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The role of personality in the job demands-resources model

A study of Australian academic staff

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Abstract

Purpose – The central aim of this study is to incorporate two core personality factors (neuroticism and extroversion) in the job demands-resources (JD-R) model.

Design/methodology/approach – It was hypothesized that neuroticism would be most strongly related to the health impairment process, and that extroversion would be most strongly related to the motivational process. The hypotheses were tested in a sample of 3,753 Australian academics, who filled out a questionnaire including job demands and resources, personality, health indicators, and commitment.

Findings – Results were generally in line with predictions. Structural equation modeling analyses showed that job demands predicted health impairment, while job resources predicted organizational commitment. Also, neuroticism predicted health impairment, both directly and indirectly through its effect on job demands, while extroversion predicted organizational commitment, both directly and indirectly through its effect on job resources.

Research limitations/implications – These findings demonstrate the capacity of the JD-R model to integrate work environment and individual perspectives within a single model of occupational wellbeing.

Practical implications – The study shows that working conditions are related to health and commitment, also after controlling for personality. This suggests that workplace interventions can be used to take care of employee wellbeing.

Originality/value – The paper contributes to the literature by integrating personality in the JD-R model, and shows how an expanded model explains employee wellbeing.

Keywords Academic staff, Personal health, Personality, Organizational culture, Australia, Job satisfaction

Paper type Research paper

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The job demands-resources (JD-R) model (Bakker and Demerouti, 2007; Demerouti *et al.*, 2001) has proven useful in explaining occupational wellbeing. It proposes that:

- job characteristics can be classified as demands or resources; and
- job demands and resources influence wellbeing through separate processes.

The model has been applied to human service professionals from various occupations (e.g. Bakker *et al.*, 2004; Van Emmerik *et al.*, 2009). The present study applied it to academics. Another aim was to incorporate two personality traits:

(1) neuroticism; and

(2) extroversion.

These traits have been identified as correlates of psychological wellbeing in work and non-work settings. However, few studies have integrated both personality and situational factors within a single theoretical framework. The JD-R model allows such integration and guided the present study.

The JD-R model

According to Demerouti *et al.* (2001) and Bakker and Demerouti (2008), job demands require sustained effort, and are associated with physiological or psychological costs. In contrast, job resources reduce demands and facilitate achievement of work goals. Resources are assumed to promote motivation and commitment (motivational hypothesis) while excessive demands may lead to impaired health and strain via energy depletion (health impairment hypothesis) (Bakker *et al.*, 2003; Demerouti *et al.*, 2009).

There is support for the principal pathways proposed by the model. Job demands have been related to depression, poor physical health, substance abuse and psychological distress (Bruck *et al.*, 2002). Similarly, job resources have been associated with motivation, including organizational commitment and job involvement (Bakker *et al.*, 2003). Specifically, job control, perceived fairness, and trust in management have been positively related to organizational commitment (Winefield *et al.*, 2008). On the basis of the JD-R model, we formulated the first two hypotheses:

H1. Job demands are positively related to health impairment (de-energizing hypothesis).

H2. Job resources are positively related to organizational commitment (motivational hypothesis).

As well as supporting the principal pathways in the model, Bakker *et al.* (2003) showed a direct, negative relationship between resources and health impairment. Although the relationship was weaker than that between demands and health impairment. Demands play a primary role by depleting energy and imposing strain, while resources play a secondary role by buffering the effects of demands.

Consequently, a third pathway was included in the model, leading to the next two hypotheses:

H3. Job resources are negatively related to health impairment.

H4. The relationship between resources and health impairment is weaker than the relationship between demands and health impairment.

Incorporating personality into the JD-R model

Neuroticism and, to a lesser extent, extroversion have been shown to correlate with aspects of occupational wellbeing including psychological distress (Hart *et al.*, 1995) and job satisfaction (Judge *et al.*, 2002). High neuroticism is related to negative affect, emotional instability and inability to cope with stress and pressure, whereas high extroversion is related to positive affect, sociability, optimism and personal energy (Costa and McCrae, 1992). This has led some to propose separate pathways, linking neuroticism to negative aspects of occupational wellbeing, and extroversion to positive outcomes.

