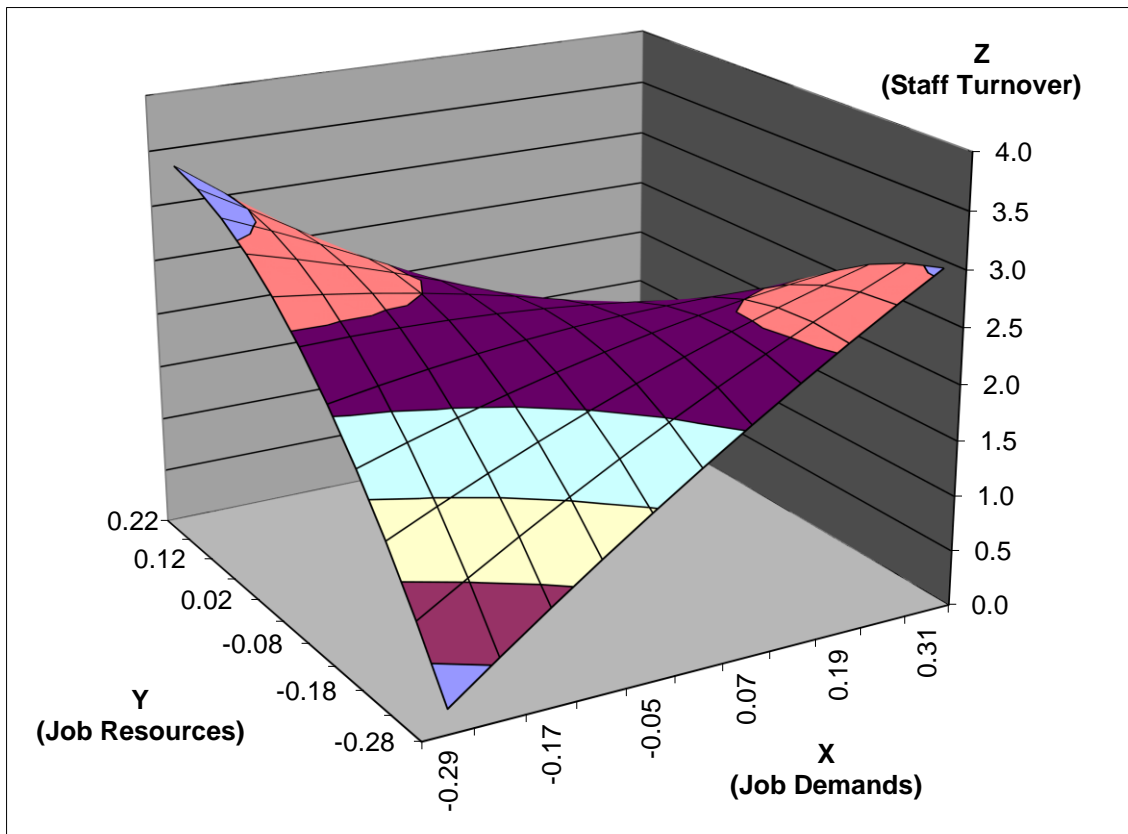
Slope and curvature of response surface lines of interest	
<b>X = Y line (Job Demands = Job Resources)</b>	
Slope ( $a_1 = b_1 + b_2$ )	-.19 (.95)
Curvature ( $a_2 = b_3 + b_4 + b_5$ )	-26.09 (13.63) <sup>†</sup>
<b>X = -Y line (Job Demands = - Job Resources)</b>	
Slope ( $a_3 = b_1 - b_2$ )	-.58 (.52)
Curvature ( $a_4 = b_3 - b_4 + b_5$ )	9.29 (3.82)*

*Notes.* The coefficients are computed from  $b_1$ ,  $b_2$ ,  $b_3$ ,  $b_4$ , and  $b_5$  coefficients as obtained in Model Three (the third step of the hierarchical regression equation for which  $b_1$  and  $b_2$  are not reported in Table 2). (Standard errors in parentheses.); <sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$

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Figure 1.

Estimated surface plot for job demands and job resources predicting staff turnover rates



Notes. Values shown in the figure represent the minimum and maximum score for job demands (-.29 and .31) and resources (-.28 and .22) around the mean score.