

THE ROLE OF HINDRANCE STRESSORS IN THE JOB  
DEMAND-CONTROL-SUPPORT MODEL

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## ABSTRACT

### THE ROLE OF HINDRANCE STRESSORS IN THE JOB DEMAND-CONTROL-SUPPORT MODEL

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Previous research on the job demand-control-support model (Karasek & Theorell, 1990) has generally been unresponsive. However, the model continues to be tested in a variety of academic journals due to its intuitive appeal. By incorporating knowledge from the challenge/hindrance stressor framework, this study proposed that hindrance demands, not the commonly assessed challenge demands, will provide validation for the model.

This two-wave study was conducted using a survey administered to full-time, American, Qualtrics panel participants. Data were analyzed using Pearson correlation coefficients and hierarchical regression analyses. Three-way interaction analyses indicated that the both high levels of job control and social support buffered the effects of hindrance stressors (interpersonal conflict at work, role conflict, and role ambiguity) on emotional exhaustion. In addition, and consistent with past research, the three-way interaction using a challenge demand (workload) was not replicated.

Results provide some evidence that the joint buffering effect of job control and social support on the relationship between job demands and strain, only when job demands reflect hindrance stressors. The implications of the current study's findings and the potential usefulness of distinguishing job demands in the job demand-control-support model are discussed.

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## CHAPTER I

### INTRODUCTION

Psychologists have documented the importance of employee health and well-being, leading to a multifaceted approach in explaining stressor-strain relationships (Probst, 2010). Though a variety of occupational stress models exist, the underlying theory asserts that job strain develops during certain interactions with the work environment (job stressors), mediated by individual perceptions of the environment (Spector, 1998). The impact of job stressors is grave, shown to have considerable mental, physical, behavioral, health, and performance consequences (Matteson & Ivancevich, 1987). Furthermore, the estimated costs associated with job strain have doubled since 1996, tipping the scales at over \$300 billion a year and likely to climb in the coming years (Cynkar, 2007). Thus, investigating the complexities of stressor-strain relationships may prove invaluable to both the organization and its employees (Smith, Karsh, Carayon, & Conway, 2003).

Despite the vast body of literature examining organizational behavior and well-being, researchers contend that little is known about the extent to which individual, environmental, and attributional factors impact the stress process (Jex, Bliese, Buzzell, & Primeau, 2001; Yperen & Snijders, 2000). Numerous conceptual definitions for these factors have been proposed, jeopardizing the theoretical efficacy and overall generalizability of the construct (Dana & Griffin, 1999). Additionally, many stressor-strain models contain the same methods (Cooper, Dewe, & O'Driscoll, 2003), variables (Frese & Zapf, 1988), and design (Zapf, Dormann, & Frese), further exacerbating the problem and leading to equivocal findings. To remedy this situation, researchers assert that the identification of valid moderating effects will help articulate

the relationship between stressors and strain, further revealing the processes that underlie this complex relationship (Nishii & Mayer, 2009).

During the past three decades, the job demand-control-support model (JDCS; Karasek & Theorell, 1990) has been a key anchoring point for research on the situational impact of work characteristics on employee health and well-being (see van Veldhoven, Taris, de Jonge, & Broersen, 2005). The central tenet of the model, known as the buffer hypothesis, posits that job control and social support interact to buffer the effects of job demands on employee strain (three-way interaction); control and support are expected to facilitate effective coping responses, thereby reducing the detrimental effects of job stressors on employee health and well-being. Despite the popularity and prevalence of the JDCS model in research, empirical evidence supporting the model has been marginal at best. Recent meta-analyses fail to show adequate support for the buffering hypothesis (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; van der Doef & Maes, 1999), even when controlling for methodological quality (de Lange, Taris, Kompier, Houtman, & Bongers, 2003). Though empirical evidence suggests little validity for the JDCS model, the buffer hypothesis continues to pervade the literature and has since been coined a zombie theory; a theory that continues to haunt stress research despite having died from a lack of empirical support (Taris, 2006). Undeterred by a lack of empirical evidence, researchers continue to advocate for the use of the JDCS model, proclaiming validity and clamoring for further investigation of the model (e.g., Bhagat et al., 2010).

The conceptualization of job demands in JDCS research provides an important avenue for investigation as empirical tests often measure work overload and/or time pressures as indicators of job demands (Bakker & Demerouti, 2007). Thus, JDCS research has been criticized for its tendency to treat job demands as universal, unidimensional constructs, potentially masking the

differential impact of specific job demands (de Jonge & Dormann, 2006). Recently, stress researchers have made the distinction between demands that are appraised as potentially promoting growth and achievement (i.e., *challenge stressors*) and demands that are appraised as potentially thwarting goal attainment (i.e., *hindrance stressors*; Cavanaugh, Boswell, Roehling, & Boudreau, 2000). In turn, this study contends that the failure to distinguish between the types of job demands has led to the abundance of null findings. Incorporating knowledge from the challenge/hindrance framework, it was proposed that job control and social support should buffer the strain associated with hindrance demands, but not strain associated with the commonly measured challenge demands.

The purpose of this study was to examine the relationship between hindrance demands, job control, and social support in relation to job strain. This study makes three important contributions to the literature. First, although the JDCS model is perhaps the most prominent model in stressor-strain research, researchers have been unable to produce sufficient empirical support for the model. By differentiating job demands based on the challenge/hindrance framework, this study helps validate the buffer hypothesis of the JDCS model. Second, is to provide a convincing theory for the abundance of null findings plaguing the JDCS research by demonstrating that challenge and hindrance demands leads to differential effects in the JDCS model. Specifically, this study goes beyond earlier research that has faulted methodological issues for the overwhelming abundance of null findings, by providing a theoretical rationale as to why strain will not be buffered by control and support in the face of challenge demands. Third, as replacement models have become increasingly narrow and specific, the current model is broad and applicable to a variety of situations, thereby fulfilling the need for more parsimonious job stress models (van Veldhoven et al., 2005).