Neuroticism has been hypothesized to influence work-related strain both directly and indirectly through its influence on workplace perceptions. In the former case the effect is thought to arise because of a heightened vulnerability to aversive stimuli and the effects of stress, while in the latter case, individuals high in neuroticism are thought to appraise certain work situations as threatening because they are more susceptible to anxiety-inducing environmental cues, and/or tend to view the world negatively (Spector *et al.*, 2000).

Both cross-sectional and longitudinal findings from the work-stress literature support a direct relationship between neuroticism and health outcomes while evidence of an indirect relationship is supported by correlations between neuroticism and perceptions of workplace conditions reported by Hart *et al.* (1995), who identified a negative pathway from neuroticism to psychological strain via negative workplace perceptions. Accordingly, Hypotheses 5 and 6 were formulated:

H5. Neuroticism is directly, positively related to health impairment.

H6. Neuroticism is directly, positively related to job demands.

Like neuroticism, extroversion is assumed to influence occupational wellbeing, both directly and indirectly through its influence on perceived workplace conditions. Thus, it was hypothesized that extroverts are disposed, not only to experience more positive emotional states generally, but also to perceive their working conditions more positively than introverts. Perhaps extroverts attract more favorable working conditions (e.g. social support), are more attuned to reward and reinforcement cues and/or may appraise ambiguous situations as more rewarding and challenging than introverts.

Extroversion has been shown to have direct effects on occupational wellbeing (Judge *et al.*, 2002). Moreover, Hart *et al.*'s (1995) finding of an effect of extroversion on positive workplace perceptions suggests a pathway from extroversion to occupational wellbeing via positive workplace perceptions. This leads to Hypotheses 7 and 8:

H7. Extroversion is directly, positively related to organizational commitment.

H8. Extroversion is directly, positively related to job resources.

Health impairment and organizational commitment

Bakker *et al.* (2004) proposed a further (negative) pathway in the model, linking health impairment to organizational commitment: when people are "run down" they attempt to cope by limiting their efforts to support organizational outcomes. Thus, health impairment (e.g. exhaustion) reduces job commitment thereby conserving health. In

support, Bakker *et al.* (2004) found a positive relationship between "exhaustion" (health impairment) and "disengagement" (low commitment). This leads to our final hypothesis:

H9. Health impairment is negatively related to organizational commitment.

The context of the present study: occupational wellbeing in academic staff

Our investigation of the expanded JD-R model within an academic context formed part of a nationwide investigation of occupational stress in Australian university staff (Gillespie *et al.*, 2001; Winefield *et al.*, 2003, 2008). During recent decades universities in many countries have undergone important changes that have profoundly affected the working life of academics. These changes include: reductions in government funding, the introduction of managerial-style leadership with its emphasis on efficiency and effectiveness and increased student numbers and staff downsizing, leading to higher student-staff ratios.

Consequently, academics have experienced increased teaching loads, added administrative duties and increased pressure to secure research funding. Not surprisingly, they have reported high levels of occupational stress (Biron *et al.*, 2008; Winefield *et al.*, 2008) and are therefore especially suitable for an investigation of an expanded JD-R model. Figure 1 shows the proposed model.

Method

Procedure

Drawing on a qualitative study of occupational stress in 15 universities (Gillespie *et al.*, 2001) the following job demands and job resources were identified as being particularly important. Job demands included work-home conflict and work pressure, whereas job resources included workplace autonomy, trust in head of department, trust in senior

