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Job characteristics: their relationship to job satisfaction, stress and depression

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Abstract

This study investigated the influences of job characteristics on job satisfaction, stress and depression among South African white collar workers. Participants were managers in full-time employment with large organisations. They completed the Job Diagnostic Survey, the Perceived Stress Scale and the Beck Depression Inventory. A regression approach was used to predict job satisfaction, stress and depression from job characteristics. Job characteristics (skill variety, task identity, task significance, autonomy and feedback) predicted job satisfaction, as well as stress and depression. Job characteristics are weak predictors of perceived stress and depression. Work related factors, such as interpersonal relations and organisational culture, may better predict mental health in work settings.

Keywords

job attributes; job design; meaningfulness; mental health

Introduction

Job characteristics (skill variety, task identity, task significance, autonomy and feedback; Hackman & Oldham, 1974, 1975, 1976) have an influence on critical psychological states, which in turn influence personal and work outcomes, given the strength of the employee's growth needs (Bohlander & Snell, 2013; Cascio, 2010; Moorhead & Griffen, 2008). Positive psychological states are associated with high internal work motivation, high-quality work performance, high satisfaction with the work, and low absenteeism and turnover (Bohlander & Snell, 2013; Cascio, 2010; Hackman & Lawler, 1971; Hackman & Oldham, 1975, 1976; Moorhead & Griffen, 2008). Certain job characteristics, as packaged into specific professions, are associated with distress, and mental health problems. For example, researchers relate policing (Bawa & Kaur, 2011), dentistry (DiMatteo, Shugars, Hays, & Ron, 1993) and teaching (Joshi & Jogsan, 2011) positions to distress and mental health problems, arguing that the characteristics of these jobs influence mental health in a negative manner.

Although the aetiology of stress and depression varies, it would be naïve to argue that the design of the job individuals perform does not play some aetiological role, as individuals spend such a large portion of their time working. Godin, Kittel, Coppieters, & Siegrist (2005), as well as Melchior, Caspi, Milne, Danese, Poulton, & Moffitt (2007), argue that stressful work conditions predict poor mental health. The stress of workers may, according to Melchior et al. (2007), stem from perceived job demands, low job control or insufficient work support. The type of work the individual performs may thus determine the nature of the stressors and their impact (Iacovides, Fountoulakis, Kaprinis, & Kaprinis, 2003).

Linking stress to depression, Wang & Patten (2001) hypothesised that employees who reported high psychological demands, low decision latitude, high levels of physical exertion, job insecurity or lack of support from co-workers would be more likely to suffer from major depression than individuals who reported low stress in those areas. However, it must be noted that work stress or job types are not the only precipitants of depression. While many people are exposed to work stress, not all of them develop depression or other forms of psychological distress. As depression impairs functioning, workers who have experienced previous or ongoing depressive episodes may have difficulty in coping with work demands that they would normally have handled with ease. Hence a reverse causative mechanism cannot be excluded (Wang & Patten, 2001).

There is considerable evidence that job characteristics such as skill use, job control and qualitative job demands have effects on mental health, including major depression, burnout and substance use (Iacovides et al., 2003; Williams & Cooper, 1998). Job autonomy and control over one's schedule were also found to be significant in the development of burnout among psychiatrists in Japan (Umene-Nakano, Kato, Kikuchi, Tateno, Fujisawa, Hoshuyama, & Nakamura, 2013). Melchior et al. (2007), in a study of full-time employees of all levels in Canada, reported that those with high psychological job demands such as excessive workload and extreme time pressures had a twofold risk of developing major depression or generalised anxiety disorder when compared to individuals with low demands. Tsai (2012) found that highly educated white collar workers who reported work stress had high levels of alcohol consumption and depression.

This study aims to explore the associations between job characteristics and the mental health outcomes of perceived stress and depression. The research question is therefore as follows: Do job characteristics predict stress and depression in the workplace?

Method

Participants and setting

Participants were a convenience sample of 215 continuing education students in human resources, mostly working in large organisations and with at least three years' management experience. Of these, 93 (43.3%) were female and 122 (56.7%) were male. Twenty six (12.1%) were in junior management positions, 97 (45.1%) were in middle management, 70 (32.6%) occupied senior management posts and 22 (10.2%) indicated that they were in executive management. The respondents came from the manufacturing sector (24.2%), government (34.9%) and the services sector (4.9%), with only 5.1% indicating that they

were self-employed. Table 1 shows the tasks the respondents indicated as their primary responsibility.

From Table 1 it can be observed that all the participants indicated that they were in some kind of managerial position.