## The JDC and JDCS Models

Before the inclusion of the social support dimension, Karasek (1979) proposed the job demand-control model (JDC). The model involves two aspects of the work environment; job demands and the degree of job control that an individual has in complying with these demands. Job demands was originally defined as “psychological stressors involved in accomplishing the workload” (Karasek & Theorell, 1990, p. 291). Job control, originally conceptualized as decision latitude, refers to the extent to which an employee has the authority to make decisions and utilize skills concerning the job. The JDC theory posits that job strain will be predicted by the interaction between job demands and job control in which control buffers the negative effects of high demands on employee health and well-being.

Despite the intuitive appeal of the JDC, research investigating the interaction between job demands and control affecting strains has been plagued by null and inconsistent findings (Cox, 1993). A variety of studies have found interactions supporting the JDC hypothesis but, when compared with all the JDC studies over the last 20 years, the number of studies supporting the predicted interaction are small. For example, a meta-analysis of 63 studies of the JDC (van der Doef & Maes, 1999) identified only 15 studies that at least partially supported the interaction. Furthermore, many of the studies considered to be supportive of the JDC model have only found the buffering effect of control in certain situations. For example, a study of accountants revealed that job control buffered the effect of stressors on psychological well-being, but only for those with high locus of control (Daniels & Guppy, 1994).

To help explain and validate past inconsistent findings of the JDC, Karasek and Theorell (1990) extended the model to include social support. Social support is characterized by helpful interpersonal relations with supervisors and/or coworkers. Known as the buffer hypothesis, the

central tenet of the model proposes a three-way interaction between demands, control, and support on employee well-being, in which high levels of job control and social support reduce the relationship between job demands and strain. It is assumed that the combination of job control and social support facilitate the use of active coping which, in turn, enhances employee health and well-being (Daniels & Harris, 2005). This assumption may be premature as a recent meta-analysis reviewing the past 20 years of JDCS research reported support rates of less than 20%, concluding that “the body of evidence paints a gloomy picture of the JDCS interaction” (Häusser et al., 2010, p. 30). Furthermore, the model has been criticized for being a “male model” (Verhoeven, Maes, Kraaij, & Joekes, 2003, p. 423), as the majority of supportive studies consist of entirely male participants (van der Doef & Maes, 1999).

Several researchers have offered explanations for the lack of JDCS support, citing methodological issues such as insufficient sample size (de Lange et al., 2003), use of overly broad demand-control-support constructs (Terry & Jimmieson, 1999), and a lack of longitudinal studies (van der Doef & Maes, 1999). However, empirical support has remained elusive, as studies with larger sample sizes, more specific demand-control-support constructs, and longitudinal designs continue to report null effects (de Jonge & Kompier, 1997; de Lange et al., 2003). It has also been suggested that the job control and social support variables should “match” the job stressor in order to exert its ameliorating effects (Wall, Jackson, Mullarkey, & Parker, 1996). In other words, researchers should operationalize the job demand-control-support measures on qualitatively identical dimensions (e.g., physical, cognitive, emotional). For example, the demand of interpersonal conflict should be matched with measures of control and social support that directly affect interpersonal relationships. The matching principle has received some support (Terry & Jimmieson, 1999), but the overall results are mixed for it too

(Daniels & de Jonge, 2010). Another possible explanation for the lack of JDCS support is rooted in the operationalization of job demands (Beehr, Glaser, Canali, & Wallwey, 2001; van der Doef & Maes, 1999), as JDCS researchers primarily conceptualize job demands as either quantitative workload or time pressure (Fox, Dwyer, & Ganster, 1993; Häusser et al., 2010). In turn, researchers incorporating appraisal theory have recently discovered the value in distinguishing between two types of stressors: challenge and hindrance (LePine, LePine, & Jackson, 2004). Through this distinction this study attempted to find meaningful buffer effects and thus empirical support for the seminal JDCS model, while also providing a theoretical explanation for the abundance of past null findings.

#### Challenge and Hindrance Demands and the JDCS Model

One possible explanation for the inconsistent and unsupportive JDCS findings is that the buffering effects of job control and social support may depend on the types of demands assessed with respect to the way they are typically appraised and managed by employees. Known as the *challenge/hindrance* occupational stressor model (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Lazarus & Folkman, 1984), this distinction has thus far been overlooked in JDCS research. In this model, stressors that are appraised as potentially challenging and beneficial (i.e., *challenge stressors*) are differentiated from stressors that are appraised as potentially threatening and harmful (i.e., *hindrance stressors*). Furthermore, challenge stressors, because they tend to be perceived as controllable factors that offer the possibility for personal growth and achievement, evoke an active or problem-solving coping style (e.g., increased effort). Examples of challenge stressors include demands such as high workload, time pressure, job responsibility, and job scope. Hindrance stressors, because they tend to be perceived as uncontrollable factors with the possibility to thwart personal goals, trigger an emotional or passive style coping response (e.g.,

regulation or control of emotional distress). Examples of hindrances include demands such as organizational constraints, interpersonal conflict, role conflict, and red tape (Lepine, Podsakoff, & Lepine, 2005). Empirical research has since supported this distinction, revealing differential effects on employee behaviors (e.g., task performance; Cavanaugh et al., 2000), job attitudes (e.g., job satisfaction and organizational commitment; Podsakoff, Lepine, & Lepine, 2007), and well-being (e.g., vigor and exhaustion; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). In one such study, challenge stressors were positively related to job satisfaction and negatively related to job search behaviors, whereas hindrance stressors were negatively related to job satisfaction and positively related to job search behaviors (Cavanaugh et al., 2000). Furthermore, Lepine et al. (2005) discovered that challenge stressors were positively related to performance and motivation, whereas hindrance stressors were negatively related to performance and motivation.

By incorporating appraisal theory (Lazarus & Folkman, 1984), the challenge/hindrance stressor framework is based on the notion that challenge stressors will be appraised as controllable, goal-promoting stressors that evoke an active problem-focused form of coping. Hindrance stressors are then appraised as uncontrollable stressors that have the potential to thwart personal growth, thus evoking an emotion-focused or passive form of coping. It is important to note that although responses to stressors may differ on an individual basis (Lazarus & Folkman, 1984), characteristics of the work environment have a constant meaning for the individuals who experience them (e.g., Brief & George, 1995; Lepine et al., 2005). As a result, individuals tend to appraise and cope with a variety of work stressors in a fairly consistent manner. With the majority of JDCS studies operationalizing job demands as challenge stressors

(e.g., quantitative workload and time pressure), we can thus assume that job control and social support were used in conjunction with an active-coping strategy.

