



What role does neuroticism play in the association between negative job characteristics and anxiety and depression?

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ARTICLE INFO

Article history:

Received 14 March 2012

Received in revised form 30 March 2013

Accepted 4 April 2013

Available online 29 April 2013

Keywords:

Anxiety
Depression
Job characteristics
Neuroticism
Five factor model

ABSTRACT

Many studies have established an association between job characteristics and anxiety and depression and noted that personality characteristics such as neuroticism likely play a role in creating or modifying these associations. Few studies, however, have explicitly tested or compared these possible alternative roles. In this study, we tested several specific hypotheses about neuroticism and its effects on job characteristics, anxiety and depression and their association in a series of structural equation models. Participants ($N = 372$) completed the Big Five Inventory, Job Contents Questionnaire and General Health Questionnaire. We tested (a) whether neuroticism is likely to be an important confounder of the association between job characteristics and anxiety and depression and (b) whether neuroticism moderates the association between job characteristics and anxiety and depression. Results indicated large attenuations by neuroticism of the association between job characteristics and anxiety and depression but there remained significant effects of psychological demands on anxiety, and social support on depression independent of neuroticism. Evidence was also found for interaction effects between neuroticism and decision latitude, with those lower in neuroticism being at higher risk for depression under conditions of low control.

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1. Introduction

A large number of studies have established an association between aversive job characteristics and degraded mental wellbeing, including an increased risk of experiencing anxiety, psychological distress and depression (Stansfeld & Candy, 2006). Longitudinal studies have clarified the nature of this association as being primarily an effect of job characteristics on mental health, rather than the reverse (De Jonge et al., 2001; Stansfeld, Clark, Caldwell, Rodgers, & Power, 2008). Neuroticism (N) and related negative affectivity (NA) traits represent an important influence on the types of work circumstances that individuals find themselves in, their subjective experience of these circumstances and on their mental health (Spector & O'Connell, 1994; Spector, Zapf, Chen, & Frese, 2000), therefore, in the present study we sought to clarify the role that neuroticism plays in creating and/or modifying this association between job characteristics and anxiety and depression.

The types of aversive job characteristics which have been the subject of empirical studies and which have been associated with decrements in psychological wellbeing include team climate, procedural and relational justice, job insecurity, effort-reward imbalance, and work-to-family conflict (Wang, Patten, Currie, Sareen, & Schmitz, 2012; Ylipaavalniemi et al., 2005). The dominant theoretical model in this domain is the job strain model (Karasek, 1979) in which high demands and low decision latitude contribute to job strain and high job strain is expected to increase psychological strain and the attendant risk of experiencing decrements in psychological wellbeing. These predictions have, by and large, been borne out empirically (see Bonde, 2008 for a review).

A point of debate in studies of the job characteristics and psychological wellbeing outcomes has been the status of N and NA in the association between job characteristics and mental wellbeing. In particular, it is debated whether N/NA should be treated as a confounder of the association which should be statistically controlled for in order to obtain the 'true' effect of job characteristics on psychological wellbeing (e.g. see Spector et al., 2000). Two variables can be said to be confounded when a third variable (the confounder) influences them both (Pearl, 1998). There are two senses in which N/NA may be considered to confound the association between job contents and anxiety and depression. First, individuals high in N/NA may have an increased tendency towards

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negative reporting of both work circumstances and wellbeing due to the pessimistically biased perceptual sets associated with high N/NA (Ylipaavalniemi et al., 2005). Second, being higher in N/NA may result in increased exposure to adverse work circumstances in addition to increasing risk of lowered psychological wellbeing. Individuals higher in N/NA have been shown to experience increased exposure to negative life events (van Os, Park, & Jones, 2001) and, in addition, N/NA is a major vulnerability factor for both anxiety and depression (Krueger, 1999). In the work context, if an individual higher in N/NA is more prone to psychological distress they may receive less social support due to being perceived as less able to reciprocate, or be given less autonomy if they are perceived by supervisors as being less motivated (De Jonge et al., 2001). In addition, individuals who experience high levels of psychological distress may select into poorer working conditions due to, for example, a lack of self-esteem, or an impaired educational or work record as a result of experiencing psychological distress (Stansfeld et al., 2008). They may also be less effective in altering or controlling negative work circumstances when experienced (see Taris, Bok, & Calje, 1998).

On the other hand, some authors have argued that controlling for N/NA may actually remove some of the variance in job strain and, thus, result in an under- rather than an over-estimation of the association between job characteristics and psychological wellbeing (Spector et al., 2000).

