Creating the Boiler Room Environment: The Job Demand-Control-Support Model as an Explanation for Workplace Bullying

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Abstract

The purpose of this study was to explain workplace bullying as a symptom of high-strain employment. The Job Demand-Control-Support (JDCS) model of work design was used to frame this study and examine workplace bullying antecedents and consequences. Full-time American employees ($N = 314$) working in various organizations completed a questionnaire about their bullying experiences, working environments, and occupational outcomes. Results revealed that workplace bullying was correlated with expected negative outcomes at work (i.e., job dissatisfaction, job stress, anxiety). In line with JDCS model predictions, employees who worked at organizations characterized by high psychological demands, low control, and low supervisor social support (i.e., an additive model) reported more workplace bullying (supporting an iso-strain hypothesis). Results of a moderated moderation analysis revealed a significant three-way interaction between demands, control, and support (supporting a buffering hypothesis); under workplace conditions characterized by low supervisor social support, employee control over how work was completed buffered the negative effect of job demands on workplace bullying. Supervisors, then, should consider how promoting employee autonomy and communicating social support to employees might nullify workplace conditions that encourage bullying, especially when work is particularly demanding.

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Bullying at work is an ever increasing concern for modern organizations, and is at its core, a severe problem rooted in employee communication (Kassing & Waldron, 2014; Lutgen-Sandvik & Fletcher, 2013; Lutgen-Sandvik & Tracy, 2012; Pörhölä, Karhunen, & Rainivaara, 2006). Workplace bullying has become commonplace in almost every organization, affecting nearly half of all U.S. workers (Lutgen-Sandvik & Fletcher, 2013), yet most organizations do nothing in response to reported bullying (Lutgen-Sandvik & McDermott, 2011; Namie & Lutgen-Sandvik, 2010). In targets' own words, workplace bullying has been described as chaotic and isolating (Tye-Williams & Krone, 2015), as well as nightmarish and enslaving (Tracy, Lutgen-Sandvik, & Alberts, 2006). When workers are bullied, it affects their ability to maintain social contacts, damages their reputation at work, and affects their physical and mental health (Leymann, 1996). Although definitions of workplace bullying vary (Kassing & Waldron, 2014), workplace bullying typically includes frequent and repeated verbal and nonverbal messages characterized by an imbalance of power that create harmful effects on workers (Sanders, Huynh, & Goodman-Delahunty, 2007).

Einarsen, Hoel, Zapf, and Cooper (2003) offered a widely used definition:

> Bullying at work means harassing, offending, socially excluding someone or negatively affecting someone's work tasks . . . in order for the label bullying to be applied to a particular activity, interaction or process, it has to occur repeatedly and regularly (e.g. weekly) and over a period of time (e.g. about six months). (p. 15)

Einarsen et al. (2003) noted that workplace bullying escalates over time through systematic and repeated negative acts. These negative acts are typically verbal forms of communication and range from gossiping, repeated insults, and excessive monitoring of work, to derogatory remarks, public humiliation, and even physical assault (Cowan, 2012; Einarsen, 1999; Einarsen et al., 2003; Lutgen-Sandvik, Namie, & Namie, 2009; Lutgen-Sandvik & Tracy, 2012; Samnani & Singh, 2012). Many employees who are bullied resist efforts to victimize them, but unfortunately, some employees actually accept being a target whereas other employees end up quitting or transferring jobs (Lutgen-Sandvik, 2006).

Bullying at work can occur for almost any conceivable reason. Lutgen-Sandvik et al. (2009) offered several etiological reasons for bullying at work including dispute-related bullying (i.e., bullying that starts out as conflict but escalates quickly), authoritative bullying (i.e., abusing organizational power or position), displaced bullying (i.e., scapegoating and taking frustrations out on others), discriminatory bullying (i.e., bullying someone for prejudicial reasons), and organizational bullying (i.e., the workplace practices and policies are abusive).

Another explanation for workplace bullying is due to demanding workplace conditions that cultivate employee mistreatment (Bowling & Beehr, 2006). Organizations that have frustrating and demanding working conditions are likely to observe bullying (Salin, 2003). For instance, Hoel and Salin (2003) cited unreasonable demands and poor working conditions as sources of stress at work and precursors to bullying. Salin and Hoel (2011) noted that "work environment factors can be considered to produce

or elicit occupational stress, which may increase the risk of conflict and bullying" (p. 228). Lutgen-Sandvik et al. (2009) described organizations that put excessive pressures on workers to be productive as "boiler room" environments and noted that these workplaces promote bullying; "managers and workers may use bullying instrumentally to deal with these chaotic, demanding situations" (p. 34). The link between stressful working environments and workplace bullying may be a reciprocal spiral; that is, bullying may be both a source of stress at work and a consequence of stress as well.