Karasek and Theorell (1990) theorized that job control and social support would enhance the ability to actively cope with stressors, and as a result, reduce the negative effects of work demands on employee well-being. Job resources (e.g., job control and social support) are important coping facilitators as they allow coping functions to become coping behaviors (Schönplflug & Battmann, 1988). Although job control and social support stimulate coping behavior, an increase in active coping behavior may not buffer the effect of job demands on strain (Cohen, Evans, Stokols, & Krantz, 1986; Sargent & Terry, 1998). Three predominant active coping behaviors have been identified in the literature: positive thinking, working harder, and help seeking (Havlovic & Keenan, 1991). Ito and Brotheridge (2003) found that although positive thinking and help seeking were negatively associated with strain, working harder was positively related to strain. Thus, working harder requires an increase in time and effort to cope with job demands, thereby countering the ameliorative benefits of an active coping strategy. When an individual appraises a demand as challenging, an increase in motivation is expected, as they are likely to believe that an increase in effort will likely result in meeting the demand (LePine et al., 2005). Furthermore, when faced with job demands, high levels of job control and social support have been found to increase proactive coping behaviors (e.g., working harder; Ito & Brotheridge, 2003; Ohly & Fritz, 2010). For example, employees are likely to believe that time pressure demands can be met with an increase in effort (LePine et al., 2005), especially when accompanied with high levels job control and social support (Daniels & de Jonge, 2010).

## The Present Study

With the majority of JDCS research assessing challenge demands (workload and time pressure), it was theorized that individuals with high levels of job control and social support enact active coping behaviors and thus work harder to meet these demands. This increase in effort then cancels out the buffering effects of job control and social support predicted by the buffer hypothesis, leading to the abundance of null findings. Although job control and social support may enhance coping behavior, employees actively coping with challenge demands are not expected to experience the ameliorating effects of control and support proposed by the JDCS model. In fact, high levels of job control and social support have been found to make work demands more, rather than less, harmful to employee well-being (e.g., Buunk & Hoorens, 1992; Mullarkey, Jackson, Wall, Wilson, & Greg-Taylor, 1997; Schaubroeck & Fink, 1998), thus an increase in effort induced by the combination of high challenge demands, job control, and social support leads to an increase in strain. Ultimately, this study concludes that the abundance of null and mixed findings in JDCS research is due to the fact that researchers have generally conceptualized job demands as challenge stressors (i.e., workload and time pressure).

In contrast to challenge demands, hindrance demands are negatively associated with motivation (Cavanaugh et al., 2000) because employees are likely to believe that any increase in effort will be inadequate to meet these demands, thereby coping with demands in a passive or emotional style (LePine et al., 2005). Emotion-focused coping involves regulating emotions associated with the demand, and results in escape/avoidance, emphasizing the positive, and resignation (e.g., believing that the situation will take care of itself) cognitive behaviors (Havlovic & Keenan, 1991). These efforts allow an individual to avoid focusing on the troubled situation (Folkman, Lazarus, Gruen, & DeLongis, 1986). Although active coping strategies

attempt to directly alter the situation, emotion-focused coping efforts attempts to alter the way a situation is interpreted (Perrewé & Zellars, 1999). Whereas job resources (e.g., job control and social support) activate coping behavior, they also influence how an individual copes with and appraises a stressor as threatening (Cordes & Dougherty, 1993; Lazarus & Folkman, 1984). Control and support are thought to enhance emotion-focused coping strategies by helping an individual redefine the potential for threat while eliciting positive coping beliefs, thereby reducing strain (Cohen & Wills, 1985). In a study of psychiatric workers, social support buffered strain symptoms by enhancing emotion-focused coping, whereas the buffering effects of social support was not found for those utilizing an active coping strategy (Ingledeu, Hardy, & Cooper, 1997). Furthermore, eliciting control has been found to bolster emotion coping effectiveness, helping to further attenuate strain (Daniels & Harris, 2005; Daniels, 1999). Thus, it was proposed that the inclusion of hindrance demands in the JDCS model will help to validate the seminal buffer hypothesis.

### Hypotheses

Specifically, having been identified in previous studies (e.g., Cavanaugh et al., 2000), hindrance stressors were operationalized as interpersonal conflict, role ambiguity, and role ambiguity.

#### **Interpersonal Conflict**

Interpersonal conflict refers to any negative interpersonal encounter in the workplace. Interpersonal conflict at work may range from minor verbal disagreements to physical violence (Spector & Jex, 1998). Interpersonal conflict at work has been found to negatively affect a variety of attitudinal, behavioral, psychological, and physical health outcomes. For example a

meta-analysis (Spector & Jex, 1998) found interpersonal conflict to be negatively related to job satisfaction ( $r = -.32$ ) and positively related to physical symptoms ( $r = .26$ ) and turnover intentions ( $r = .41$ ). Consistent with the conceptualization of hindrance stressors, interpersonal conflict has been found to reduce job motivation (e.g., absenteeism; Giebels & Janssen, 2005) and performance (Aquino & Bommer, 2003). Although researchers have noted the importance of interpersonal conflict as a work stressor, conflict at work has been understudied in occupational stress research (Ilies, Johnson, Judge, & Keeney, 2011). Therefore, perceptions of interpersonal conflict at work have been identified as an important hindrance demand that should fit the JDCA theory and hypothesis of this study:

*Hypothesis 1:* The three-way interaction between interpersonal conflict, job control, and social support will be significantly related to employee health and well-being, such that high control and high support will buffer the relationship between interpersonal conflict and emotional exhaustion.

## **Role Ambiguity**

Role ambiguity is the second type of demand that should be appraised as a hindrance stressor. Role ambiguity refers to a lack of information or clarification regarding an employee's job demands and responsibilities (Kahn, Wolfe, Quinne, Snoek, & Rosenthal, 1964). Typically subordinates interact with role senders (i.e., supervisors) to gather information to perform his/her job. When role sender information results in demands that fail to match the employees expectations for job performance, role ambiguity occurs. Because job demands related to role ambiguity tend to mask the desired or appropriate behaviors for job performance, the likely response is employee withdrawal (Kahn et al., 1964). Moreover, perceptions of organizational

politics have been shown to negatively relate to task performance and job motivation (Jackson & Schuler, 1985), a relationship consistent with the hindrance stressor framework. Therefore, role ambiguity will be included as a hindrance demand in the JDACS:

*Hypothesis 2:* The three-way interaction between role ambiguity, job control, and social support will be significantly related to employee health and well-being, such that high control and high support will buffer the relationship between role ambiguity and emotional exhaustion.