Measures

Participants completed the Job Diagnostic Survey (JDS: Hackman & Oldham, 1974). Two parts of this instrument were used, namely the Job Dimensions Measure and the General Satisfaction Measure. In both cases, the shortened version of the measures was used. The participants also completed the Perceived Stress Scale (PSS: Cohen, Kamarch & Mermelstein, 1983) and the Beck Depression Index (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The Job Dimensions Measure of the JDS comprises 15 items on a Likert scale (1 = low; 7 = high). The dimensions assessed were skill variety, task identity, task significance, autonomy and feedback. The following is an example of a question from the skill variety section of the questionnaire: *'How much variety is there in your job? That is, to what extent does your job require you to do many different things at work, using a variety of your skills and talents?'* The highest possible score per section was 21 and the lowest three. Reliability of scores in the study sample was 0.77 for skill variety, 0.59 for task identity, 0.66 for task significance, 0.67 for autonomy and 0.60 for feedback.

The shortened version of the General Satisfaction Measure was comprised of 5 items on a Likert scale (1 = strongly disagree; 5 = strongly agree). The instrument is 'an overall measure of the degree to which the employee is satisfied and happy with the job' (Hackman & Oldham, 1975, p. 162). The following is an example of a question phrased as a statement from the questionnaire: *'Generally speaking, I am very satisfied with this job.'* The minimum score is five and the maximum is 35. A high score indicates high job satisfaction and a low score indicates that the respondents are not satisfied with their jobs. Reliability of scores in the study sample was 0.84.

The PSS (Cohen et al., 1983) is a 10 item measuring the degree to which an individual perceives his or her life as stressful and assessing global perceptions of stress, with an emphasis on the role played by threatening or demanding events in increased health risks. The following item from the questionnaire illustrates this approach: *'How often have you been upset because of something that happened unexpectedly?'* Respondents are required to indicate on a five point scale (0–4) to what extent they agree with a given statement. The maximum score (indicating high stress) would be 40 and the minimum zero (indicating the absence of stress). The reliability of scores with regard to the study sample was 0.87.

The BDI is a self-reporting rating inventory that measures characteristic attitudes and symptoms of depression. It consists of items relating to symptoms of depression, including hopelessness, irritability, cognitions such as guilt, and physical symptoms such as fatigue, weight loss, and lack of interest in sex. Respondents are required to select, with each of the 21 items, the statement that applies best to them. The format of the first item is as follows: *'I do not feel sad (0); I feel blue or sad (1); I am blue or sad all the time and I can't snap out of it (2a); I am so sad or unhappy that it is very painful (2b); I am so sad or unhappy that I*

can't stand it (3)'. The minimum score is 0 and the maximum 61. A high score is indicative of high levels of depression. A meta-analysis of the Beck Depression Inventory's internal consistency estimates yielded a mean coefficient alpha of 0.81 for non-psychiatric respondents (Beck, Steer, & Carbin, 1988). The reliability of scores in the study sample was 0.83. The scores on the inventory also have a high correlation with clinical ratings (0.60 and 0.74) and other psychometric measures of depression (0.72 and 0.73) (Beck et al., 1988).

Procedure

Participants consented individually to take part in the study. They were recruited during lectures, and participation was voluntary. There were no payments to the respondents, who all gave their consent before entering into the study. They were offered no incentives for participating in the research and all data was collected anonymously. Data on job characteristics, job satisfaction, stress and depression was collected using standardised instruments over a period of three weeks with an online survey.

Data analysis

Linear regression was used to predict job satisfaction, stress and depression from job characteristics. All calculations were carried out using the Statistical Package for the Social Sciences (SPSS).

Results

A total of 215 respondents completed the questionnaires. Table 2 presents the descriptive statistics for the measures.

The correlations between job characteristics and the dependent variables, namely job satisfaction, stress and depression, are presented in Table 3.

Models were also developed where all the job characteristic variables were used to predict the independent variables (see Table 4). In the case of a model where job characteristics predicted job satisfaction, the reported overlap between the constructs was 26% ($R = 0.526$; $R^2 = 0.277$; $R^2_{\text{adjusted}} = 0.260$). The standardised beta values were as follows: skill variety = 0.117, task identity 0.041, task significance = 0.129, autonomy = 0.287 and feedback = 0.184. Autonomy and feedback contributed significantly and uniquely to the declared variance ($p < 0.01$).

With regard to a model in which job characteristics predicted stress, the reported overlap between the constructs was 7% ($R = 0.316$; $R^2 = 0.100$; $R^2_{\text{adjusted}} = 0.078$). The standardised beta values were as follows: skill variety = 0.051, task identity = -0.113, task significance = -0.053, autonomy = -0.262 and feedback = -0.014. Only autonomy contributed significantly and uniquely to the declared variance ($p < 0.01$). For a model in which job characteristics predicted depression, the reported overlap between the constructs was 7% ($R = 0.313$; $R^2 = 0.098$; $R^2_{\text{adjusted}} = 0.076$). The standardised beta values were as follows: skill variety = 0.047, task identity = -0.071, task significance = -0.166, autonomy = -0.148 and feedback = -0.055. No variable contributed significantly and uniquely to the declared variance.

