

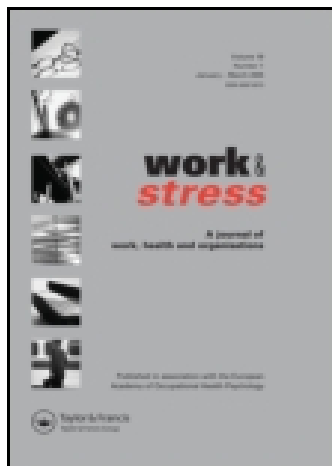
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On: 17 October 2014, At: 03:27

Publisher: Routledge

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Work & Stress: An International Journal of Work, Health & Organisations

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/twst20>

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Published online: 26 Nov 2010.

To cite this article: Yvonne Rafferty, Ronald Friend & Paul A. Landsbergis (2001) The association between job skill discretion, decision authority and burnout, *Work & Stress: An International Journal of Work, Health & Organisations*, 15:1, 73-85

To link to this article: <http://dx.doi.org/10.1080/02678370120791>

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The association between job skill discretion, decision authority and burnout

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Keywords: Job strain; Job demands; Job control; Burnout.

This paper reports on the relationship between dimensions of control (skill discretion and decision authority) and burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) among 164 human service workers. It examines the differential influence of job demands, control (skill discretion and decision authority) and social support (supervisor, co-workers, others) on each burnout dimension. Then it examines the moderating effects of higher skill discretion, higher decision authority, and higher social support on burnout. Low skill discretion was found to be associated with high emotional exhaustion and depersonalization and low personal accomplishment. The effects of decision authority were not statistically significant. High job demands were associated with high emotional exhaustion only. Social support (supervisor, co-worker, and others) was not associated with burnout when demographic variables and job characteristics were controlled for. Neither dimension of control moderated the impact of high job demands on burnout. Social support did not moderate the impact of high demands, low skill discretion, or low decision authority on any burnout dimension. The full model explained 44% of the variance in emotional exhaustion, 25% in depersonalization, and 42% in personal accomplishment. Despite its limitations, the study suggests that the Job Demand-Control model may provide a useful theoretical foundation for the study of burnout, but that the control dimensions need to be evaluated independently since they appear to be differentially related to the burnout dimensions.

1. Introduction

Maslach's (1982) conceptualization of burnout as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment is widely cited (Kop, Euwema, and Schaufeli, 1999; Lee, and Ashforth, 1990; Schaufeli, Maslach, and Marek, 1993;

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Soderfeldt, Soderfeldt, Warg, and Ohlson, 1996). Emotional exhaustion refers to the depletion of one's emotional resources and has been linked to such psychological constructs as tension, anxiety, physical fatigue, and insomnia. Depersonalization refers to a negative and detached response to clients. Reduced personal accomplishment represents an aspect of personal efficacy and refers to a low level of perceived competence and successful achievement in one's work (Maslach, 1993). Research on the factorial structure of the Maslach Burnout Inventory indicates that personal accomplishment is distinct from the other two dimensions and that emotional exhaustion and depersonalization are linked (Lee, and Ashforth, 1996; Soderfeldt *et al.*, 1996; Taris, Schreurs, and Schaufeli, 1999). Research also suggests that the three dimensions of burnout might be related to different job characteristics (Cordes, and Dougherty, 1993; Janssen, Schaufeli, and Houkes, 1999; Maslach, 1993).