In line with Lutgen-Sandvik et al.'s (2009) observation that pressured working environments serve as a catalyst for bullying, we attempted to explain bullying as a reaction to high-strain working conditions. The purpose of this study was to examine workplace bullying from a job demands perspective. As Salin and Hoel (2011) summarized,

> it has been argued that the problem of bullying comes to the force when a high degree of pressure is present in a work environment that offers individuals little control over their own work . . . such an interpretation would be in line with Karasek's "job demand-control model of stress." (p. 229)

Therefore, the theoretical framework guiding this study was the Job Demand-Control-Support (JDCS) model (Karasek & Theorell, 1990), serving as an etiological explanation for high job strain environments that may encourage workplace bullying (Notelaers, Baillien, De Witte, Einarsen, & Vermunt, 2012).

JDCS Model

Originally conceptualized as a stress-management model of job strain, the job demand-control (JDC) model (Karasek, 1979) has guided hundreds of studies in organizational and management research examining occupational stress (see Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; Van Der Doef & Maes, 1999). In the original JDC model, Karasek (1979) identified two fundamental aspects of all work environments: job demands (i.e., the psychological demands associated with doing one's job) and job control (i.e., the latitude in decision making at work including the authority to make work-related decisions at work, and the opportunity to use one's skills on the job). Karasek's JDC model predicts that jobs characterized by high demands and low job control place a strain on workers and create occupational stress. This prediction is known as the strain hypothesis which is tested as an additive effect. Thus, according to the model, high-strain jobs have many psychological demands and allow employees little control over how to complete those demands (Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981).

Along with the strain hypothesis, the JDC model also predicts a buffering hypothesis, where job control moderates the relationship between job demands on job strain. Unlike the strain hypothesis which is tested as an additive effect, the buffering hypothesis is tested as an interaction effect (Job Demand × Job Control); the conditional effect of job demands on job strain is lessened when employee control is high (Dewe, O'Driscoll, & Cooper, 2012).

Recognizing the importance of the psychosocial work environment, the JDC model was expanded to include social support (i.e., helpful coworkers or supervisors who are available for social interactions; Karasek & Theorell, 1990) as another important variable at work influencing job strain (see Johnson & Hall, 1988; Karasek & Theorell, 1990), and the original model was refined and renamed the Job Demand-Control-Support (JDCS) model. The addition of social support to this model predicts that employees' well-being is affected the most in an isolation-strain (i.e., iso-strain) job where employees lack social support, yet continue to have high job demands and low control. The iso-strain hypothesis is tested as an additive model.

Both the JDC and JDCS models have received support for strain, buffering, and iso-strain hypotheses predicting various high-strain outcomes including emotional exhaustion, job satisfaction, fatigue, mental health, and physical health (for empirical summaries of competing hypotheses and outcomes, see de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Häusser et al., 2010; Van Der Doef & Maes, 1999). Much like the original JDC model, the JDCS model can be tested using additive effects (job demands, control, and social support serving simultaneously as predictors) or as a two-way interaction effect (Job Demand × Social Support), or even as a three-way interaction effect (Job Demands × Control × Social Support) to test the buffering hypothesis (de Lange et al., 2003).

Empirical Rationale and Hypotheses

Workplace bullying serves as a social stressor at work and has direct effects on employee well-being (e.g., Hauge, Skogstad, & Einarsen, 2010). Supported by previous scholarship, we wanted to confirm the workplace bullying and social stressor relationship in our sample by examining associations with job stress (i.e., a feeling of work-related pressure that results in psychological or physiological deviations from normal functioning; Parker & DeCotiis, 1983), job satisfaction (i.e., an evaluative judgment about the degree of pleasure resulting from one's job experiences; Cho, Ramgolam, Schaefer, & Sandlin, 2011), and anxiety at work (i.e., experiencing fear or worry at work or while thinking about the work environment; Muschalla, Linden, & Olbrich, 2010). To confirm these stressor effects in our sample, we offered the following hypotheses:

Hypothesis 1: Workplace bullying will be correlated positively with job stress.
Hypothesis 2: Workplace bullying will be correlated negatively with job satisfaction.
Hypothesis 3: Workplace bullying will be correlated positively with anxiety at work.