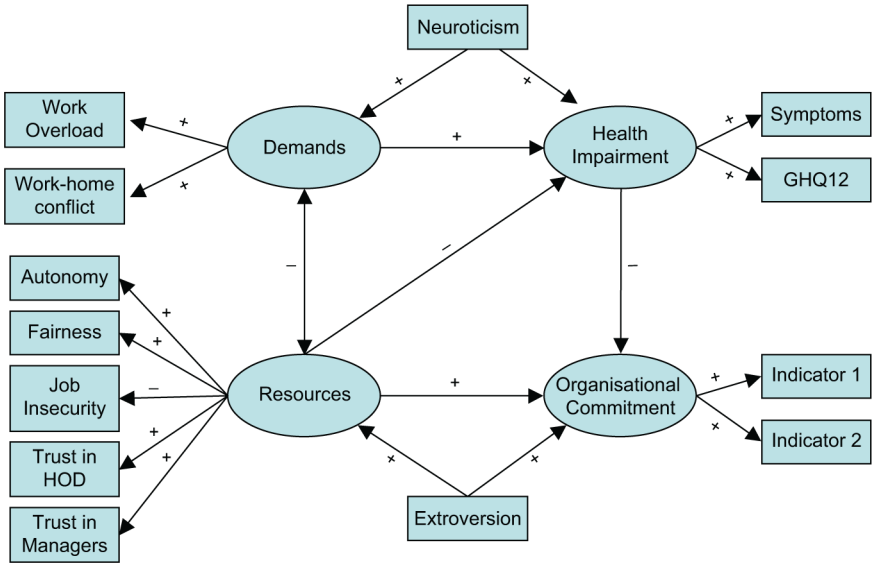

Figure 1.
Proposed extension of JD-R model incorporating job demands, job resources, neuroticism and extroversion

management, procedural fairness and job security. These factors were examined in relation to their respective influence on the health impairment and organizational commitment of university staff. A questionnaire was subsequently designed to assess these factors, as well as personality, and was distributed to university staff via internal mail. Pre-addressed reply-paid envelopes were supplied to enable participants to return the questionnaire directly to the research team. The 3,753 respondents represented a response rate of 25 percent.

Participants

Participants consisted of tenured and contract academic staff from 17 universities across Australia who answered anonymous questionnaires (Winefield *et al.*, 2003). Of the 3,753 respondents, 3,117 (83 percent) provided usable data, and of these, 1,864 (60 percent) identified themselves as male and 1,185 (38 percent) as female (68 did not disclose their sex). These proportions were similar to the corresponding percentages in the general academic population in Australia (57 percent male, 43 percent female). Average age was 45.85 years (SD = 9.49) while average length of tenure was 10.44 years (SD = 8.59 years). Appointment levels (in increasing seniority) were: associate lecturer, $n = 326$ (10.5 percent); lecturer, $n = 948$ (30.4 percent); senior lecturer, $n = 891$ (28.6 percent); associate professor, $n = 379$ (12.2 percent); professor, $n = 265$ (8.5 percent); and "other", $n = 64$, (2.1 percent). A further 244 did not disclose their appointment level.

Measures

Demographic information (date of birth, gender, etc.) was included in the data analysis. The measures listed below all had internal reliabilities between 0.70 and 0.96 (Cronbach's alpha), indicating acceptable reliability.

Personality

Neuroticism and extroversion. Neuroticism (N) and extroversion (E) were assessed with 12 items each using the NEO-Five Factor Inventory (NEO-FFI; Costa and McCrae, 1985). Sample items are: "I often feel inferior to others" (N); "I like to have a lot of people around me (E) (1 = strongly disagree, 5 = strongly agree).

Job demands

Work overload. Three items from Beehr *et al.*'s (1976) work pressure scale assessed work overload. A sample item is "I'm rushed in doing my job" (1 = Definitely false, 4 = Definitely true).

Work-home conflict was measured using three items from Frone and Yardley's (1996) scale, including "My family dislikes how often I am preoccupied with my work while I am at home" (1 = Strongly disagree, 5 = Strongly agree).

Job resources

Job security. Four items were drawn from Ashford *et al.*'s (1989) measure of job insecurity. A sample item is "How likely is it that you will be moved to a different department?" (1 = Very unlikely, 5 = Very likely). All scores on the items were reversed and then summed to form one overall score for job security.

