PART III

The Role of Workplace Factors on Health
Research over the past few decades has established a clear link between control in its various forms at work and health, both physical and psychological. Much of the work on control has viewed it as a major component in the job stress process in which exposure to stressful conditions at work can adversely affect employee physical health and emotional well-being. Control variables play a prominent role in the job stress process. Control affects how people view their work environment, and it may serve to buffer the emotional impact of that environment. Furthermore, control can affect people’s behavioural coping responses to workplace stressors. Less attention has been paid to other effects of control that may have little to do with stressful job conditions. Specifically, control might play a role in accidents and injuries in the workplace, perhaps by having an influence on people’s exposure to unhealthy work conditions, or their safety-related behaviour.

Control is the extent to which individuals are able to influence their environment. In the workplace an employee can have control over many different aspects of the job, such as when and where to work, and how to perform job tasks. Other forms of control have to do with being able to influence how others will do their jobs. Although there are objective features of the work environment that allow or prevent control, it is the perception of control that has perhaps the most important impact on health and well-being. Objective control is certainly an important element in the job stress process, but likely much of its effect is mediated by perceptions of control, as will be discussed at greater length below.
Control can be viewed from the perspective of the environment, and as noted, we can distinguish among different aspects of control, such as control over work schedule or control over work tasks. We can also distinguish objective (characteristics of the work environment) from perceived (people’s idiosyncratic view of the environment) control. However, there are a number of control-related personality constructs that reside in the individual, as well. Locus of control is the tendency to believe one does or does not have control, and self-efficacy is the belief one can effectively perform tasks.

This chapter will provide an overview of the literature relating control to health and well-being. It will discuss research on the role control plays in the job stress process, and how individual differences in control-related variables relate to health and well-being. Not all of the control-related constructs have received much research attention in the organizational literature, so more emphasis will be placed on some topics than others. The chapter will begin with a theoretical framework whereby control influences the job stress process. It will then summarize the existing evidence that relates control to health and well-being, and discuss three models of how control affects the stress process. Finally, the two personality variables of locus of control and self-efficacy will be reviewed.

9.1 CONTROL AND STRESS IN THE WORKPLACE

Most theories of stress in general and job stress in particular have adopted some form of an environment-reaction or stressor-strain approach (Beehr & Newman, 1978; Lazarus, 1991). Figure 9.1 presents a general model of stress linking the environment to the individual’s reactions. The individual is seen as monitoring his or her environment, perceiving and evaluating or appraising (Lazarus, 1991) that environment. Conditions or events seen as overly challenging or threatening are perceived as job stressors that lead to physical and psychological strains, both in the short and long term. Short-term strains include immediate negative emotional responses, most likely anger or anxiety (Keenan & Newton, 1985; Liu, Spector & Shi, 2007; Narayanan, Menon & Spector, 1999), and associated physiological responses, such as increased

Figure 9.1 A general model of job stress
heart rate and blood pressure (Bishop et al., 2003), and catecholamine and cortisol secretion into the bloodstream (Frankenhaeuser, 1978). The immediate emotional response can contribute to a variety of behavioural, physical and psychological strains. Behavioural strains are actions taken by the individual to cope with the stressful event or condition, and might include alcohol or drug (e.g., tranquilizer) consumption, or withdrawal from the situation (e.g., absence from work). Physical strains include immediate physiological reactions as well as headache or stomach distress. Psychological strains might be job dissatisfaction as the byproduct of being in a disagreeable situation. Longer-term strains are the cumulative effect of short-term strains, and could include post-traumatic stress disorder in response to continued exposure to stressors (Del Ben et al., 2006), or heart disease from the continued exposure to elevated cortisol (Frankenhaeuser & Johansson, 1986). Individuals will engage in a number of coping strategies designed to eliminate or escape the stressor, or reduce the strain response.

Evidence exists to support the linkages in the Figure 9.1 model. First, studies have shown that measures of the work environment relate to perceived stressors in both experimental and nonexperimental research (Spector, 1992). A large body of literature has established connections between perceived job stressors and both emotions and strains. Results of many such cross sectional studies have been summarized in a variety of meta-analyses showing links of various strains to stressors such as role ambiguity and conflict (Jackson & Schuler, 1985; Örtqvist & Wincent, 2006), injustice (Cohen-Charash & Spector, 2001), working hours (Sparks et al., 1997), interpersonal conflict, organizational constraints and workload (Spector & Jex, 1998). Two Scandinavian studies found that high job control was significantly associated with low work–family conflict in Finland (Heponiemi et al., 2008) and Sweden (Grönlund, 2007). Interestingly, both studies found the same correlation between the two variables.