There is some evidence to suggest that N/NA may not in fact be an important confounder of the association between job characteristics and psychological wellbeing. For example, in studies in which job characteristics have been objectively assessed in order to control for reporting biases, work characteristics still predict psychological wellbeing (Waldenstrom et al., 2006). Further, in a longitudinal study, Stansfeld et al. (2008) found that although earlier psychological distress influenced later work characteristics, it did not completely explain the association between work characteristics and anxiety and depression later in life.

An alternative possibility is that the role that N plays in the association between job characteristics and psychological distress is primarily one of moderator rather than confounder. In this view N/NA may genuinely interact with aversive professional circumstances, in that individuals high in neuroticism may respond more negatively to these circumstances than individuals low on neuroticism. This is consistent with the evidence that individuals higher in N/NA, have stronger negative reactions to aversive circumstances and are more likely to become depressed as a result of exposure to such circumstances (Kendler, Kuhn, & Prescott, 2004). If high N/NA individuals already have lowered thresholds for psychological distress, then they may require less exposure to adverse job characteristics to trigger psychological disorders such as anxiety or depression. This would lead to a trait-by-environment interaction in which high N/NA individuals are at increased risk of anxiety or depression under exposure to aversive job characteristics than those lower on N/NA.

In the present study we, therefore, take a different approach to the question of the role of N in the association between job characteristics and anxiety and depression than that taken by previous studies. We test the plausibility of both the 'N as confounder' and 'N as moderator' hypotheses in latent variable models specifying these alternative but not necessarily mutually exclusive roles of N. We evaluate the feasibility of the 'N as confounder' by comparing the association between job characteristics and anxiety and depression with and without modeling N as a confounder of this association. We evaluate the feasibility of the 'N as moderator' hypothesis by assessing whether the inclusion of latent interactions between N and job characteristics significantly improve the fit of structural equation model predicting anxiety or depression.

2. Methodology

2.1. Sample

The current sample ($N = 372$) was approximately evenly split by gender (Female = 222, 59.7%). Participants completed all measures through an on-line questionnaire. Participants provided their age in categories, with the majority of participants aged between 26 and 44 (18–25 $n = 23$; 26–34 $n = 135$; 35–44 $n = 106$; 45–54 $n = 66$; 55–64 $n = 39$; 65+ $n = 3$). All participants were currently in employment in a variety of organisations in the public and private sector.

2.2. Measures

Neuroticism was measured using the eight item scale from the 'Big Five Inventory' (BFI, John, Donahue, & Kentle, 1991). Participants responded on a five point scale ranging from *strongly disagree* to *strongly agree*. John and Srivastava (1999) report the Cronbach's alpha of neuroticism scores to be 0.85.

Depression and anxiety were measured using the 28-item General Health Questionnaire (GHQ-28, Goldberg & Hillier, 1979). Only items from the 'severe depression' and 'anxiety and insomnia' scales were administered (Werneke, Goldberg, Yalcin, & Ustun, 2000). Participants responded on a four point scale (1 = not at all, 2 = no more than usual, 3 = rather more than usual, 4 = much more than usual), equivalent to that used in the full GHQ. The GHQ-28 has scale score reliabilities ranging from 0.71 to 0.85 (Vallejo, Jordán, Díaz, Comeche, & Ortega, 2007).

Job characteristics were assessed using the 'Job Contents Questionnaire' (JCQ; Karasek et al., 1998). The JCQ contains five scales, namely skill discretion, decision authority, psychological job demands, co-worker support and supervisor support. The scales of skill discretion and decision authority can be combined into a measure of the broader construct of decision latitude, whereas co-worker and supervisor support can be combined into a measure of social support. Here we use the three broad factors of decision latitude, psychological demands and social support. Participants responded on a four point scale ranging from *strongly disagree* to *strongly agree*. Karasek et al. (1998) report Cronbach's alpha for scale scores ranging from 0.63 for psychological demands to 0.81 for decision latitude.

2.3. Analysis

We applied structural equation modelling (SEM) to test alternative models for the role of neuroticism in the association between job characteristics and anxiety and depression. SEM has a number of advantages in this instance as it allows for the estimation of latent variables from only common variance in a set of indicators; thus excluding specific and error variance; and allows for the computation of model fit indices aiding model comparison. All models were estimated in Mplus 6.0 (Muthén & Muthén, 2010).

2.3.1. Measurement model

In order to model latent interactions (see structural models), maximum likelihood (ML) estimation with numerical integration is applied and thus, continuous indicators are required. Given that the item formats for all variables are categorical with a limited number of response points, a parcelling strategy was used. Parcelling offers a closer, but not perfect, approximation to continuous measurement. The use of parcels allowed for the consistent application of ML estimation across our structural models.

However, there remains debate in the SEM literature as to whether the use of item parcels is appropriate and whether they

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