1.1. *The Job Demand-Control model and burnout*

One conceptual model guiding research on burnout is the Job Demand-Control (JDC) model (Karasek, 1979), which has been expanded to include social support (Johnson, and Hall, 1988). The JDC model predicts that adverse psychological and physiological reactions are affected by the combined impact of two structural conditions of the workplace: high demands (workload pressures) and low control (skill discretion plus decision authority). Social support from supervisors and co-workers may reduce the effects of job strain (Karasek, and Theorell, 1990). A review of research between 1979 and 1997 on the JDC model and psychological well-being (e.g. anxiety, depression, job satisfaction, burnout) concluded that there is only minimal evidence that control and/or support moderate the negative impact of high job demands (Van der Doef, and Maes, 1999). None of the burnout studies reviewed ($n=4$) found evidence that control moderates the negative impact of high job demands (Landsbergis, 1988; Melamed, Kushnir, and Meir, 1991; Nijhuis, and Smulders, 1996; Sonnentag, Brodbeck, Heinbokel, and Stolte, 1994). The two studies that examined the buffering effects of social support also refuted the interaction hypothesis (Melamed *et al.*, 1991; Nijhuis, and Smulders, 1996). Several additional studies have applied the JDC model to burnout dimensions in recent years (de Jonge, Janssen, and van Breukelen, 1996; de Rijk, Le Blanc, Schaufeli, and de Jonge, 1998; Schreurs, and Taris, 1998; Taris *et al.*, 1999). As with the earlier studies, these studies do not indicate that control or support moderate the impact of high demands on burnout. They do, however, suggest that job demands and control may be differentially related to each burnout dimension. They also suggest that skill discretion and decision authority may not be equally important in predicting and explaining burnout. Finally, a recent examination of the factorial structure of the three variables comprising the JDC model demonstrated that a three-factor model (job demands, skill discretion, and decision authority) fitted the data better than a two-factor model (job demands and decision latitude) (Schreurs, and Taris, 1998).

In summary, although there is considerable research with the JDC model, few studies have applied the model to burnout. In addition, the majority of the burnout studies are not comprehensive, in that all of the variables in the model and each burnout dimension are systematically included and examined. Nonetheless, their findings suggest several conclusions. First, it does not appear that the negative impact of high job demands on burnout can be moderated by high levels of control (de Jonge, and Kompier, 1997; Schreurs, and Taris, 1998; Van der Doef, and Maes, 1999). Second, job demands appear to be a stronger predictor than control for emotional exhaustion, and a weaker predictor than control for depersonalization and reduced personal accomplishment. Higher job demands were

associated with emotional exhaustion in each of the four studies where this relationship was examined (de Jonge *et al.*, 1996; de Rijk *et al.*, 1998; Landsbergis, 1988; Taris *et al.*, 1999) and with higher depersonalization in only one (Taris *et al.*, 1999) of the three studies where it was explored (de Rijk *et al.*, 1998; Landsbergis, 1988; Taris *et al.*, 1999). None of the four studies that examined the relationship between job demands and personal accomplishment identified a significant relationship (de Jonge *et al.*, 1996; de Rijk *et al.*, 1998; Landsbergis, 1988; Taris *et al.*, 1999). Third, control appears to be associated with each burnout dimension, although the relationships between control and burnout are less consistent than for job demands, and particularly so for emotional exhaustion and depersonalization. Inconsistent findings may be related to the different ways in which control has been defined and suggest that future research on the JDC model should differentiate between dimensions of control. Emotional exhaustion has been significantly associated with higher control when defined as decision latitude (skill discretion plus decision authority) (Landsbergis, 1988) and as autonomy (de Jonge *et al.*, 1996). The findings have been inconsistent when it has been defined as decision authority: significant in one study (Taris *et al.*, 1999) but not in the other (de Rijk *et al.*, 1998). It was not related to skill discretion in the one study that examined this relationship (Taris *et al.*, 1999). Higher depersonalization was associated with lower control when it was defined as decision latitude (skill discretion plus decision authority) (Landsbergis, 1988) and as skill discretion (Taris *et al.*, 1999). The findings were inconsistent when it was defined as decision authority: significant in one study (Taris *et al.*, 1999) but not in the other (de Rijk *et al.*, 1998). Reduced personal accomplishment has been consistently associated with lower control. This relationship held when control was defined as decision latitude (skill discretion plus decision authority) (Landsbergis, 1988), as skill discretion (Taris *et al.*, 1999), and as decision authority (Taris *et al.*, 1999).

A final conclusion concerns the role of social support and how it may moderate the impact of high demands and low control on burnout (de Jonge, and Kompier, 1997; Van der Doef, and Maes, 1999). While several studies have identified a relationship between social support and burnout dimensions (Janssen *et al.*, 1999; Lee, and Ashforth, 1996; Leiter, 1991, 1993), there is little, if any, support for a three-way interaction between demands, control, and support (de Jonge *et al.*, 1996; Van der Doef, and Maes, 1999). Social support, however, may be more effective as a buffer of high job demands when the type of support matches the demands of the job (Van der Doef, and Maes, 1999). It is also possible that skill discretion and decision authority interact differently with social support in buffering the effects of high demands on burnout dimensions. This issue, however, has not yet been examined.