In an effort to replicate findings of the JDCS model in this study, the buffering hypothesis was tested as a multiplicative effect (i.e., a three-way interaction between Job Demands × Control × Social Support) to ensure that in our sample "control and support synergistically buffer the impact of high demands" (Van Der Doef & Maes,

1999, p. 103). Specifically, under workplace conditions with high social support, increased control is predicted to buffer the effects of job demands on well-being (Häusser et al., 2010). Hypothesis 4 was designed to ensure that the JDCS model was replicated in our sample because of inconsistent results from tests of the buffering hypothesis (Van Der Doef & Maes, 1999). Therefore, in line with JDCS predictions and to empirically replicate the buffering hypothesis in this study, a moderated moderation model was offered for Hypothesis 4:

> **Hypothesis 4:** The effect of psychological job demands on job stress will be buffered under conditions of high coworker social support and high control over completing the job tasks (i.e., a significant three-way interaction).

The first four hypotheses have received empirical support in other studies, but the novel approach to our study is extending the JDCS model to the workplace bullying literature. Akin to Lutgen-Sandvik et al.'s (2009) boiler room metaphor, we predicted an iso-strain hypothesis (i.e., additive effects of the JDCS model variables) as the ideal environment for workplace bullying. Two JDC(S) studies on workplace bullying inform the current study. First, Baillien, De Cuyper, and De Witte (2011) sampled Belgium workers from two organizations in a longitudinal study examining the effects of workload (i.e., job demands) and autonomy (i.e., control) on being a target of bullying at work. These authors discovered that workload was a positive predictor and autonomy was a negative predictor (both at Time 1) of being a target of workplace bullying over a 6-month lag (Time 2). However, Baillien et al. (2011) did not include social support in their model and did not find a significant interaction effect between workload and autonomy (i.e., no support for a buffering hypothesis), but they did find an additive effect (i.e., support for a strain hypothesis). Second, Tuckey, Dollard, Hosking, and Winefield (2009) sampled Australian police officers and discovered that job demand was a positive predictor and job support was a negative predictor of experiencing workplace bullying, but job control was not a significant predictor. Tuckey et al. (2009) found partial support for an iso-strain hypothesis of JDCS variables predicting workplace bullying as an additive effect. Therefore, we predicted that jobs with higher psychological job demands, lower control, and lower supervisor social support, would create ideal conditions for workplace bullying. We operationalized social support as supervisor social support given that most workplace bullying happens from a top down perspective (Lutgen-Sandvik & McDermott, 2011). We offered an iso-strain hypothesis of workplace bullying:

> **Hypothesis 5:** Psychological job demands, control, and supervisor social support will significantly predict reports of workplace bullying.

Although we predicted an iso-strain hypothesis, it is possible that the same JDCS variables have a multiplicative effect on workplace bullying too (i.e., buffering effect via a three-way interaction). The Tuckey et al. (2009) study sampling police officers is the only research, to date, predicting workplace bullying (i.e., victimization, not perpetration)

testing a three-way interaction/buffering hypothesis. Tuckey et al. did not find evidence of a significant three-way interaction in their study (Job Demands × Control × Support) predicting workplace bullying, and only found support for the iso-strain/additive model. However, the Tuckey et al. study did not measure social support in the organization, but rather job support in the forms of emotional and physical support of police officers. Job support may not be as salient for a moderation test as supervisor social support, considering that much of workplace bullying behavior is enacted by supervisors (Lutgen-Sandvik et al., 2009). Therefore, instead of measuring job support as Tuckey et al. did, we considered supervisor social support as a moderator in the JDCS model and we believed more workplace bullying is likely to occur under conditions of low supervisor social support. Therefore, to test the buffering effect (between Job Demands × Control × Support), a moderated moderation model was offered for Hypothesis 6:

> **Hypothesis 6:** Organizations with high psychological job demands will create conditions under which higher levels of workplace bullying will occur; however, employee control will buffer these conditions when supervisor social support is low (i.e., a significant three-way interaction).