Trust in head of department was assessed using an eight-item scale adapted from Mayer and Davis (1999) and Butler (1991). The scale assessed staff perceptions of the level of integrity, competence and concern for staff, shown by their head of department. An example is "My head of department/school/unit deals honestly with staff" (1 = Strongly disagree, 5 = Strongly agree).

Trust in senior management was measured using a similar scale, except the phrase "My head of department" was replaced with "senior management".

Workplace autonomy. A nine-item measure, drawn from the Moos Work Environment Scale autonomy sub-scale (Moos and Insel, 1974) was used. A sample item is "Staff are encouraged to make their own decisions" (1 = Strongly disagree, 5 = Strongly agree).

Procedural fairness. An eight-item scale developed from focus group discussions (Gillespie *et al.*, 2001) asked staff to rate the fairness of performance appraisal, appointment, promotion and redundancy procedures in their workplace. A sample item is: "Promotions procedures are fair" (1 = Strongly disagree, 5 = Strongly agree).

Health impairment

Stress-related symptoms and psychosomatic complaints. Staff were asked to report the frequency with which they suffer from each of 11 physical symptoms (e.g. headaches, muscle pain, breathing difficulties) that have been correlated with stress in previous research (1 = Never/hardly ever, 5 = All/nearly all the time).

Psychological strain. The 12-item version of the General Health Questionnaire (GHQ-12: Goldberg and Williams, 1988) was used to assess psychological strain. An example is: "Have you recently felt constantly under strain?" (0 = Not at all, 3 = Much more than usual).

Organizational commitment was assessed with Porter *et al.*'s (1974) six-item measure. An example item is: "I am willing to put in a great deal of effort beyond that normally expected in order to help this university be successful" (1 = Strongly disagree, 5 = Strongly agree).

Data analyses

Data were checked for skewness and kurtosis. Because workload was negatively skewed, a reflected logarithmic transformation was carried out. Descriptive statistics, internal reliabilities and bivariate correlations were then calculated. Finally, data were analyzed by means of structural equation modeling (SEM), using the maximum likelihood method of estimation. The AMOS software package (Arbuckle, 2003) was used to carry out SEM, and maximum likelihood estimates were used as input.

To enable cross-validation of results, the total sample ($n = 3{,}117$) was split into three random groups of $n = 1{,}039$ each. The hypothesized model was tested with SEM using the data of one group. The results were then cross-validated with multi-group analyses using data of the two other groups. Several nested models were compared by means of the chi-square difference test (Jöreskog and Sörbom, 1993). Besides the chi-square statistic, the analysis assessed the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the Tucker-Lewis index (TLI).

As Figure 1 shows, "job demands" was included in the model as a latent factor with work overload and work-home conflict as the indicators. "Job resources" was included

as a latent factor with job security, fairness, autonomy, trust in senior management, and trust in heads of department as the indicators. Health impairment was the third latent factor, with two indicators, health symptoms and psychological strain (GHQ12). Commitment was indicated by two reliable halves of the organizational commitment scale. Finally, neuroticism and extroversion were included as manifest variables in the model. The hypothesized model includes the paths displayed in Figure 2.

Results

Table I shows summary data. All variables have satisfactory reliabilities, with Cronbach alphas from 0.70 to 0.96. Zero-order correlations suggested moderate relationships between several predictors and outcomes. Thus, neuroticism and work-home conflict were both correlated with psychological strain ($r = 0.45$ and $r = 0.38$) and physical health symptoms ($r = 0.44$ and $r = 0.47$), while fairness and trust in senior management were both correlated with organizational commitment ($r = 0.50$ and $r = 0.44$). These correlations were all significant ($p < 0.001$). However, some weak correlations (e.g. between work-home conflict and organizational commitment, $r = 0.04, p < 0.05$) were also significant because of the large sample size used in this investigation. Preliminary analyses revealed that demographic variables (gender, level of appointment) were not substantially related to the model components, and did not significantly affect the results in the structural equation model. Demographic variables were therefore omitted from further analyses.