Discussion

This study explored the associations between job characteristics and the mental health outcomes of perceived stress and depressive symptoms among white collar workers. The findings indicate that four of the five job characteristics (skill variety, task significance, autonomy and feedback) correlated positively and significantly with job satisfaction. Two job characteristics (task identity and autonomy) correlated significantly and negatively with perceived stress levels. The same was true of depression, with task significance and autonomy showing negative correlations. From the aforementioned it is clear that job characteristics more often correlate with a job specific outcome, job satisfaction, than with general mental health (perceived stress and depression) indicators.

Job characteristics explained 26% of the variance in job satisfaction, 7.8% of the variance in perceived stress and 7.6% of the variance in depression. The results suggest that job characteristics significantly affect job-specific attitudes (job satisfaction) and that mental health issues like perceived stress and depression are not significantly affected by the way in which jobs are designed. These findings contradict the results of other studies in the same area (Melchior et al., 2007; Wang & Patten, 2001). Possible explanations for the findings of this study could be that work-related variables (such as job characteristics) predict work-specific outcomes (such as job satisfaction) and that in the case of general mental health issues (for example stress and depression) factors such as interpersonal relations and organisational culture may be better predictors.

Implications for work design interventions

If the nature (characteristics) of the job causes mental health problems, is it reasonable to expect that positive changes in job characteristics can result in improved mental health, and eventually improved performance? This strategy of changing job characteristics is referred to as job-redesign (Noe, Hollenbeck, Gerhart, & Wright, 2013) and enrichment (Bohlander & Snell, 2013). It is often recommended as a strategy for improving performance (Bohlander & Snell, 2013; Herzberg, 1968; Noe et al., 2013).

Limitations of the study

This study used a cross-sectional design, which is suitable for describing the population and relationships between variables (Shaughnessy, Zechmeister & Zechmeister, 2009). This design, however, provides little information on causal relationships. Stress and depression scores were low in this sample, and the small variance on these variables limited the sensitivity of the related analyses. Social support from colleagues or supervisors also has a moderating and mediating effect on the development of stress and depression (Wang & Patten, 2001). These variables were not included in this specific study.

Conclusion

The study explored the associations between job characteristics and the mental health outcomes of perceived stress and depression in a sample of management workers. The findings indicate that job characteristics are not reliable or comprehensive indicators of

stress and depression in the workplace. Should workplace variables influence stress and depression, other factors such as interpersonal relations and organisational culture could be considered in future studies.

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Table 1

Primary responsibility of respondents

	Frequency	Per cent	Valid per cent	Cumulative per cent
Administrative duties	14	6.5	6.5	6.5
Management of administrative workers	41	19.1	19.1	25.6
Operational functions	71	33.0	33.0	58.6
Management of operational workers	89	41.4	41.4	100.0
Total	215	100.0	100.0	

Table 2

Descriptive statistics and reliability coefficients

	Min.	Max.	Mean	SD	Reliability	Skewness	Kurtosis
Job Characteristics							
Skill variety	4.00	21.00	16.77	3.67	0.768	-1.134	0.923
Task identity	6.00	21.00	16.09	3.62	0.586	-0.555	-0.391
Task significance	6.00	21.00	18.47	2.84	0.662	-1.334	1.742
Autonomy	3.00	21.00	16.93	3.17	0.672	-1.126	2.223
Feedback	8.00	21.00	16.85	2.96	0.601	-0.518	-0.385
Job satisfaction	5.00	35.00	25.42	6.24	0.836	-0.891	0.364
Stress	1.00	34.00	15.54	6.13	0.866	0.282	0.272
Depression	0.00	42.00	6.18	6.04	0.826	2.496	10.375

Table 3

Correlation between job characteristics, job satisfaction, stress and depression

	Dependent variables		
	Job satisfaction	Stress	Depression
Job Characteristics			
Skill variety	0.330**	-0.091	-0.110
Task identity	0.216*	-0.185*	-0.168
Task significance	0.303**	-0.130	-0.227*
Autonomy	0.433**	-0.286**	-0.239**
Feedback	0.360**	-0.137	-0.174

**
 $p < 0.001$;*
 $p < 0.01$

Table 4

Regression analysis: Job satisfaction, stress and depression predicted by job characteristics

	Dependent variables		
	Job satisfaction	Stress	Depression
R^2_{adjusted}	0.260	0.078	0.076
F	16.02**	4.637**	4.544*
	Standardized Beta		
Job Characteristics			
Skill variety	0.117	0.051	0.047
Task identity	0.041	-0.113	-0.071
Task significance	0.129	-0.053	-0.166
Autonomy	0.287**	-0.262**	-0.184
Feedback	0.184*	-0.014	-0.055

**
 $p < 0.001$;*
 $p < 0.01$