Method

Participants

Participants were 314 full-time employees who worked 35 or more hours per week in various organizations in the United States. Approximately 53% ($n = 166$) of participants worked in managerial and professional jobs (e.g., participants reported being a dentist, engineer, project manager, medical doctor, director of special education, associate dean, nurse, etc.); 33% ($n = 103$) in technical, sales, and administrative support (e.g., therapy technician, office manager, cardiac care technician, customer service advocate, international sales coordinator); 10% ($n = 31$) in service occupations (e.g., hairstylist, probation officer, state trooper, chef, dog groomer, food service, flight attendant); 2% ($n = 6$) in precision production, craft, and repair (e.g., construction, goldsmith, audio/visual production, electrician); and 2% ($n = 5$) in fabricators, operators, and labor (e.g., boat captain, book bindery operator, machinist, warehouse associate). The sample consisted of 86 male and 228 female employees[1] whose ages ranged from 19 to 64 years ($M = 32.87$ years, $SD = 10.03$). Participants had worked in their current organization from less than one year up to 36 years ($M = 5.72$ years, $SD = 6.68$) and earned between US$10,000 and US$300,000 per year ($M = $ US$55,333, $SD = $ US$35,456). The race of the participants included White/Caucasian ($n = 287$), Asian American ($n = 7$), Black/African American ($n = 3$), Hispanic/Latino ($n = 5$), Pacific Islander ($n = 2$), Native American ($n = 1$), and multiracial ($n = 9$).

Procedures/Measurement

After obtaining institutional review board (IRB) approval, an online survey (Qualtrics) was administered to full-time workers through social media (i.e., Facebook) and was

reposted using a short recruitment script to solicit voluntary participation. Participants were not given any monetary incentives or gifts to participate. This Qualtrics link was posted on the authors' Facebook accounts, and was reposted 24 times on helpful participants' Facebook accounts for network sampling. Participation for this study was completely anonymous and voluntary, and no time limit was given for completion. The online survey included the following measures[2]:

Workplace bullying. The Negative Acts Questionnaire–Revised (NAQ-R; Einarsen, Hoel, & Notelaers, 2009) is a 22-item self-report instrument that measures a wide range of bullying behaviors (e.g., "being humiliated or ridiculed in connection with your work") enacted toward an employee at work over the last six months. Responses are solicited on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*daily*). This measure can be summed as a valid single factor for an overall assessment of bullying (see Einarsen et al., 2009), which yielded a Cronbach's alpha of .93 ($M = 36.14$, $SD = 13.78$).

JDCS. The JDCS variables were measured using the standard Job Content Questionnaire (JCQ) and the accompanying scoring formulas (Karasek et al., 1998) which is deemed the valid measure for iso-strain measurement (Pelfrene et al., 2001). This questionnaire is used to test the JDCS model using subscales that measure (a) psychological job demands (nine items, e.g., "My job requires working very hard"), (b) decision latitude/control (six items for skill discretion, e.g., "My job requires a lot of repetitive work" three items for skill authority, e.g., "My job allows me to make decisions on my own"), (c) coworker social support (six items, e.g., "The people I work with take a personal interest in me"), and (d) supervisor social support (five items, e.g., "My supervisor is concerned about the welfare of those under him/her"). For the recommended scoring formulas, please see the JCQ user's guide. The subscales used a 5-point Likert-type response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach's alphas for these subscales were psychological job demands ($\alpha = .73$; $M = 16.76$, $SD = 3.79$), control (skill discretion: $\alpha = .73$; $M = 21.82$, $SD = 3.91$; decision authority: $\alpha = .79$; $M = 10.90$, $SD = 2.76$), coworker social support ($\alpha = .79$; $M = 15.82$, $SD = 2.72$), and supervisor social support ($\alpha = .91$; $M = 14.99$, $SD = 4.11$).

Job stress. The Job Stress Measure (Netemeyer, Maxham, & Pullig, 2005) consists of four items (e.g., "Problems associated with work have kept me awake at night") and measures perceptions of work-related stress that have affected health. This measure used a 5-point Likert-type response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach's alpha for the summed measure was .79 ($M = 11.97$, $SD = 3.81$).

Job satisfaction. The Brief Index of Affective Job Satisfaction (BIAJS; Thompson & Phua, 2012) consists of four items (e.g., "I find real enjoyment in my job") and measures global satisfaction on the job. This measure used a Likert-type response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach's alpha for the summed measure was .93 ($M = 14.28$, $SD = 3.93$).

Table 1. Pearson Correlations Between Variables.

Variables	1	2	3	4	5	6	7
1. Workplace bullying	—						
JDCS variables							
2. Psychological job demands	.37*	—					
3. Decision latitude	−.43*	.05	—				
4. Supervisor social support	−.56*	−.10	.43*	—			
5. Coworker social support	−.61*	−.14**	.41*	.56*	—		
Workplace outcomes							
6. Job satisfaction	−.52*	−.15**	.57*	.46*	.49*	—	
7. Job stress	.56*	.47*	−.18**	−.34*	−.38*	−.44*	—
8. Anxiety at work	.64*	.39*	−.40*	−.45*	−.49*	−.70*	.72*

Note. JDCS = Job Demand-Control-Support
*p < .001. **p < .05, two-tailed.

