



# Differential associations of job control components with both waist circumference and body mass index



Christopher G. Bean<sup>a,\*</sup>, Helen R. Winefield<sup>a</sup>, Charli Sargent<sup>b</sup>, Amanda D. Hutchinson<sup>c</sup>

<sup>a</sup> School of Psychology, University of Adelaide, Australia

<sup>b</sup> Appleton Institute for Behavioural Science, Central Queensland University, Australia

<sup>c</sup> School of Psychology, Social Work and Social Policy, University of South Australia, Australia

## ARTICLE INFO

### Article history:

Received 5 January 2015  
Received in revised form  
17 August 2015  
Accepted 19 August 2015  
Available online 20 August 2015

### Keywords:

Australia  
Decision authority  
Job control  
Job strain  
Obesity  
Psychosocial stress  
Skill discretion  
Work stress

## ABSTRACT

**Introduction:** The Job Demand-Control-Support (JDCS) model is commonly used to investigate associations between psychosocial work factors and employee health, yet research considering obesity using the JDCS model remains inconclusive.

**Objective:** This study investigates which parts of the JDCS model are associated with measures of obesity and provides a comparison between waist circumference (higher values imply central obesity) and body mass index (BMI, higher values imply overall obesity).

**Methods:** Contrary to common practice, in this study the JDCS components are not reduced into composite or global scores. In light of emerging evidence that the two components of job control (skill discretion and decision authority) could have differential associations with related health outcomes, components of the JDCS model were analysed at the subscale level. A cross-sectional design with a South Australian cohort ( $N = 450$ ) combined computer-assisted telephone interview data and clinic-measured height, weight and waist circumference.

**Results:** After controlling for sex, age, household income, work hours and job nature (blue vs. white-collar), the two components of job control were the only parts of the JDCS model to hold significant associations with measures of obesity. Notably, the associations between skill discretion and waist circumference ( $b = -.502, p = .001$ ), and skill discretion and BMI ( $b = -.163, p = .005$ ) were negative. Conversely, the association between decision authority and waist circumference ( $b = .282, p = .022$ ) was positive.

**Conclusion:** These findings are significant since skill discretion and decision authority are typically combined into a composite measure of job control or decision latitude. Our findings suggest skill discretion and decision authority should be treated separately since combining these theoretically distinct components may conceal their differential associations with measures of obesity, masking their individual importance. Psychosocial work factors displayed stronger associations and explained greater variance in waist circumference compared with BMI, and possible reasons for this are discussed.

© 2015 Elsevier Ltd. All rights reserved.

## 1. Introduction

The terms 'overweight' and 'obesity' correspond to moderate and severe grades of abnormal or excessive fat accumulation that present a risk to the health of an individual (World Health Organization, 2013). Reports of the global obesity crisis are widespread in both scientific literature and mass media (Saguy et al.,

2014). The situation is particularly precarious in Australia where 70.3% of men and 56.2% of women are overweight or obese, including 27.5% obese in both men and women (Australian Bureau of Statistics, 2013). Typically measured using body mass index (BMI), and more recently waist circumference, elevated measures of obesity represent a risk factor for a myriad of illnesses including type 2 diabetes (Freemantle et al., 2008), cardiovascular disease (Asia Pacific Cohort Studies, 2004; Canoy et al., 2013), high blood pressure (Mathieu et al., 2009; Rahmouni et al., 2005), osteoarthritis (Felson et al., 1988; Grotle et al., 2008), and some cancers (Vucenic and Stains, 2012). There are also significant financial costs for society in terms of health care costs and government subsidies

\* Corresponding author. Room 712 Hughes Building, School of Psychology, University of Adelaide, North Terrace, SA 5005, Australia.

E-mail address: [christopher.bean@adelaide.edu.au](mailto:christopher.bean@adelaide.edu.au) (C.G. Bean).

(Colagiuri et al., 2010). Despite the overwhelming impetus for reducing the incidence and prevalence of obesity, effective and sustainable strategies remain elusive at both policy and individual levels (Cooper et al., 2010; Gill et al., 2010; Mann et al., 2007). Simplistically, excess fat accumulation results from a sustained positive energy balance – that is, energy intake from calories in food and beverages is greater than energy expenditure from daily functioning and physical activity (Faith and Kral, 2006). However, it is crucial to acknowledge that this energy imbalance occurs within the context of environmental, social, cultural and genetic factors (Faith and Kral, 2006).

The breadth of the obesity system map presented in the UK government Foresight report (Butland et al., 2007) and similar ecological models demonstrate the unwieldy nature of potential aetiological pathways. From a pragmatic standpoint, researchers must simultaneously acknowledge the greater contextual factors, while focusing their own research on meaningful domains, such as the potential roles of employment and psychosocial work factors. Employment is a fundamental part of life for many (Karasek and Theorell, 1990), and work stress has been an increasingly popular area of research over the past 25 years. The Job Demand-Control (JDC) model (also known as the job strain model) is the most widely tested model of work stress (Nyberg et al., 2012) and features two broad constructs: job demands and job control. Job demands captures psychological stressors associated with work load, organisational constraints on task completion, and conflicting work demands (Karasek et al., 1998). Job control (also referred to as decision latitude), comprises two subscales: skill discretion and decision authority (Karasek and Theorell, 1990), which are theoretically distinct concepts (de Jonge et al., 2000a). Skill discretion assesses the level of skill and creativity required on the job and the flexibility an employee is permitted in deciding what skills to use (opportunity to use skills, similar to job variety). Decision authority assesses the organisationally mediated potential for employees to make decisions about their work (opportunity to make decisions, similar to autonomy) (de Araújo and Karasek, 2008; Karasek et al., 1998).