2. Hypotheses

The following three hypotheses are proposed.

- (1) *Hypothesis 1.* Job demands and control are differentially associated with each burnout dimension (emotional exhaustion, depersonalization, reduced personal accomplishment). Emotional exhaustion is associated primarily with high job demands and, to a lesser degree, with low control. Depersonalization is associated primarily with low control and, to a lesser degree, with high job demands. Reduced personal accomplishment is associated with low control. For each burnout dimension, the two components comprising decision latitude (skill discretion and decision authority) will be comparable in their predictive ability.

- (2) *Hypothesis 2.* Social support (supervisor, co-worker, and others) is negatively associated with each burnout dimension. It predicts each burnout dimension after job demands and control are taken into consideration.
- (3) *Hypothesis 3.* Job demands, control (skill discretion and decision authority), and social support (supervisor, co-workers, others) interact in explaining burnout. Thus, it is predicted that (1) at higher levels of job demands, workers with lower control or lower support will experience higher burnout than workers with higher control; (2) at lower levels of work control, workers with lower support will experience higher burnout than workers with higher support; and (3) the highest degree of burnout (high emotional exhaustion and depersonalization and low personal accomplishment) will be among those with high job demands, low control, and low support.

3. Method

3.1. *Participants and procedures*

All 304 workers involved in direct human service and employed by a New York City guidance and employment service agency were surveyed. They included speech, art, occupational, recreational, and rehabilitation therapists, social workers, psychologists, and case aides. They were at risk of burnout since they worked in emotionally demanding jobs with mentally challenged clients. Almost half (49%) worked in developmental day treatment programs. The remainder worked in intermediate care residences (7%), or job training programs providing hands-on individualized instruction (44%). A volunteer at each site distributed questionnaires to each worker. Workers placed their completed questionnaires in an attached envelope and returned them to a prearranged location on-site. To ensure anonymity, each worker was assigned a code number, which was known only to the investigators. Questionnaires were returned by 188 workers (62%); 24 were excluded because of missing data. Thus, the analyses were based on responses from 164 workers. The majority of the sample (75%) was female, 47% were Caucasian, and the median age was 30 years ($M=33.5$ years, $SD=10.6$ years). Overall, 33% reported having less than an undergraduate degree, 36% had a college degree, and 31% had a masters degree or higher. To determine if respondents were representative of the overall sample, these two groups were compared by type of program, gender, and education. No significant differences were identified.

3.2. *Measures*

Burnout was assessed by the Maslach Burnout Inventory (MBI), which consists of 22 items representing emotional exhaustion (9 items), depersonalization (5 items), and reduced personal accomplishment (8 items) (Maslach, and Jackson, 1981, 1986). Items are scored on a 7-point rating scale ranging from 'never' (0) to 'daily' (6). The Job Content Questionnaire (Karasek, 1985) was used to assess job demands (5 items), skill discretion (6 items) and decision authority (3 items). Social support was evaluated by four items (e.g. good listener, there to rely on when help is needed) (Caplan, Cobb, French, Harrison, and Pinneau, 1980). Respondents indicated to what extent they agreed with each item and answered each question with regard to their supervisor, co-workers, and spouse, friends, or relatives. Each of these measures has demonstrated acceptable levels of reliability. Five demographic variables (age, gender, race/ethnicity, education, marital status) were included as control variables.

3.3. Data analyses

Hierarchical linear regression analysis was conducted to determine whether characteristics of the worker, job demands, control, and social support were predictive of burnout. This enabled an assessment of the independent effects of each variable block (net of other blocks) on burnout. For each burnout dimension, variable blocks were entered in the following order: (1) demographic characteristics; (2) job demands; (3) skill discretion and decision authority; and (4) social support from supervisor, co-workers, and others. On a final step, the three-way interaction, and each possible two-way interaction, were entered and individually examined to determine their level of significance.