Anxiety. The short form Spielberger State-Trait Anxiety Inventory (STAI; Marteau & Bekker, 1992) consists of six items (e.g., "I am worried") and was used to measure state anxiety experienced at work. This measure used a 4-point Likert-type response format ranging from 1 (*not at all*) to 4 (*very much*). The Cronbach's alpha for the summed measure was .86 ($M = 13.56$, $SD = 3.98$).

Results

Pearson correlations between all variables are reported in Table 1.

Hypothesis 1 received support and predicted a positive correlation between workplace bullying and job stress ($r = .56$, $p < .001$). Hypothesis 2 received support and predicted a negative correlation between workplace bullying and job satisfaction ($r = -.52$, $p < .001$). Hypothesis 3 received support and predicted a positive correlation between workplace bullying and anxiety at work ($r = .64$, $p < .001$).

Guided by the JDCS model, Hypothesis 4 predicted a moderated moderation effect between psychological job demands and job stress (moderated by control, which is moderated by coworker social support). Results of an ordinary least squares (OLS) regression analysis provided support for this hypothesis as the three-way interaction between the JDCS variables was significant (see Table 2 for the moderated moderation analysis).

Using PROCESS (Hayes, 2013) to probe the significant three-way interaction (mean centered), the conditional effects at values of the moderators are reported in Table 3, indicating that the relationship between job demands and job stress is buffered when coworker social support is high and control is high. Under conditions of high coworker social support, the unstandardized betas are larger (unstandardized $B = .304$, $SE = .047$, $p < .001$) when control is low, and become smaller when control is moderate (unstandardized $B = .235$, $SE = .030$, $p < .001$), and even smaller when control is high (unstandardized $B = .166$, $SE = .036$, $p < .001$).

Table 2. Ordinary Least Squares Regression Analysis Predicting Job Stress.

	Coefficient	SE	t	p
Intercept	11.935	.191	62.616	<.001
Job demands	0.208	.021	9.764	<.001
Control	−0.021	.012	−1.717	.09
Coworker SS	−0.415	.075	−5.532	<.001
Demands × Control	−0.002	.001	−1.400	.16
Demands × Coworker SS	0.010	.007	1.374	.17
Control × Coworker SS	0.006	.003	1.869	.06
Demands × Control × Coworker SS	−0.001	.000	−2.779	<.001

Note. R^2 = .36, $F(7, 299)$ = 23.69, $p < .001$. ΔR^2 due to three-way interaction = .02. Coefficients are unstandardized. SS = social support.

Table 3. Moderated Moderation Analysis: Conditional Effects of Job Demands on Job Stress at Values of the Moderators (Coworker Social Support, Control).

Moderators						CI	
Coworker SS	Control	Coefficient	SE	t	p	LL	UL
−2.732	−16.490	.172	.026	6.510	<.001	.120	.224
−2.732	0.000	.180	.028	6.506	<.001	.126	.235
−2.732	16.490	.189	.042	4.458	<.001	.106	.272
0.000	−16.490	.238	.031	7.623	<.001	.176	.299
0.000	0.000	.208	.021	9.764	<.001	.166	.249
0.000	16.490	.177	.029	6.024	<.001	.119	.235
2.732	**−16.490**	**.304**	**.047**	**6.431**	**<.001**	**.211**	**.397**
2.732	**0.000**	**.235**	**.030**	**7.750**	**<.001**	**.175**	**.294**
2.732	**16.490**	**.166**	**.036**	**4.592**	**<.001**	**.095**	**.237**

Note. The conditional effects are estimated using a pick-a-point approach using ±1 SD of the moderators. Values are mean centered. Significantly moderated two-way interactions (θXM→Y = −.004, SE = .002, t = −2.373, p = .02) are at relatively high levels of Coworker Social Support (in bold). Two-way interactions were not moderated at relatively moderate levels (θXM→Y = −.002, SE = .001, t = −1.400, p = .16) or relatively low levels (θXM→Y = .001, SE = .001, t = .392, p = .70) of Coworker Social Support. Coefficients are unstandardized. CI = confidence interval; SS = social support; LL = lower limit; UL = upper limit.

Hypothesis 5 was an iso-strain hypothesis and predicted that the JDCS variables (i.e., psychological job demands, control, and supervisor social support) will predict reports of workplace bullying as an additive model. Results of an OLS regression analysis indicated all three JDCS variables served as significant and unique predictors (see Table 4 for unstandardized betas, standard errors, and standardized betas).