### **Role Conflict**

Consistent with Kahn et al.'s (1964) role theory, role conflict is defined as incompatible expectations or requirements regarding one's job. For example, role conflict may arise when an individual receives contradictory information regarding appropriate job behaviors, resulting in an inability to accomplish all role-related expectations. Because it is difficult for employees to complete role-related tasks when the expectations of these duties are unclear, they are likely to perceive role conflict as a threat to their ability to perform job duties and achieve personal goals. In addition, role conflict demands tend to obscure the interpretations of one's role and the appropriate behaviors necessary for success, thereby resulting in negative affective responses such as organizational commitment and job involvement (Jackson & Schuler, 1985). Therefore, job demands that make an individual's role in a company unclear will generally be appraised as a hindrance as these demands are burdens to role-related performance and thus will be included as a hindrance stressor in this study:

*Hypothesis 3:* The three-way interaction between role conflict, job control, and social support will be significantly related to employee health and well-being,

such that high control and high support will buffer the relationship between role conflict and emotional exhaustion.

## **Workload**

To rule out the possibility that the results are conditional upon the specific sample or measurement characteristics, workload was included as a challenge demand. Previous JDCS literature has typically focused on only one work stressor, the perceived ‘job demands’ construct introduced by Karasek (1979). This construct typically focuses on measures assessing quantitative workload and time pressures, a common criticism of the model (de Jonge & Dormann, 2006). Workload refers to the amount of work or duties required by an individual in an organization. These demands are likely to be perceived as challenging because they are duties that clarify the nature of an individual’s job role and directly relate to one’s job performance. Thus, employees are likely to believe that the accomplishment of job tasks will result in extrinsic rewards, job growth, and accomplishment of one’s goals (Lazarus & Folkman, 1984). Based on prior JDCS studies, the three-way interaction between workload, control, and support is expected to be non-significant.

*Research Question:* Will the three-way interaction between quantitative workload, control, and support be significant in relation to employee health and well-being?

## CHAPTER II

### METHODS

#### Participants and Procedure

Participants were recruited using Qualtrics, a third-party online survey and market research company that provides an online recruiting system with access to panelists from a variety of countries. This recruitment process was chosen based on its use in previous studies (e.g., DeCelles, DeRue, Margolis, & Ceranic, 2012; Long, Bendersky, & Morrill, 2011; Strauss, Griffin, & Parker, 2012). Only employed panelists from the United States working a minimum of 30 hours a week were recruited for this survey. To help reduce common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) a two-part data collection strategy was used. All study variables were assessed in each of two survey administrations, with a four week lag.

At Time 1, there were 522 people who filled out the survey. Of these, 248 (48%) participants responded four weeks later at Time 2. Twenty participants were removed for non-purposeful responding based on the recommendations of Huang, Curran, Keeney, Poposki, and DeShon (2012). Specifically, participants who completed the survey three times as fast as the average were removed. Furthermore, participants who recorded the same response twelve times in a row. The hypothesis testing was therefore performed a final sample pool of 228 participants (114 men, 114 women). Average age was 46.89 ( $SD = 11.23$ ) and the mean tenure in the current organization was 10.47 years ( $SD = 9.42$ ). The majority of participants were Caucasian (72.4%) followed by African-American (11.4%), Asian (10.1%), Hispanic (4.4%), and other (1.8%). Participants worked an average of 42.85 hours a week ( $SD = 6.59$ ) and were employed in a variety of occupations (e.g., retail, health-care, sales, administrative).

## Measures

### **Interpersonal Conflict**

Interpersonal conflict was measured with the four-item Spector and Jex (1998) Interpersonal Conflict at Work Scale. The participants rated how often they experienced conflict with items such as “How often do you get into arguments with others at work?” Items were rated using a frequency scale, ranging from 1 (never) to 5 (very often). Higher scores indicate greater interpersonal conflict. The minimum recorded score was 4. The maximum recorded score was 16. Cronbach’s alpha = .70.

### **Role Ambiguity**

Role ambiguity was measured using the six-item role ambiguity scale developed by Rizzo, House, and Lirtzman (1970). Example items are “I know what my responsibilities are (R),” and “I know exactly what is expected of me (R).” Items were rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). All items were reverse-scored in the direction that higher scores indicate greater role ambiguity. The minimum recorded score was 6. The maximum recorded score was 37. Cronbach’s alpha = .87.

### **Role Conflict**

Work-related role conflict was assessed using Rizzo, House, and Lirtzman’s (1970) eight-item measure of role conflict.  $\alpha = .81$ . Sample items include “I have to do things that should be done differently,” and “I work on unnecessary things.” Items were rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate greater role conflict. The minimum recorded score was 8. The maximum recorded score was 54. Cronbach’s alpha = .89.

## **Workload**

Workload was measured with Karasek and Theorell's (1990) Job Content questionnaire (JCQ). The scale includes five items that tap quantitative workload and time pressures. Sample items include "My job requires working very fast," and "My job requires working very hard." Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater workload. The minimum recorded score was 5. The maximum recorded score was 25. Cronbach's alpha = .75.

## **Control**

Job control was assessed using nine items from the JCQ (Karasek & Theorell, 1990). Example items include "I have a lot to say about what happens on my job," and "On my job, I am given a lot of freedom to decide how I do my work." All items were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater levels of perceived job control. The minimum recorded score was 12. The maximum recorded score was 43. Cronbach's alpha = .87.

## **Support**

Social support at work was measured using four-items from the JCQ (Karasek & Theorell, 1990) that tap perceived levels of managerial support. Example items include "My supervisor pays attention to what I am saying," and "My supervisor is helpful in getting the job done." All items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater levels of managerial support. The minimum recorded score was 4. The maximum recorded score was 20. Cronbach's alpha = .94.