4. Results

4.1. Descriptive statistics and correlation coefficients

Scale means, standard deviations, and reliability coefficients (table 1) indicate that there was sufficient variability within the sample to provide a fair test of the model and that the reliabilities of the subscales were acceptable (ranging from .69 to .90) (Nunnally, 1987). Reports of burnout ranged from 0–54 for emotional exhaustion ($M=23.02$, $SD=12.44$), from 0–30 for depersonalization ($M=6.58$, $SD=6.24$), and from 0–48 for personal accomplishment ($M=35.15$, $SD=8.53$). These scores are consistent with those obtained by Maslach, and Jackson (1986) for emotional exhaustion ($M=24.08$, $SD=11.88$) and personal accomplishment ($M=36.01$, $SD=6.93$). The depersonalization scores are slightly lower ($M=9.40$, $SD=6.90$). Reports of job characteristics were consistent with other populations (Karasek, Brisson, Kawakami, Houtman, Bongers, and Amick, 1998).

The zero-order correlation coefficients for the independent and dependent variables and each of the control variables included in the model (table 1) indicate that personal accomplishment is distinct from the other two dimensions, while emotional exhaustion and depersonalization are highly correlated ($r=.58$). These data also indicate that some job characteristics and demographic variables were significantly correlated. Lower skill discretion was associated with having less education; lower decision authority was associated with being female, having less education, and being unmarried. Higher co-worker support was associated with higher education; higher support from others was associated with being married. Job demands and control were not related although both were significantly associated with social support.

The results of three hierarchical regression analyses, which provide a detailed examination of the effects of job characteristics and demographic variables on each burnout dimension, are presented in table 2 and discussed below.

4.2. Tests of hypotheses

Hypothesis 1 was partially supported. Job demands and control were differentially associated with each burnout dimension. Skill discretion was a stronger and more consistent predictor of each burnout dimension than decision authority. As shown in table 1, higher job demands were significantly correlated with higher emotional exhaustion ($r=.52$) and higher depersonalization ($r=.27$), and not with reduced personal accomplishment. Lower skill discretion was significantly correlated with higher emotional exhaustion ($r=-.28$), higher depersonalization ($r=-.22$), and reduced personal accomplishment ($r=.37$). Lower decision authority, in contrast, was significantly correlated with only higher emotional exhaustion ($r=-.17$).

As shown in table 2, job demands accounted for a significant portion of the variability

Table 1. Correlations between demographic characteristics, work characteristics, and burnout dimensions.

Variables	M	(SD)	α	Correlations													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender					–												
2. Age	33.5	(10.6)		–.24**	–												
3. Race/ethnicity				–.02	–.12	–											
4. Education	15.6	(2.4)		–.05	–.05	–.25***	–										
5. Marital status				–.11	.28***	–.10	.04	–									
6. Job demands	33.4	(8.6)	.78	–.05	–.13	–.06	.07	–.01	–								
7. Skill discretion	14.6	(3.7)	.72	–.14	.06	–.11	.18*	–.04	.06	–							
8. Decision authority	14.3	(4.3)	.69	–.24**	–.05	–.09	.21**	–.17*	–.10	.53***	–						
9. Supervisory support	11.6	(3.4)	.85	–.11	–.02	–.03	–.05	.06	–.24***	.40***	.32***	–					
10. Co-worker support	12.2	(3.0)	.85	–.08	.02	–.14	.21*	–.05	–.20*	.15	.14	.30***	–				
11. Other support	14.0	(2.7)	.84	.05	–.04	.06	.01	.19*	–.17*	.14	.02	.10	.23**	–			
12. Emotional exhaustion	23.0	(12.4)	.90	.08	–.18*	–.04	.19*	–.08	.52***	–.28***	–.17*	–.40***	–.17*	–.07	–		
13. Depersonalization	6.6	(6.2)	.76	.02	–.20*	–.13	.16*	–.14	.27***	–.22**	–.12	–.29***	–.05	–.10	.58***	–	
14. Personal accomplishment	34.2	(8.5)	.77	–.04	.15	–.06	.30***	.03	.13	.37***	.16	.14	.23**	.22*	.03	–.06	–

Gender (male=1; female=1); Race/ethnicity (white=0; non-white=1); Marital status (not married=0; married=1).
* $p<.05$, ** $p<.01$, *** $p<.001$.

Table 2. Predictors of the burnout dimensions.