Test of the extended JD-R model

The results of the initial random sample indicated a reasonable fit of the model to the data (Table II). The AMOS-output revealed that job demands ($\beta = 0.50, p < 0.001$) and neuroticism ($\beta = 0.49, p < 0.001$) were both positively related to health impairment (see also Figure 2). In addition, job resources ($\beta = 0.61, p < 0.001$) and extroversion ($\beta = 0.27$, $p < 0.001$) were both positively related to organizational commitment. Job

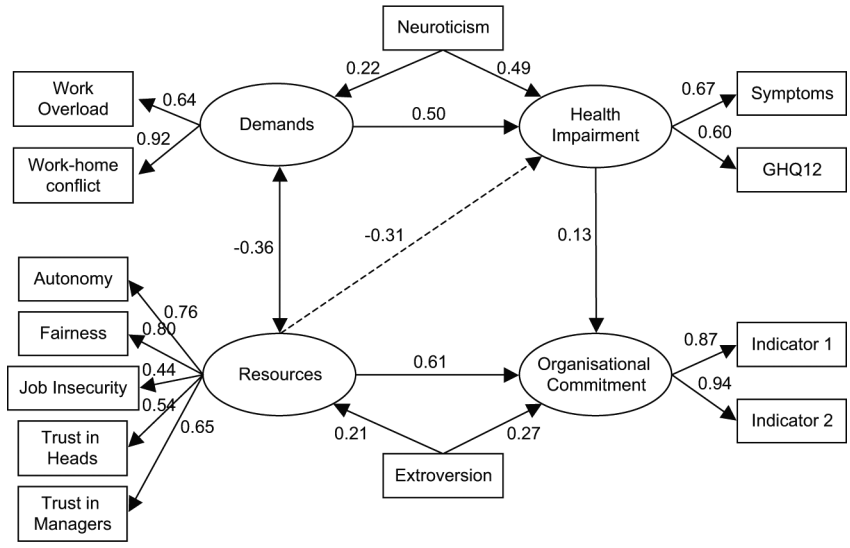

Figure 2.
Results of SEM analyses (path coefficients) of proposed JD-R model: initial random sample

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
Personality														
1 Neuroticism	30.7	7.9	(0.87)											
2 Extroversion	40.3	6.2	−0.43**	(0.80)										
Job demands														
3 Work overload	10.2	1.7	0.11**	0.02	(0.79)									
4 Work-home conflict	11.1	2.9	0.23**	0.01	0.62**	(0.86)								
Job resources														
5 Lack of job security	10.2	3.6	0.23**	−0.12**	0.12**	0.19**	(0.72)							
6 Trust in heads	26.3	8.7	−0.11**	0.02*	−0.07**	−0.14**	−0.25**	(0.96)						
7 Trust in senior management	19.0	7.3	−0.12**	0.12**	−0.22**	−0.21**	−0.25**	0.23**	(0.96)					
8 Autonomy	27.4	5.0	−0.13**	0.10**	−0.18**	−0.20**	−0.28**	0.42**	0.42**	(0.70)				
9 Fairness	22.9	5.7	−0.17**	0.09**	−0.15**	−0.20**	−0.35**	0.49**	0.57**	0.53**	(0.84)			
Wellbeing outcomes														
10 GHQ − 12	13.8	6.0	0.45**	−0.18**	0.24**	0.38**	0.30**	−0.22**	−0.23**	−0.28**	−0.29**	(0.90)		
11 Physical health symptoms	5.3	2.6	0.44**	−0.15**	0.28**	0.47**	0.30**	−0.23**	−0.21**	−0.23**	−0.30**	0.44**	(0.84)	
12 Organizational commitment	19.7	4.6	−0.15**	0.28**	−0.06**	−0.04*	−0.21**	0.23**	0.50**	0.38**	0.44**	−0.21**	−0.15**	(0.84)