## **Emotional Exhaustion**

Emotional exhaustion was assessed using the nine-item emotional exhaustion sub-scale from the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986). An example item includes “I feel used up at the end of the workday.” Items were rated on a 7-point frequency scale ranging from 1 (never) to 7 (every day). Higher scores indicate greater levels of emotional exhaustion. The minimum recorded score was 9. The maximum recorded score was 63.

Cronbach’s alpha = .95.

## CHAPTER III

### RESULTS

Table 1 displays the means, standard deviations, and zero-order correlations of all study variables. Hierarchical regression analyses were conducted to test all study hypotheses. To reduce multicollinearity and to better interpret the results, all predictor variables were centered around their grand mean and standardized (see Aiken & West, 1991). The predictor variables were then regressed onto emotional exhaustion measured at Time 2 in the following steps: (1) Time 1 job demands, control, and support; (2) all two-way interactions; (3) the three-way interaction. Table 2 displays the results of the regression analysis. To provide support for an interaction, the overall model  $F$  value, the beta weight for the three-way interaction term, and the change in  $r$ -squared from step three to step four must be significant. Each significant three-way interaction was then graphed following the recommendations set forth by Aiken and West (1991) by inserting the high (one standard deviation above the mean) and low (one standard deviation below the mean) values for the three variables in the regression equation.

Hypothesis 1 was supported as the three-way interaction between interpersonal conflict, control, and support was significant ( $\beta = -.22, p < .05$ ), explaining an additional 2.0% of the variance in emotional exhaustion. As predicted, the graph of this interaction (Figure 1) indicates that high levels control and support jointly buffer the relationship between interpersonal conflict and emotional exhaustion. Because the interpersonal conflict data was heavily skewed (skewness = 2.77), the variable was transformed using a logarithmic function and reanalyzed. The results of the reanalysis remained unchanged. The three-way interaction proposed in Hypothesis 2 for role ambiguity, control, and support was also significant ( $\beta = .30, p = .001$ ), explaining an additional 4.0% of the variance in emotional exhaustion. As predicted, high levels

of control and support buffered the relationship between role ambiguity and emotional exhaustion (Figure 2). Surprisingly, the graph suggests that low levels of control and support also buffered the role ambiguity and emotional exhaustion relationship. Finally, in support of Hypothesis 3, the three-way interaction between role conflict, control, and support was significant ( $\beta = -.16, p < .05$ ), explaining an additional 1.6% variance. As expected, high levels of control and support buffer the relationship between role conflict and emotional exhaustion (Figure 3).

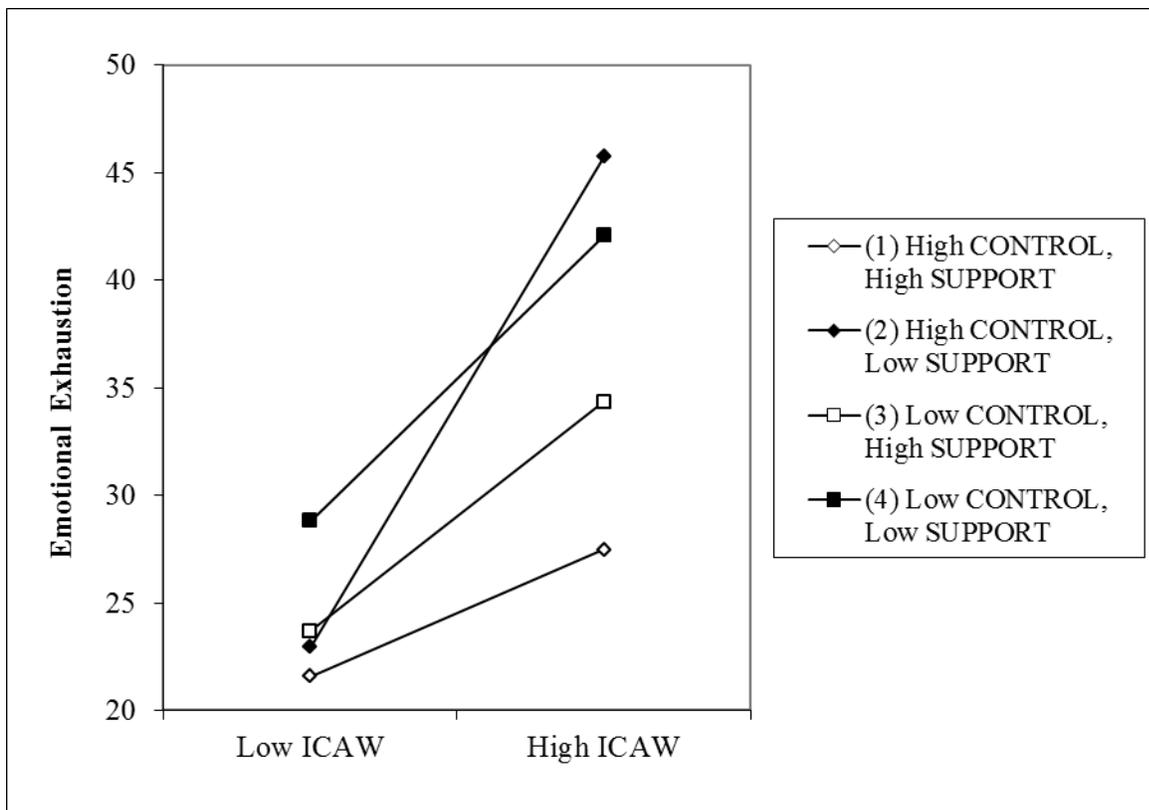


Figure 1. *The interaction of interpersonal conflict, job control, and social support on emotional exhaustion.*