Step	Emotional exhaustion			Depersonalization			Personal accomplishment		
	β	r^2	ΔR^2	β	r^2	ΔR^2	β	r^2	ΔR^2
1. Demographic variables									
Age	-.021	.06	.06	-.250*	.11	.11	.235*	.21**	.21**
Gender	.090			-.181			.035		
Education	.107			.025			.198*		
Marital status	-.088			-.101			.121		
Race/ethnicity	-.122			-.283*			.198		
2. Job demands	.495***	.30***	.24***	.033	.12	.01	.094	.21**	.01
3. Work control	.43***	.43***	.13***		.20*	.08*		.41***	.20***
Skill discretion	-.329**			-.131			.399**		
Decision authority	.024			-.012			-.021		
4. Social support		.44***	.01		.25*	.05		.42***	.01
Supervisor	-.117			-.239			.052		
Co-workers	-.035			-.030			.090		
Others	.011			-.183			.063		

Gender (male=1; female=1); Race/ethnicity (white=0; non-white=1); Marital status (not married=0; married=1).

* $p<.05$, ** $p<.01$, *** $p<.001$.

Beta weights (β) shown represent those derived when all demographic, job demand, work control, and social support variables are entered simultaneously into a single regression equation.

associated with emotional exhaustion, controlling for demographic variables ($\Delta R^2 = .24$). Only skill discretion (and not decision authority) explained a significant proportion of additional variance after demographic variables and job demands were controlled for in the model ($\Delta R^2 = .13$). Table 2 also indicates that job demands did not account for a significant portion of the variability associated with depersonalization, controlling for demographic variables ($\Delta R^2 = .01$). The addition of skill discretion, but not decision authority, explained a significant proportion of additional variance ($\Delta R^2 = .08$), after demographic variables and job demands were controlled for in the model. Finally, job demands did not account for a significant portion of the variability associated with personal accomplishment, controlling for demographic variables ($\Delta R^2 = .01$). Only skill discretion, and not decision authority, explained a significant proportion of additional variance ($\Delta R^2 = .20$) after demographic variables and job demands were controlled for in the model.

Hypothesis 2 was partially supported. Higher emotional exhaustion was significantly associated with lower support from both supervisor ($r = -.40$) and co-workers ($r = -.17$). Higher depersonalization was associated with only lower supervisor support ($r = -.29$). Reduced personal accomplishment was significantly associated with lower support from co-workers ($r = .23$) and from others ($r = .22$). Multiple regression analyses (table 2) indicate that when demographic variables and job characteristics (demands and control) are controlled for, social support is not associated with any burnout dimension. For depersonalization, however, the addition of social support to the model resulted in two demographic variables (age, race/ethnicity) emerging as significant predictors and the loss of skill discretion as a significant predictor. This finding suggests that social support may mediate the relationship between skill discretion and depersonalization.

The final hypothesis focused on the moderating effects of control and social support. None of the hypothesized interaction effects were supported (possibly due to the small sample size). This finding was consistent when control was defined as skill discretion or decision authority, and support was defined as supervisor support, co-worker support, or support from others. {Owing to space limitations, these findings are not presented; please contact the authors for this information.}

5. Conclusion and discussion

The findings of this study confirm the importance of differentiating between skill discretion and decision authority in research that involves the JDC model. While rarely evaluated separately, these two subscales may be tapping two different dimensions of control (Baker, Israel, and Schurman, 1996; de Jonge *et al.*, 1996; de Rijk *et al.*, 1998; Kasl, 1996; Taris *et al.*, 1999; Wall, Jackson, Mullarkey, and Parker, 1996). In this study, skill discretion was associated with each burnout dimension while decision authority was not. The findings of this study also point to the importance of including measures of both demands and control in studies assessing burnout since each burnout dimension appears to be differentially related to job characteristics. In this study, emotional exhaustion was more strongly associated with higher job demands than lower control, whereas depersonalization and reduced personal accomplishment were more strongly associated with lower control than higher demands. It is suggested that social support (and particularly supervisor support) may be an important variable in studies exploring the relationship between job characteristics and burnout.