Notes: $^{*}p < 0.05$, $^{**}p < 0.01$; $n = 3{,}007$-3,098

Table I.
Means, standard deviations, intercorrelations and reliabilities of the scales used in this study

Model	χ^2	df	GFI	RMSEA	NNFI	CFI
Test of model on first sample ($n = 1{,}039$)						
M1. Proposed JD-R model	312.83	57	0.96	0.07	0.93	0.95
M2. Alternative model	304.31	55	0.96	0.07	0.93	0.95
M3. Alternative model	267.88	55	0.96	0.06	0.94	0.96
Null model	4859.12	78	0.47	0.24		
Multi-group analyses ($n = 2{,}078$)						
M1. Proposed JD-R model	712.87	114	0.95	0.05	0.91	0.93
M2. Alternative model	699.63	110	0.95	0.05	0.91	0.94
M3. Alternative model	626.13	110	0.96	0.05	0.92	0.94
Null model	1298.69	156	0.50	0.17		

Table II.
Results of SEM-analyses for the job demands-resources model: goodness-of-fit indices (maximum likelihood estimates)

Notes: χ^2 = Chi-square; df = Degrees of freedom; GFI = Goodness-of-fit index; RMSEA = Root mean square error of approximation; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; M2 = Alternative model, including paths from neuroticism to organizational commitment, and extroversion to health complaints; M3 = Alternative model, including paths from neuroticism to job resources, and extroversion to job demands

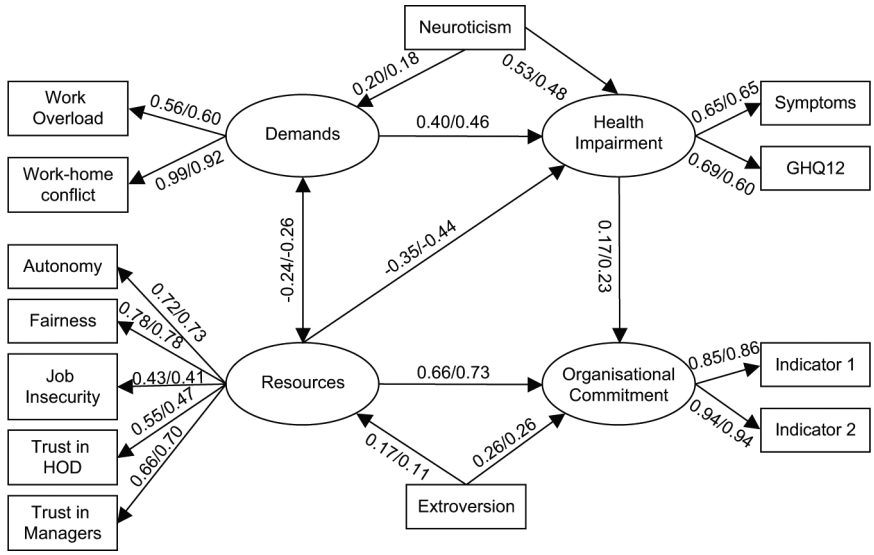

Figure 3.
Results of SEM analyses (path coefficients) of proposed JD-R model: cross-validation samples

resources were negatively related to health impairment ($\beta = -0.31, p < .001$), indicating that academics with more job resources reported fewer health complaints. However, the critical ratio (CR) for differences between parameters indicated that, as predicted, the relationship between job demands and health complaints was stronger than the relationship between job resources and health complaints (CR $= -14.15, p < 0.001$).

Also, as predicted, academics high in neuroticism reported more job demands (work overload, work-home conflict), whereas academics high in extroversion reported more job resources (autonomy, job security, fairness and trust in managers and heads of department).

There was also support for the hypothesized indirect effects. The indirect effect of neuroticism on health impairment was 0.11, while that of extroversion on organizational commitment was 0.13. Since both effects exceeded 0.10, they may be regarded as significant. The total effect of neuroticism on health impairment (direct plus indirect) was 0.60, while that of extroversion on commitment was 0.40.