Figure 9.2 incorporates the likely role that control plays in the job stress process. Perceived control arises from an interaction between the person and the environment. Although there is not a perfect correspondence, perceived control reflects the amount of control an individual believes he or she has in the workplace. It is a reflection of experiences in which control attempts were successful or unsuccessful. Beyond actual experience are individual factors that predispose people to believe they have control over situations or that they are capable of being effective in accomplishing goals. Individual differences in control beliefs are the personality variable of locus of control (Rotter, 1966), which has been adapted to workplace settings as work locus of control (Spector, 1988). Individuals who believe they have control over rewards and success at work are said to be internals, whereas individuals who believe luck, fate or powerful others control such things are said to be
externals. Individual differences in the extent to which a person believes he or she is effective in conducting job tasks is self-efficacy within the work setting (Jex & Bliese, 1999).

Perceived control influences the actual work environment, as individuals who perceive control are likely to be proactive in dealing with workplace challenges. Thus a high control individual will show initiative to solve problems that might otherwise become stressors. For example, the individual might seek the help of others to handle a heavy workload, or might call the appropriate technician to fix a piece of equipment that was malfunctioning. To the extent that such efforts are successful, the individual’s perceived control would be enhanced, as well as self-efficacy and perhaps locus of control.

Beyond affecting direct action, control is also a factor in appraisal and perception. Conditions and events that are perceived as controllable are less likely to be perceived as stressors than conditions and events seen as uncontrollable. The belief in control over a stressor, particularly the belief in being able to escape or terminate that stressor, will reduce the extent to which it is perceived as threatening, and thereby the impact of that stressor on strains. Empirical support for the connection between control perceptions and stressors are easy to find in the literature. Spector’s (1986) meta-analysis showed significant correlations between perceived control and both role ambiguity and role conflict of –.33 and –.32, respectively. In another meta-analysis, Spector and Jex (1998) found correlations of perceived autonomy
of –.21 with organizational constraints, –.20 with interpersonal conflict, but only –.04 with workload. Spell and Arnold (2007) found that perceived control related to distributive, procedural and interactive justice, with individuals perceiving high control perceiving more justice.

Studies have compared relationships between perceived stressors and control with correlations between objectively assessed stressors (or at least stressors assessed with methods unaffected by the subject’s perceptions) and control. Ganster, Fox and Dwyer (2001) assessed the workloads of nurses via either patient loads or a self-report scale. Perceived control was related to the perceived measure but not the objective. Spector, Dwyer and Jex (1988) compared self with supervisor reports of stressors in their correlations with perceived control. For self-reports, correlations were significant for organizational constraints (r = –.21) and role ambiguity (r = –.30), but for supervisor reports of the same stressors, correlations were not significant (r = –.16 and –.12, respectively), although for constraints the corresponding correlations were not much different. Interestingly, the number of working hours, which is more of a factual measure of workload, was significant regardless of whether it was reported by the subject (.18) or the supervisor (.25). Taken together these two studies suggest that it is in fact perceptions of stressors that most relate to perceived control.

Control is also related to both emotions and other strains. Spector’s (1986) control meta-analysis found relationships between control and emotional distress (r = –.25), job satisfaction (r = .30), physical symptoms (r = –.25) and absenteeism (r = –.19). Other studies have found an association between low control and high burnout (Akerboom & Maes, 2006; McClenahan, Giles & Mallett, 2007), anxiety and depression (Griffin et al., 2007). Mausner-Dorsch and Eaton (2000) linked control to not only depressed mood, but clinical depressive episodes, as well.

Of perhaps even more concern is that a number of studies have linked control to physical illness. Ganster et al. (2001) found that high control predicted lower use of medical services over the five-year span of their study. This study does not indicate what sorts of illnesses were associated with control, but there is evidence linking control to a variety of physical conditions and disease. For example, Schaubroeck, Jones and Xie (2001) showed that perceived workplace control correlated –.20 with upper respiratory illness, suggesting a link between control and the immune system. A more extensive body of research links both stress and control to physical symptoms that can contribute to cardiovascular disease, as well as indicators of cardiovascular symptoms themselves. Examples include markers of inflammation (Clays et al., 2005), glycolipid allostatic load (Li et al., 2007), and subclinical atherosclerosis in men but not women (Kamarck et al., 2007). Although gender differences have been found in other studies, they might be attributable to the
greater frequencies of men than women in blue collar jobs (Landsbergis et al., 2001) where the impact of control on cardiovascular symptoms is higher (Gallo et al., 2004). In a prospective study, Bosma, Stansfeld and Marmot (1998) tracked 9000 British civil servants over a five-year span. Control assessed from both subjects and their supervisors predicted subsequent coronary heart disease. Furthermore, control at work has been linked to mortality due to cardiovascular disease (Kivimäki et al., 2002).

Beyond physical illness, control has also been shown to relate to the incidence of workplace injuries and accidents. Goldenhar, Williams and Swanson (2003) in a survey study showed that perceived control related to not only psychological strain and physical symptoms, but workplace injuries as well, although the latter relationship was quite small \((r = -0.10)\). An even stronger correlation of \(-0.21\) was found between control and injury when the measure of control consisted of items concerning safety (Huang et al., 2006).