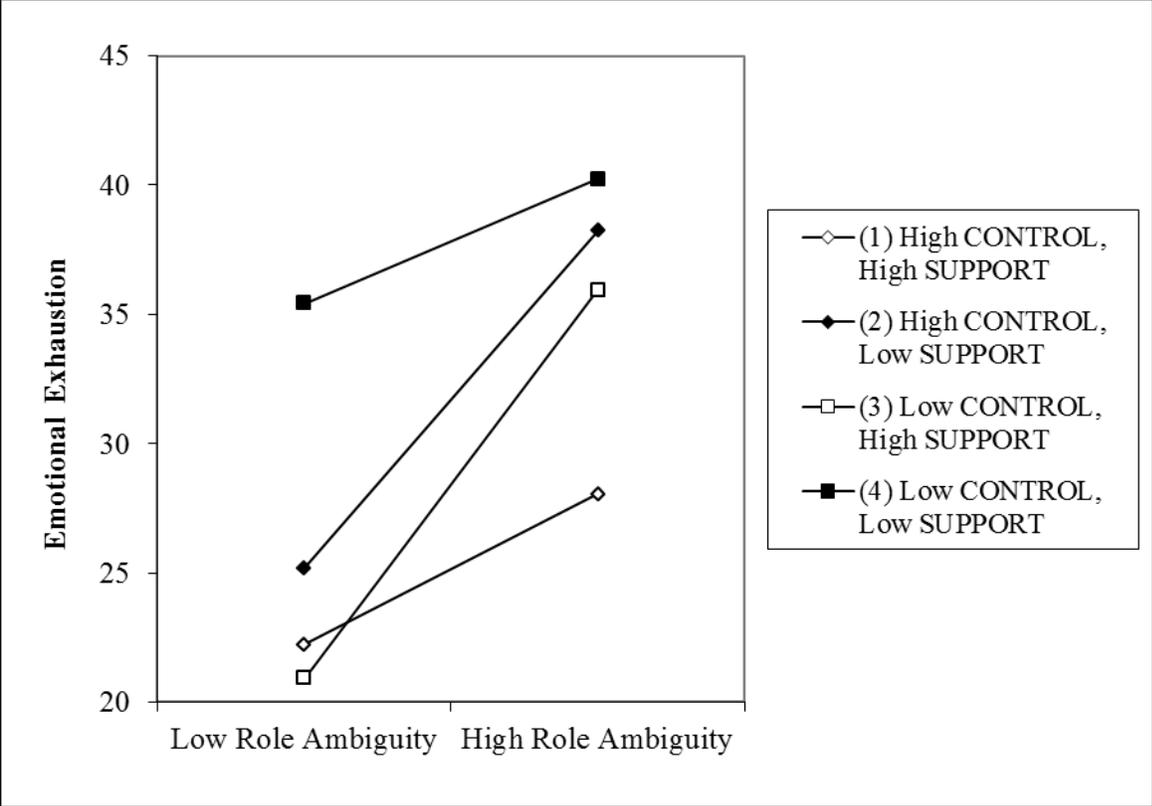


Figure 2. *The interaction of role ambiguity, job control, and social support on emotional exhaustion.*

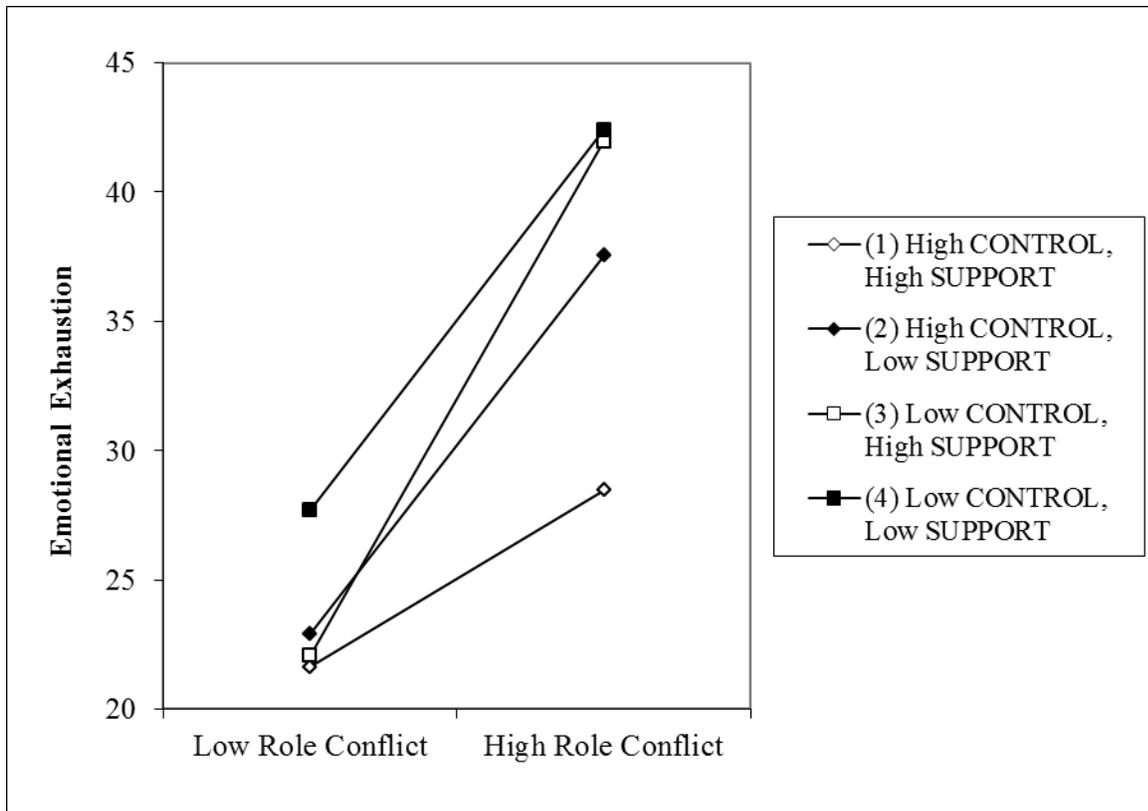


Figure 3. *The interaction of role conflict, job control, and social support on emotional exhaustion.*

### Research Question

To investigate the research question and ensure the significant three-way interactions were not an artifact of the sample, analyses of the JDCS model using the typically measured job demand construct of the JCQ that assesses quantitative workload and time pressures was conducted. As commonly reported in past literature, the three-way interaction between workload, control, and support was not significant ( $\beta = .02, p = .84$ ).