In this study, having support from one's supervisor was significantly associated with having higher control (skill discretion and decision authority) and lower job demands. It was also associated with reduced emotional exhaustion and depersonalization. Co-worker

support was associated with having lower demands, lower emotional exhaustion, and higher personal accomplishment. Support outside of work was associated with higher personal accomplishment only. These findings suggest that the burnout dimensions may be differentially related to the different sources of support. It did not predict any burnout dimension after controlling for demographic and job characteristics.

5.1. *Emotional exhaustion*

The full model explained 44% of the variance in emotional exhaustion. Workers with higher levels of emotional exhaustion were more likely to experience higher job demands ($\beta = .50$) and lower skill discretion ($\beta = -.33$). The relationship between emotional exhaustion and higher job demands found in this study is consistent with prior research involving the JDC model (de Jonge *et al.*, 1996; de Rijk *et al.*, 1998; Landsbergis, 1988; Taris *et al.*, 1999), as well as with research involving individual determinants of emotional exhaustion (Janssen *et al.*, 1999; Leiter 1991, 1993).

The higher emotional exhaustion among workers with lower skill discretion, but not among workers with lower decision authority, is only partially consistent with prior research. As noted earlier, only one study has examined the relationship between skill discretion and emotional exhaustion and found it to be non-significant (Taris *et al.*, 1999). Two studies have examined the relationship between decision authority and emotional exhaustion. Higher emotional exhaustion was found among workers with lower decision authority in one study (Taris *et al.*, 1999) but not in the other (de Rijk *et al.*, 1998). In addition, Landsbergis (1988) found higher emotional exhaustion among workers with lower decision latitude (skill discretion plus decision authority) while de Jonge *et al.* (1996) found high emotional exhaustion among workers with low autonomy. Interestingly, Taris *et al.* (1999) found that lower skill discretion was also associated with mental exhaustion (among university staff only), job dissatisfaction, and higher intention to quit, while decision authority was associated with job dissatisfaction only (among university staff only).

Finally, the relationship between emotional exhaustion and social support found in this study is consistent with prior research (Janssen *et al.*, 1999; Lee, and Ashforth, 1996). However, given the non-significant findings for social support in the regression analyses, the relationship between social support and emotional exhaustion may act indirectly through demographic and other job characteristics.

5.2. *Depersonalization*

The full model explained 25% of the variance in depersonalization. Workers with higher levels of depersonalization were more likely to be Caucasian ($\beta = -.28$) and younger ($\beta = -.25$). The lack of a relationship between job demands and depersonalization in this study is consistent with some studies involving the JDC model (de Rijk *et al.*, 1998), but not others (Landsbergis, 1988; Taris *et al.*, 1999). Janssen and colleagues (1999) also found that depersonalization was not associated with job demands (i.e. work overload). The significant relationship between depersonalization and skill discretion, but not between depersonalization and decision authority is also inconsistent with prior research. As noted earlier, higher depersonalization was associated with lower skill discretion (Taris *et al.*, 1999), decision latitude (skill discretion plus decision authority) (Landsbergis, 1988). The findings were inconsistent when control was defined as decision authority: significant in one study (Taris *et al.*, 1999) but not in the other (de Rijk *et al.*, 1998). Consistent with prior research (Janssen *et al.*, 1999; Lee, and Ashforth, 1996), there was a relationship between

depersonalization and social support, but not when demographic and other job characteristics were controlled for. In addition, since skill discretion was no longer significantly associated with depersonalization when social support was added to the model, it is possible that social support may mediate the relationship between skill discretion and depersonalization and that part of the relationship between social support and depersonalization may act indirectly through emotional exhaustion as well as demographic and other job characteristics.

The inconsistent findings with regard to depersonalization and job demands may be explained by the influence of emotional exhaustion, demographic characteristics, and other job characteristics on burnout, which point to a need for longitudinal research in this area. In this study, higher depersonalization was primarily associated with higher emotional exhaustion and, to a lesser degree, with being Caucasian and younger. Unfortunately, the cross-sectional nature of this study does not permit conclusions to be drawn with regard to these findings. It is possible, however, that the race of the clients was a factor (approximately half were non-Caucasian) or their disability status played a role (all were disabled). It is also plausible that the relationships between demographic characteristics and job characteristics may be involved, as well as other extraneous variables. Being Caucasian was significantly associated with having more education, which, in turn, was associated with having higher skill discretion and decision authority, co-worker support, emotional exhaustion, and personal accomplishment. Being younger, in contrast, was not related to either demographic or job characteristics. In addition, younger workers were less emotionally exhausted than older workers. Further research should assess the influence of additional personal and situational characteristics on depersonalization.