Hypothesis 6 was a buffering hypothesis and predicted that the JDCS variables would interact in a moderated moderation model to predict workplace bullying (i.e., psychological job demands will be associated with higher levels of workplace bullying, but control

Table 4. Ordinary Least Squares Regression Analysis Predicting Workplace Bullying (Iso-Strain).

	B	SE	β	t	p
Job demands	0.492	.066	.331	7.475	<.001
Control	−0.225	.041	−.269	−5.542	<.001
Supervisor social support	−1.302	.164	−.390	−7.936	<.001

Note. R^2 = .46, $F(3, 287)$ = 81.22, p < .001.

Table 5. Ordinary Least Squares Regression Analysis Predicting Workplace Bullying (Buffering Hypothesis).

	Coefficient	SE	t	p
Intercept	35.673	.629	57.756	<.001
Job demands	0.440	.068	6.433	<.001
Control	−0.214	.040	−5.300	<.001
Supervisor SS	−1.183	.166	−7.121	<.001
Demands × Control	−0.005	.004	−1.100	.27
Demands × Supervisor SS	0.000	.016	.013	.99
Control × Supervisor SS	0.012	.008	1.447	.15
Demands × Control × Supervisor SS	0.002	.001	2.070	.04

Note. R^2 = .49, $F(7, 280)$ = 37.80, p < .001. ΔR^2 due to three-way interaction = .01. Coefficients are unstandardized. SS = social support.

will buffer these effects when supervisor social support is low). Results of an OLS regression analysis provided support for this hypothesis as the three-way interaction between the JDCS variables was significant (see Table 5 for the moderated moderation analysis).

Using PROCESS to probe the significant three-way interaction (mean centered), the conditional effects at values of the moderators are reported in Table 6, indicating that the relationship between job demands and workplace bullying is buffered when supervisor social support is low but worker control is high. Under conditions of low supervisor social support, the unstandardized betas are larger (unstandardized B = .615, SE = .089, p < .001) when control is low, and become smaller when control is moderate (unstandardized B = .439, SE = .083, p < .001), and again smaller when control is high (unstandardized B = .263, SE = .119, p < .05).

Results of the Johnson-Neyman technique indicate that the conditional two-way interaction (Job Demands × Control) is moderated by supervisor social support at a value of −1.883 (effect = −.007, SE = .004, p = .05). The Johnson-Neyman technique confirmed significant moderated moderation at relatively low levels of supervisor social support (the bottom 27.78% of the social support values in the data).

Discussion

This study tested predictions of the JDCS model to inform the workplace bullying literature. The results of this study provided expected support for the negative consequences

Table 6. Moderated Moderation Analysis: Conditional Effects of Job Demands on Workplace Bullying at Values of the Moderators (Supervisor Social Support, Control).

Moderators						CI	
Supervisor Social Support	Control	Coefficient	*SE*	*t*	*p*	LL	UL
−4.081	−16.329	.615	.089	6.873	<.001	.439	.791
−4.081	0.000	.439	.083	5.290	<.001	.276	.602
−4.081	16.329	.263	.119	2.211	.028	.029	.496
0.000	−16.329	.514	.100	5.161	<.001	.318	.711
0.000	0.000	.440	.068	6.433	<.001	.305	.574
0.000	16.329	.365	.093	3.922	<.001	.182	.548
4.081	−16.329	.414	.160	2.592	.010	.100	.728
4.081	0.000	.440	.104	4.250	<.001	.236	.645
4.081	16.329	.467	.126	3.721	<.001	.220	.714

Note. The conditional effects are estimated using a pick-a-point approach using ±1 *SD* of the moderators. Values are mean centered. Significantly moderated two-way interactions ($\theta_{XM \to Y}$ = −.011, *SE* = .004, *t* = −2.730, *p* = .01) are at relatively low levels of Supervisor Social Support (in bold). Two-way interactions were not moderated at relatively moderate levels ($\theta_{XM \to Y}$ = −.005, *SE* = .004, *t* = −1.100, *p* = .27) or relatively high levels ($\theta_{XM \to Y}$ = .002, *SE* = .006, *t* = .268, *p* = .79) of Supervisor Social Support. Coefficients are unstandardized. CI = confidence interval; LL = lower limit; UL = upper limit.

that bullying has on employees' well-being (i.e., job stress, job satisfaction, anxiety at work). Most notably, this study extended the JDCS model beyond an explanation of occupational stress to reveal the workplace conditions that encourage workplace bullying; these results yielded support for both the iso-strain hypothesis tested as an additive model, and the buffering hypothesis tested as a synergistic model. Two important conclusions can be derived from these collective results.