## CHAPTER IV

### DISCUSSION

Previous research on the JDCS model has primarily revealed null findings (see Häusser et al., 2010). This study contributes to the literature by providing a theoretical explanation for the abundance of null findings, while providing empirical support for the JDCS buffer hypothesis. Specifically, a three-way interaction between various hindrance demands (including interpersonal conflict, role ambiguity, and role conflict), job control, and social support as relating to employee strain was hypothesized. This hypothesis was supported as the interaction between the three hindrance stressors, control, and support was significantly related to emotional exhaustion.

Because these findings contradict previous research, which predominantly shows no three-way interaction (see Häusser et al., 2010), we were concerned that the significant three-way interactions were an artifact of the sample. To test whether the three-way interactions were artifactual, this study also analyzed the JDCS model using the commonly measured (and mostly unsupported) job demand of quantitative workload. As this is a challenge stressor, a significant three-way interaction would have suggested that there was something unique to the sample responsible for the three-way interactions. However, as typically reported in past literature, the three-way interaction between workload, control, and support was not significant. The failure to find support for this analysis is consistent with the explanation that hindrance and challenge stressors differentially affect the JDCS model

For emotional exhaustion, there was a buffering effect for those with high levels of job control and managerial social support. This is in line with the buffer hypothesis, as high levels of control and support are expected to facilitate effective coping responses, thereby reducing the

strain associated with an increase in job demands. Furthermore, low levels of control and support buffered the relationship between role ambiguity and emotional exhaustion. It may be that low levels of perceived job control and support may help an individual attribute distressing events externally, rather than harmful internal attributions. Schaubroeck and Fink (1998) provided a similar explanation after discovering that individuals with low levels of control and support reported did not suffer the strain typically associated with high job demands, whereas those with high levels of job control and support reported higher levels of physical symptoms. This explanation seems especially plausible in the face of role ambiguity, as poor performance or difficulty in carrying out desired work outcomes can easily be attributed to an individual's manager, especially for those with low levels of perceived job control and social support.

Furthermore, a mismatch between the level of job control and social support appeared to exacerbate the strain associated with an increase in job demands. Specifically, high levels of control and low levels of social support, as well as low levels of control and high levels of social support, appear to be deleterious to employee health in the face of increasing job demands. This finding is consistent with previous studies supportive of the JDCS model (Landsbergis, Schnall, Deitz, & Friedman, 1992; Schaubroeck & Fink, 1998). Thus it seems that workers facing job demands with high levels of control and low support or low control and high support may have trouble coping when one key ingredient is missing (control or support).

It is common practice to conduct a meta-analysis to support a theoretical explanation for past research findings. However, a dearth of supportive JDCS studies precludes us from conducting a meta-analysis examining the differential effects of challenge and hindrance stressors in regards to the buffer hypothesis. One study was found that assessed both challenge and hindrance stressors in the JDCS model (Schaubroeck & Fink, 1998). In line with this

hypothesis, they found no significant three-way interaction when assessing quantitative workload, control, and social support, whereas significant three-way interactions were reported when operationalizing job demands as skill underutilization and role conflict, commonly reported hindrance stressors. Furthermore, their three-way interaction graphs revealed similar trends as the plotted interactions in this study. Although a paucity of significant JDCS findings exist, preliminary evidence suggests that low levels of support and control also have beneficial effects on employee strain. Furthermore, increasing worker control or social support is helpful, but only if extant support or control is high or increased concomitantly.

### Theoretical Implications

This study contributes to the literature by revealing the importance of distinguishing between challenge and hindrance stressors in the JDCS model. It appears that an increase in job control and social support buffers the negative impact of hindrance stressors on employee strain, but not on the commonly assessed challenge demands. However, this study only assessed one specific challenge stressor, quantitative workload, replicating the majority of past JDCS research revealing null findings. Thus, future researchers should identify and test a variety of challenge stressors such as job complexity, time urgency, and responsibility. Perhaps high levels of control and support in the face of other challenge stressors (e.g., responsibility) may not elicit an increase in effort, but instead evoke positive thinking or an increase in help seeking behavior, thereby alleviating strain. As such, Schaubroeck and Fink (1998) reported a significant three-way interaction between responsibility for others, job control, and supervisor support in the prediction of sick days. Surprisingly, and in contrast to this studies findings, a buffering effect was only found in employees reporting a mismatch between their levels of job control and support. Further research is needed to understand these complex relationships.

In an effort to enhance the utility of research findings, stressor-strain research has traditionally attempted to identify broad, universally applicable, job characteristics (e.g., Hackman & Oldham, 1980; Karasek & Theorell, 1990). Although general models are of growing importance in the job stress literature, no such models currently exist (see van Veldhoven et al., 2005). Instead, alternative JDCS models, in the pursuit of validity, have become increasingly narrow and specific. One such model that elaborates the JDCS tradition of increasing specificity is the demand-induced strain compensation model (de Jonge & Dormann, 2006). Known as the triple-match hypothesis, researchers have found that the likelihood of finding moderating effects is greatly enhanced when all work characteristics are based on qualitatively identical dimensions. Thus researchers contend that the job demands, control, support, and strain constructs should represent similar facets of the workplace environment in order to have the highest predictive JDCS validity. Although matching constructs may provide sufficient JDCS support, it's not surprising that the positive relationship between emotional demands and emotional strain (e.g., emotional exhaustion) will be buffered by high levels of emotional control and emotional support (e.g., Hogan, Hogan, & Roberts, 1996). Moreover, the overall generalizability of the model is severely restricted and thus offers minimal practical relevance.

From a theoretical perspective, the findings in this study are significant in that they refute the notion that job stress models must increase complexity and specificity to garner validity. Instead, it was proposed, and found, that more parsimonious models are possible by merely distinguishing job demands based on the challenge/hindrance framework. Through this broad approach, job resources such as control and support are expected to be important moderators for an array of hindrance demands, ultimately enhancing the comparability of findings across a wide

array of contexts and models (Meier, Semmer, Elfering, & Jacobshagen, 2008). This is especially important for JDCA research as the buffer hypothesis has been cited over 3,700 times in a variety of academic journals and applied settings (Daniels & de Jonge, 2010).