5.3. *Reduced personal accomplishment*

The full model explained 42% of the variance in personal accomplishment. Workers with reduced personal accomplishment were more likely to have lower skill discretion ($\beta = -.40$), be younger ($\beta = -.24$), and to have less education ($\beta = -.20$). The findings of this study with regard to personal accomplishment are mostly consistent with prior research. As noted earlier, personal accomplishment was not associated with job demands in each study in which this relationship was examined within the context of the JDC model (de Rijk *et al.*, 1998; Landsbergis, 1988), nor in other studies involving individual determinants of personal accomplishment (Janssen *et al.*, 1999). In addition, reduced personal accomplishment was associated with lower control in each study where this relationship was examined: whether it was defined as decision latitude (skill discretion plus decision authority) (Landsbergis, 1988), as skill discretion (Taris *et al.*, 1999), or as decision authority (Taris *et al.*, 1999). In addition, Janssen and colleagues (1999) found that reduced personal accomplishment was significantly associated with 'quality of job content' (such as having the opportunity to develop new skills, and/or use a variety of skills). Finally, the relationship between personal accomplishment and social support found in this study is consistent with prior research (Janssen *et al.*, 1999; Lee, and Ashforth, 1996). However, since the hierarchical regression analyses are non-significant, it appears that the relationship between social support and personal accomplishment may act indirectly through demographic and other job characteristics.

The limitations of this study include a cross-sectional design (which prevents conclusions regarding causality), a low response rate (62%), and a small sample size ($n = 164$), which may have been inadequate to detect existing effects. It is also plausible that burned out workers may be reporting higher demands, lower control, and less support. In addition,

associations may potentially be affected by self-report bias. Many unresolved questions about the association between job characteristics and burnout remain. These include potential intervening variables including personality characteristics (Kushnir, and Melamed, 1991), dispositional attributes such as self-esteem (Lee, and Ashforth, 1996), private self-consciousness (Kivimäki, and Lindstrom, 1995), depression (Karasek, 1979), active coping (de Rijk *et al.*, 1998); locus of control (Daniels, and Guppy, 1994; Parkes, 1991), and managerial behaviour/organizational culture (Baker *et al.*, 1996). In addition, other work characteristics, such as influence in the organization (Landsbergis, Schnall, Warren, Pickering, and Schwartz, 1994) may be associated with burnout.

5.4. Conclusions

The two dimensions of control in the JDC model do not appear to be equally important as predictors of burnout. In this study, having the capacity to use a range of skills on the job was more strongly and consistently related to burnout than the degree of authority given to workers to make their own decisions at work. The lack of a relationship between decision authority and each burnout dimension was unexpected, although not entirely inconsistent with prior research. As noted earlier, de Rijk and colleagues (1998) did not find a significant relationship between decision authority and emotional exhaustion. It may be possible that this relationship was obscured by the relationship between decision authority and demographic characteristics, which were statistically controlled for in this study. As noted earlier, higher decision authority was reported by male workers, as well as by higher educated workers.

The findings of this study also suggest that the explanatory and predictive power of the JDC may also be substantially improved by shifting to a more differentiated measurement of the control dimension (Kasl, 1996; Wall *et al.*, 1996). Related research confirms the importance of differentiating between different dimensions of job control (Carayon, and Zijlstra, 1999; Van der Doef, and Maes, 1999) as well as using a more focused measure of job demands and ensuring that the measure of control assesses control over specific demands that the worker experiences (Van der Doef, and Maes, 1999).

In spite of its limitations, the present study suggests that the JDC model may provide a useful theoretical foundation for the study of burnout, but that the control dimensions need to be evaluated independently since they appear to be differentially related to burnout dimensions.

Acknowledgements

The authors would like to express their sincere gratitude to Dana Bramel, David Cross, Joseph Schwartz, Stephen Salbod, and two anonymous reviewers for their helpful comments on an earlier version of this manuscript.

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Submitted September 1999.

Revised version accepted January 2001.