Finally, *H9*, stating that academics with more health complaints would express lower organizational commitment was rejected by the results of the first SEM-analyses. Unexpectedly, the standardized regression weight was relatively low, and *positive,* $\beta = 0.13$. This might indicate a suppressor effect (Maassen and Bakker, 2001), since the raw correlations between organizational commitment and health complaints were negative (Table I). Finally, the relationship between demands and resources was negative (modeled as the covariation between the errors: -0.36).

These findings supported *H1*-H8, but not *H9*. The model explained 84 percent of the variance in health complaints and 42 percent of the variance in commitment.

As a further test, an alternative model (M2) was developed, which included additional paths from neuroticism to commitment and from extroversion to health complaints. This model also fit the data (Table II). The chi-square test indicated that the alternative model fit the data even better than the proposed model, $\Delta\chi^2(2) = 8.52, p(0.01$. However, most fit indices were not affected by the inclusion of the two paths. In addition, the standardized coefficient of the path between neuroticism and commitment was low ($\beta = -0.14, p < 0.01$) and the coefficient of the path between extroversion and health complaints was non-significant ($\beta = 0.04$, $t = 1.03$), (Figure 2).

Another alternative model (M3) included paths from neuroticism to job resources and from extroversion to job demands. These inclusions had a stronger influence on the model fit (Table II), and the alternative model fit the data significantly better than the proposed model, $\Delta\chi^2$ (2) = 44.95, $p < 0.001$. The relationship between neuroticism and job resources was $\beta = -0.21$ ($t = 5.59$, $p < 0.001$), and the relationship between extroversion and job demands was $\beta = 0.15$ ($t = 4.24$, $p < 0.001$). It should be noted that the inclusion of the alternative paths hardly influenced the hypothesized relationships, with one exception. Only the path from extroversion to job resources was reduced to $\beta = 0.10$, after inclusion of the neuroticism-job resources path.

Cross-validation

The results of the first SEM-analyses were cross-validated by using the data of the two other groups of academics (both $n = 1{,}037$). Table II shows the hypothesized model fit well to the data of the other groups. Figure 3 shows that job demands and neuroticism were again positively related to health complaints. In addition, job resources and extroversion were both positively related to organizational commitment. Job resources were also significantly and negatively related to health. Again, the critical ratios (CRs) indicated that for both groups the relationship between job demands and health impairment was significantly stronger than the relationship between job resources and health (Group 1: CR = -13.16, $p < 0.001$; Group 2: CR = -14.15, $p < 0.001$). However, it should be noted that in both groups, and in contrast to the initial random sample, the sizes of the beta weights for resources (-0.35 and -0.44) were comparable with those for demands (0.40 and 0.46).

The relationships between neuroticism and job demands, and between extroversion and job resources, were positive and significant for both groups, giving partial support to *H6* and *H8*. However, the indirect effect of neuroticism on health impairment was only 0.08 for both groups, while the effect for extroversion on organizational commitment was 0.11 for Group 1 but only 0.08 for Group 2. Despite this apparent absence of clear indirect effects, the total effect of neuroticism on health impairment was still high in both groups (0.61 and 0.56, respectively), while again, the total effect of extroversion on commitment was somewhat lower (0.37 and 0.34).

Finally, *H9*, that academics with more health complaints would report lower organizational commitment, was rejected by the multi-group analysis. The standardized regression weight was again positive for both groups, suggesting a suppressor effect. Finally, the relationship between demands and resources was negative. The model explained 75 percent and 84 percent of the variance in health impairment for the first and second group of academics respectively, and 45 percent and 47 percent of the variance in organizational commitment.

Discussion

The present results add further support to the flexibility of the JD-R model (Bakker and Demerouti, 2007, 2008) for investigating occupational wellbeing. As predicted, job demands were strongly related to health impairment whereas job resources were strongly related to organizational commitment. Academics experiencing high levels of work overload and work-home conflict, were more likely to experience physical and/or mental health impairment. Furthermore, staff reporting high levels of trust in heads of department and senior management, autonomy and fairness in university procedures, together with low levels of job insecurity, were more committed to their organization. These results point to the importance of reasonable workloads and adequate resources in maintaining staff wellbeing.