### Practical Implications

This study reveals that an increase in job control and social support may only mitigate the deleterious effects associated with hindrance stressors, and not challenge stressors. Thus organizations hoping to alleviate employee strain should increase worker control and social support in the face of hindrance demands such as interpersonal conflict, role ambiguity, and role conflict. Ultimately, an organization should reduce the occurrence of hindrance demands, as they thwart goal attainment and lead to a variety of negative outcomes. For companies whose workers face high levels of challenge stressors, it would appear that job control and social support are not beneficial in reducing the strain, as workers may only increase effort, and work harder, to overcome and conquer these demands.

The results of this study also support the notion that a match between the levels of job control and social support leads to the greatest stress buffering effects. Increasing job control is widely recommended as a means to alleviate employee strain. Although more research is needed, it would appear that increasing job control can be detrimental to employee's health and well-being in certain situations, such as when social support is low. Furthermore, low levels of both job control and social support may also attenuate the strain associated with hindrance demands as employees may attribute workplace difficulty externally, reducing the occurrence of harmful internal attributions.

## Limitations

This study used all self-report measures, raising concerns of common method variance (CMV). CMV is systematic error variance due to using a single reporting method, and can attenuate or disattenuate relationships found in the study (Spector, 2006). In an attempt to minimize CMV, this study temporally separated the predictor and criterion variables using a four week time lag (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Furthermore, as CMV may inflate correlations (Spector, 2006), CMV greatly reduces the likelihood of finding significant interaction effects (Wall et al., 1996). Indeed, JDCS studies employing all self-report measures have commonly found support for the additive effects of the three variables, but considerably less for the three-way interaction (Häusser et al., 2010).

Second, although the use of multiple time points was a strength of this study, as it reduces common method variance and mood or other temporary effects, temporal precedence is not sufficient to show causality. Thus, one can only assume that hindrance stressors, control, and support directly affected strain as this study only revealed that these variables were related. Future studies investigating the challenge/hindrance framework within the JDCS to should employ longitudinal, experience sampling, or experimental designs.

Third, the observed interaction effect sizes are modest ( $\Delta R^2 = 1.6 - 4.0\%$ ). However, the difficulty in detecting interaction effects with small and medium sample sizes, particularly in field studies, is well documented (McClelland & Judd, 1993). The findings of this study are important because, although the effect size is likely reduced by measurement error (McClelland & Judd, 1993), they fall within the typical range ( $\Delta R^2 = .01-.03$ ) for interaction effects in survey research (Champoux & Peters, 1987).

Future research can bolster the knowledge gained here by replicating the study with a broader range of both predictor and outcome variables, and in a wider variety of samples. This is particularly important because interactive effects are extremely difficult to find in field research due to lack of power (McClelland & Judd, 1993), and further replication of the study would help to determine the robustness of the effect.

APPENDIX A

SUPPLEMENTARY DATA

*Means, Standard Deviations, and Zero-Order Correlations*

	1	2	3	4	5	6	7
1. IC T1	.70						
2. RA T1	.30**	.87					
3. RC T1	.39**	.42**	.89				
4. WL T1	.14*	.20**	.36**	.75			
5. Control T1	-.22**	-.31**	-.10	.02	.87		
6. Support T1	-.24**	-.44**	-.39**	-.22**	.41**	.94	
7. EmoExh T1	.42**	.46**	.54**	.47**	-.27**	-.40**	.95
8. IC T2	.67**	.29**	.35**	.10	-.24**	-.23**	.40**
9. RA T2	.24**	.71**	.44**	.31**	-.25**	-.36**	.47**
10. RC T2	.39**	.51**	.70**	.32**	-.09	-.341**	.52**
11. WL T2	.18**	.26**	.38**	.77**	-.04	-.21**	.47**
12. Control T2	-.16*	-.28**	-.08	.04	.82**	.39**	-.25**
13. Support T2	-.23**	-.41**	-.38**	-.24**	.40**	.77**	-.42**
14. EmoExh T2	.43**	.38**	.52**	.45**	-.26**	-.38**	.86**
Mean	5.10	14.96	28.60	15.91	30.41	13.48	31.96
SD	1.90	6.40	11.22	3.73	6.90	4.28	14.37

*Means, Standard Deviations, and Zero-Order Correlations  
(continued)*

	8	9	10	11	12	13	14
1. IC T1							
2. RA T1							
3. RC T1							
4. WL T1							
5. Control T1							
6. Support T1							
7. EmoExh T1							
8. IC T2	.76						
9. RA T2	.29**	.89					
10. RC T2	.42**	.47**	.89				
11. WL T2	.17**	.38**	.40**	.87			
12. Control T2	-.21**	-.30**	-.11	-.04	.70		
13. Support T2	-.26**	-.41**	-.41**	-.28**	.53**	.89	
14. EmoExh T2	.43**	.44**	.56**	.49**	-.26**	-.45**	.96
Mean	5.23	15.11	27.93	15.79	30.04	13.46	30.58
SD	2.10	6.72	10.86	3.56	7.00	4.50	14.24

*Hierarchical Multiple Regression Analyses Predicting Time 2 Emotional Exhaustion from Interpersonal Conflict, Role Ambiguity, Role Conflict, and Workload Stressors, Control, and Support*

	Type of Stressor			
	Interpersonal Conflict (Hindrance Demand)		Role Ambiguity (Hindrance Demand)	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.271**		.204**	
Stressor		.35**		.25**
Control		-.07		-.08
Support		-.27**		-.24**
Step 2	.011		.015	
Stressor X		.05		.06
Control				
Stressor X		-.09		.09
Support				
Control X		-.10		.02
Support				
Step 3	.020*		.040*	
Stressor X		-.22*		-.30*
Control X				
Support				
Total R <sup>2</sup>	.30*		.26**	

*Hierarchical Multiple Regression Analyses Predicting Time 2 Emotional Exhaustion from Interpersonal Conflict, Role Ambiguity, Role Conflict, and Workload Stressors, Control, and Support (continued)*

	Type of Stressor			
	Role Conflict (Hindrancel Demand)		Workload (Challenge Demand)	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.322**		.307**	
Stressor		.44**		.40**
Control		-.16*		-.17*
Support		-.14*		-.22*
Step 2	.010		.005	
Stressor X		-.11		-.01
Control				
Stressor X		.00		.02
Support				
Control X		-.08		-.08
Support				
Step 3	.016*		.000	
Stressor X		-.16*		.02
Control X				
Support				
Total R <sup>2</sup>	.35**		.31**	

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