The first conclusion pertains to employees who are bullied, work in environments that put too much pressure on them, allow them little control over how to complete their occupation-related tasks, and work for supervisors who are not particularly helpful or available for supportive communication. These employees, who suffer from an iso-strain workplace environment, report being victimized by coworkers and supervisors at higher rates, which supports Lutgen-Sandvik et al.'s (2009) boiler room explanation of workplace bullying. As Lutgen-Sandvik and McDermott (2008) theorized,

> If the perceived instrumental power of bullying increases in high-pressure environments, managers can intimidate and harass workers to deal with competitive, increasingly demanding work situations . . . this contributes to "boiler room" environments primed for even more abuse, including peer-to-peer bullying. (p. 317)

Our data bear this conclusion out and further validate Lutgen Sanvik et al.'s explanation of bullying. Moreover, correlational findings suggest that bullying occurs in working environments that offer less supervisor and coworker support. It is possible that employee targets become isolated from their social networks, thus removing their access to both forms of social support (Marshall, Michaels, & Mulki, 2007; Sias,

2012). If targets of bullying are excluded and isolated at work, obtaining social support from others becomes exceedingly difficult.

The second conclusion is that even if employees work for an unsupportive supervisor, there is significantly less bullying at work due to excessive job demands when employees have control over how they complete their demands at work. Although a significant relationship between psychological demands and workplace bullying remains, allowing employee control buffers the negative effect in workplaces when there is low supervisor social support. Allowing employee control in how job-related tasks are performed speaks to the documented value of autonomy at work (see Baard, 2002). For decades, self-determination scholars have embraced the idea that allowing control and supporting autonomy fulfills a fundamental psychological need that all adults require to remain intrinsically motivated to perform (Ryan & Deci, 2002). Employees report being fulfilled at work when provided with autonomy support (Hornung & Rousseau, 2007) which may be bestowed by an immediate supervisor, by top management, and by coworkers in a supportive work environment (Deci et al., 2001).

Derived from these findings and conclusions, there are communication implications for managers. First, it is less practical to suggest that managers may be able to lessen psychological work demands in a pressured working environment. As Karasek and Theorell (1990) noted, certain careers (such as engineering, nursing, and banking), because of the nature of the required work, tend to produce high job demands. Although managers may have little ability (or desire) to alleviate heavy workloads in demanding careers, what managers can do is support employees' sense of choice and personal initiative at work (Deci, Connell, & Ryan, 1989) and include them in the participation of decision making (Trombetta & Rogers, 1988). As Baard (2002) noted, "empowering managers are those who afford their subordinates significant influence in how the work gets done, allowing greater satisfaction of the subordinates' innate needs for autonomy" (p. 260). Baard offered several suggestions for managers who want to support employees' control over their job tasks including reducing or eliminating excessive rules, permitting failure as a learning process, and ameliorating internal pressures at work rather than passing them on to subordinates.

Second, managers should recognize the value of supervisor social support at work and provide support to subordinates who ask for it when concerned about work-related issues (Ray & Miller, 1991). Echoing recommendations made by Sakurai and Jex (2012), "supervisors should recognize the importance of their supportive behaviors as a potential resource to mitigate subordinates' behavioral strains in response to workplace incivility" (p. 158). Of course, managers have limited time in the workday to accomplish daily operations, and managers should not communicate unsolicited support and should not attempt to be supportive if they are the cause of strain at work. Support that is unsolicited or unwanted may actually backfire; Kickul and Posig (2001) found evidence for reverse buffering effects of supervisor emotional support which actually increased employee burnout. Likewise, Boren (2014) pointed out that social support can be especially problematic when it leads to co-rumination between employees. Managers, instead, should consider how to be supportive of their employees in

ways that alleviate strain and deter workplace bullying and interpersonal mistreatment. Managers should also be aware that specific occupations might require more supervisor social support because they are high-strain (e.g., freight handler) versus low-strain (e.g., natural scientist) jobs (see Karasek & Theorell, 1990, for occupational distributions of these jobs). A highly supportive supervisor, who provides subordinates with choice and control over how they perform their jobs, will likely create a workplace environment that discourages resorting to bullying as a response to strain on the job. Therefore, managers should consider communicating their support to employees using messages that "reflect caring, empathy, and esteem building" (Sakurai & Jex, 2012, p. 153) when they have strategic opportunities to speak with them. For instance, managers can communicate their support to employees during performance appraisals, work-related retreats, training sessions, and mentoring opportunities. Research suggests that victimized employees need perceived organizational support when they are mistreated; family social support is an inadequate substitution for support at work (Scott, Zagenczyk, Schippers, Purvis, & Cruz, 2014).