According to the JDC model, job strain occurs when employees experience high psychological demands coupled with low levels of control (Karasek and Theorell, 1990; Theorell and Karasek, 1996). While job demands may be difficult to reduce owing to the pressures of competitive global markets, the JDC model predicts that the adverse effects of high demands can be mitigated by increasing employee control (de Jonge et al., 2000b). The JDC model posits that the degree of control an employee has in their work is a crucial dimension in determining health (Karasek et al., 1998). The Job Demand-Control-Support (JDCS) model (Johnson and Hall, 1988), also known as the iso-strain model, extends the original JDC model by adding two measures of social support: coworker support and supervisor support. It is usually hypothesised that socially isolated workers (low support) experiencing high job strain are at greatest risk for poor health outcomes (Brunner et al., 2007). It is reasonable to propose that work stress could be positively related to obesity, since previous research suggests most people (but not all) increase their food intake, especially of highly palatable (high fat and sweet) foods when exposed to stress (Adam and Epel, 2007; Epel et al., 2004; Epel et al., 2001; Groesz et al., 2012), and long-term adaptation to chronic stress may result in greater visceral fat accumulation via excess consumption of calorie-dense food (Tomiyama et al., 2011).

Studies vary in their treatment and analysis of the JDCS model variables: some elect to consider the broad constructs (demands, control, support) independently, while many others use the dichotomised global measure of job strain (i.e. job strain present, yes/no). The most common method for calculating presence of job

strain is the quadrant approach, where the demand and control scales are split at the median and job strain is indicated by the combination of above median demands and below median control (Courvoisier and Perneger, 2010). When including social support, iso-strain is indicated by the addition of below median support. It should be noted that all of these typical approaches involve merging the two subscales of job control (skill discretion and decision authority) as a preliminary step.

Despite the workplace, and specifically psychosocial work factors appearing to be a sensible domain for obesity researchers to consider, evidence for an association between psychological work stress and measures of obesity has been inconsistent and inconclusive. Some studies suggest a positive relationship in which elevated stress in the workplace is associated with increased obesity (Block et al., 2009; Brunner et al., 2007; Hellerstedt and Jeffery, 1997). However, other studies have found no significant association between work stress and measures of obesity (Brisson et al., 2000; Ostry et al., 2006).

It has been suggested that small sample sizes may have contributed to earlier mixed findings (Fransson et al., 2012), however a pooled analysis of 160,000 adults from 13 cohort studies which examined the relationship between job strain and BMI, suggested a 'U'-shaped cross-sectional association between job strain and BMI, whereby job strain was associated with both underweight and obesity (Nyberg et al., 2012). Despite the large sample size of the pooled analysis, Nyberg et al. (2012) suggested that since the associations were relatively modest, interventions to reduce job strain would likely be ineffective for reducing obesity at the population level. The inconclusive results yielded by Nyberg et al. (2012) suggest methodological issues other than sample size need to be considered. Notably, there are methodological concerns regarding the conceptualisation and calculation of job control and therefore job strain.

The practice of combining the two job control components (skill discretion and decision authority) to create a composite index of job control (decision latitude) is most common, however the practice has been criticised for confounding the measurement of job control with the measurement of job complexity (Mansell and Brough, 2005). Furthermore, Joensuu et al. (2012a) provided evidence that the two components of job control have differential associations with mortality, finding employees with high levels of skill discretion experienced lower all-cause mortality, while high levels of decision authority were associated with elevated risks of all-cause, cardiovascular, and alcohol-related mortality. More recently, Joensuu et al. (2014) reported that high decision authority can be associated with either higher or lower all-cause mortality, depending on gender and socioeconomic position. Earlier work by de Jonge et al. (2000a) also suggested differential effects for the two components of job control, but unlike Joensuu et al. (2012a), their results suggest decision authority was negatively associated with psychosomatic health complaints and sickness absence, whereas skill discretion was not a significant predictor. de Jonge et al. (2000a) noted that skill discretion and decision authority exerted opposite effects on these outcome variables, suggesting that the two components should be analysed separately. These studies suggest that previous research considering obesity and work stress using the JDCS model may be missing differential associations of the two job control components with measures of obesity.

In addition to the concerns regarding the appropriate treatment of the JDCS variables, most studies investigating the association between work stress and obesity have used BMI which is a measure of weight adjusted for height. Despite its common usage, BMI is an imperfect measure of fatness since it does not directly measure body composition or fat mass (Flegal et al., 2009). As such, BMI is labelled a measure of overall obesity (Wang et al., 2005). An

Download English Version:

<https://daneshyari.com/en/article/7331696>

Download Persian Version:

<https://daneshyari.com/article/7331696>

[Daneshyari.com](https://daneshyari.com)