Job resources were also related to health impairment; however, there was only qualified support for the prediction that resources would exert a weaker effect than demands, since this was so only for the initial random sample. In the cross-validation samples differences in effect sizes between demands and resources were small.

Overall, the differences in the effects of demands and resources on health impairment in the present study were smaller than those reported by Bakker *et al.* (2003), whose investigation of call-centre workers showed that the effect of demands on health problems was more than twice that of job resources. This partial discrepancy between the two sets of results may be due to differences in the types of variables used to indicate resources. In Bakker *et al.*, the highest-loading indicators were supervisory coaching and performance feedback, while in the present study they were procedural fairness, autonomy and trustworthiness of senior management.

Given the documented links between perceptions of workplace injustice and negative emotions such as anger and hostility, it could be that perceived procedural unfairness, together with low levels of autonomy, and high levels of mistrust of senior management may have promoted feelings of resentment and frustration, leading ultimately to increased psychological strain and poor health. Given the high level of funding cuts facing Australian universities at that time, this appears a plausible explanation of the relatively strong links between resources and health impairment.

Importantly, the relationships among the core variables in the JD-R model were significant and substantial, even after controlling for personality. These relationships imply that workplace level, rather than just individual level interventions should be effective in improving academics' wellbeing, regardless of neuroticism or extroversion. They suggest that interventions designed to reduce individual workloads and the impact of work demands on home life should help limit health impairment, while interventions designed to improve trust in management, perceived fairness and perceived autonomy should lead to increases in organizational commitment and reductions in health impairment.

Regarding interventions, one way to reduce the impact of workplace demands would be to employ more staff (a resource), thus reducing individual workloads (a demand). However, given the financial situation of many Australian universities, this seems unrealistic. However, the association between perceived procedural fairness and trust in management, suggests that simple interventions might improve employee commitment.

Although work-related characteristics were strongly related to occupational wellbeing, neuroticism and extroversion were also important. Neuroticism directly predicted health impairment, while extroversion directly predicted commitment. Overall, and across all three samples, the direct effects of neuroticism on health impairment were greater than those of extroversion on commitment.

These results are consistent with Hart *et al.*'s (1995) showing the direct effect of neuroticism on psychological distress was stronger than the direct effect of extroversion on wellbeing. This provides further evidence of the links between neuroticism and psychological distress and suggests the need to tailor interventions at the individual, not just the workplace, level. It might also be appropriate to help vulnerable employees develop coping skills.

H9, proposing a negative pathway from health impairment to commitment, was the only one not supported. This contrasts with Bakker *et al.* (2004), which showed a negative relationship between exhaustion and commitment. Further research is required allowing for possible suppressor variables.

Strengths, limitations and future research

The main strength of this study was the use of a large, representative sample, which allowed sophisticated statistical methods to test a new theory not previously applied to this population. The use of cross-validation and the incorporation of personality measures were additional strengths.

One limitation was the cross-sectional design, which precluded causal conclusions. Although personality is relatively stable, prolonged exposure to stress might increase neuroticism. This could explain the relationship between neuroticism and health impairment. Clearly, more longitudinal research is required to examine potential reciprocal relationships between neuroticism, health impairment, and workplace stressors.

Another limitation was the reliance on self-report data. Future research could use additional sources of data, e.g. clinical reports and observation-based measures, to corroborate self-report data. Finally, further research needs to evaluate the effectiveness of interventions designed to improve occupational wellbeing at both workplace and individual levels.

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Further reading

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Occupational Health Psychology. Books include Dollard, M.F., Winefield, A.H. and Winefield, H.R. (Eds) (2003), *Occupational Stress in the Service Professions*, Taylor & Francis, London. See also http://people.unisa.edu.au/Maureen.Dollard

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