As with any study, this study had limitations. The main limitation was that we measured global reports of supervisor social support instead of examining specific types of social support. By using Karasek et al.'s (1998) standard Job Content Questionnaire, we preserved the original operationalization of the JDCS model, but we also overlooked nuances in the types of social support offered at work (e.g., instrumental vs. emotional support). Another limitation was that we did not examine potential threats to resources at work, which has been integrated into the demand-control models; research suggests that workers actually thrive when they not only have psychological job demands but also have ample job resources (e.g., Bakker, van Veldhoven, & Xanthopoulou, 2010). Examining workplaces that provide limited job resources to employees might have provided even more detail to Lutgen-Sandvik et al.'s (2009) boiler room explanation of workplace bullying. A final limitation is that we measured self-reports of workplace bullying from a predominately Caucasian sample.

Researchers in management and organizational communication should continue to examine workplace environments that cultivate bullying and mistreatment among workers. Researchers should continue to use valid organizational models, and if possible, theory to explain bullying at work (e.g., Glasø, Vie, Holmdal, & Einarsen, 2011). Ideally, researchers will consider effective multilevel workplace interventions that deter bullying (Saam, 2010). Moreover, researchers should further consider the role that race plays in workplace bullying, as discriminatory bullying is another etiological explanation for employee victimization (Lutgen-Sandvik et al., 2009). Finally, researchers should determine causality in the vicious spiral of bullying by treating employees' working environments and bullying responses as both causes and consequences of each other (i.e., reciprocal variables).

In summary, workplace bullying was significantly associated with job stress, anxiety, and dissatisfaction, and high-strain working environments explained these negative acts. The conditional effects found in this study revealed that supervisors play an important role in the enactment of workplace bullying, and should consider communicating support to their employees and giving them control over how they accomplish

their occupational tasks. By doing so, supervisors may be able to diminish employee perceptions of the "boiler room" workplace environment, and ultimately, lessen employees' desire to victimize each other at work.

Authors' Note

Declaration of Conflicting Interests

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Notes

1. Because there was an overabundance of female workers in this study, we were concerned about potential gender differences in our measured variables, so we computed follow-up analyses to ensure that gender was not a significant variable in workplace bullying, JDCS variables, or workplace outcomes. First, we ran a *t* test to determine whether men versus women received significantly more workplace bullying as our primary variable of interest. Results of the *t* test revealed no significant gender difference in workplace bullying, $t(291) = 1.38, p = .17$. Next, we ran a multivariate analysis of variance (MANOVA) to determine whether there were gender differences between the JDCS variables (psychological job demands, decision latitude/control, supervisor social support, coworker social support). The MANOVA revealed a nonsignificant model (Wilks's $\lambda = .98$, $F(4, 302) = 1.89$, $p = .11$). Finally, we ran another MANOVA to determine whether there were gender differences between the workplace outcome variables (job satisfaction, job stress, anxiety at work). The MANOVA revealed a nonsignificant model (Wilks's $\lambda = .99$, $F(3, 305) = 1.10$, $p = .35$). We concluded that gender did not play a significant role in our study.

2. As all data were collected using self-report Likert-type instruments, common method bias could serve as a potential limitation in this study (Conway & Lance, 2010). We conducted a Harman single-factor exploratory factor analysis (EFA) test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) using unrotated principal axis factoring for all of the items in the survey. The single factor accounted for 29.21% of the variance which is well below the 50% variance threshold. Another way of examining common method bias is to test the construct validity of the measurement model. Therefore, a confirmatory factor analysis (CFA) with maximum likelihood (ML) estimation was estimated using LISREL 8.8 (Jöreskog & Sorbom, 2007). All items used in the questionnaire were loaded on their respective latent variables (i.e., with no correlated error terms, testing a nine-factor measurement model). The CFA revealed that the measurement model provided a good fit for the data according to fit indices recommended by Brown (2015): $\chi^2(1916) = 4,318.00$, $p < .01$, $\chi^2/df = 2.253$; comparative fit index (CFI) = .96; standardized root mean square residual (SRMR) = .082; root mean square error approximation (RMSEA) = .068; 90% confidence interval (CI) = [.065, .070]. These results do not provide support for common methods bias.

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