Although the aforementioned studies suggest that high control is uniformly preventative when it comes to both minor and serious illness, at least one study suggests that the situation can be more complex. Johnson and Hall (1988) found that under some conditions high control was associated with cardiovascular disease. They speculated that at times the responsibility associated with high control can serve as an additional demand that can have negative effects. Nevertheless, the bulk of the research shows a clear link between control at work and strains, and that control can be an important factor in even serious illness.

### 9.2 MODELS OF CONTROL AND STRESS

Additional environmental and individual factors can serve as moderators of the connection between stressors and strains. Karasek’s (1979) control-demand model posits that control serves as a buffer, so that strain occurs in response to stressors primarily under conditions of low control. This idea was expanded into the control-demand-support model that included an additional buffer of social support (Karasek & Theorell, 1990). According to this model, the effects of stressors on strain occur most strongly under the conditions of low control and low social support. Spector (1998) presented a control-emotion model that distinguishes dispositional, environmental and perceived control, and explains how it fits into the job stress process.

#### 9.2.1 The Control-Demand Model

Perhaps the most influential control theory of stress is Karasek’s (1979) control-demand model. This model suggests that the negative effects of being
exposed to stressors can be buffered by having high control. The model distinguishes demands (stressors) from decision latitude (control) which consists of having discretion over how the job is done as well as ability to do the job. Karasek (1979) argues that demands (stressors) induce an energized or motivated state within the individual. Control allows that energy to be directed outward towards meeting those demands. Constraints produced by a lack of control leave the energy unreleased within the individual, thus resulting in strain. Thus, strain is seen as a byproduct of the combination of high demands and high control. This could be due to the impact of control on the appraisal of demands. Terry and Jimmieson (1999) suggest that Miller’s (1979) mimimax hypothesis might better serve as the mechanism. Specifically, control reduces negative responses to demands because the individual believes he or she can minimize the maximum aversiveness of those demands. In other words, one can control his or her own exposure by reducing or even eliminating the demand if it begins to induce too much strain. That knowledge alone of being able to terminate an aversive stimulus can reduce the strain response has been well researched in the general stress literature (Thompson, 1981).

Whereas the mimimax hypothesis concerns the effect of perceived control on appraisal and responses, other mechanisms concern the actual behaviour of individuals to better manage and cope with stressors. Individuals who believe they have control are more likely to engage in direct control behaviour that can be effective in accomplishing job tasks. This could occur by finding better and more effective ways to accomplish tasks, seeking assistance of others, managing time more effectively and overcoming obstacles. Of course, actual control in these circumstances is important, as attempts to exert perceived control one does not have can result in additional demands as time and effort are expended in failed control attempts that could have been used to address the demands themselves. For example, if one has a heavy workload, time spent in vain to seek assistance or restructure the tasks, leaves less time and energy to accomplish the workload that has not been reduced.

Terry and Jimmieson (1999) thoroughly reviewed tests of the control-demand model. This review concluded that support for control as a general buffer of demands has been mixed. Many studies that reported tests of control as a moderator of the demand-strain or stressor-strain relationship have not been statistically significant. They caution, however, that it may be premature to discard this model, as a more precise conceptualization might prove to be better supported. The specific nature of the control, type of strain and additional moderating factors such as social support may be key factors to consider in refinements of the model. They point to the distinction between control over tasks versus being allowed input into broader organizational decisions, with the former but not the latter form having a moderator effect.
De Jonge et al. (2000) provided evidence that the specific form of control must match the stressors experienced for buffering to occur. Spector (1998) suggested that one must have control over the stressor itself for buffering to occur. Thus having control over workload will be unhelpful if the stressor is role conflict or some social aspects of the job. This suggests that one cannot easily identify a specific type of control to serve as a buffer, but must link control to the specific demands experienced by the individual.

There are additional factors that should be considered before discarding the control-demand model as being unsupported, including the nature of the stressor, statistical power to detect moderator effects in studies and level of analysis. Although there is insufficient research to fully evaluate each of these possible factors, likely they contribute to the lack of consistent support for the model.

A wide variety of demands and stressor variables can be found throughout the various tests of the control-demand model. Some studies have used Karasek’s Job Content Questionnaire (JCQ) (Karasek, 1979; Karasek et al., 1998), which is a general measure that focuses on the content of job tasks, including workload, conflicting demands and interruptions. Other studies have looked at specific stressors, some of which overlap in content with the JCQ, such as workload. Some studies have also looked at stressors that go beyond job content into the social domain, such as interpersonal conflict (Spector, 1987). The inclusion of a wide variety of disparate demands and stressors across studies likely introduced variance into the outcomes of model tests. Although one might be tempted to hypothesize that all forms of demands/stressors should be affected in the same way by control, such might not be the case. In part it might be that some stressors by their nature are more controllable than others, thus the link between control and demand varies. Assuming that control must match the stressor, this would be an important factor. In part it might also be the fact that some stressors by their nature are more serious, and thus for them control is more important. Finally, perhaps some stressors require control to best cope, whereas others do not. Control would not be particularly effective in cases where stressors are not controllable, and might actually be counterproductive.

Another issue that likely contributes to inconsistency in moderator tests is that such tests tend to have low statistical power due to high multicolinearity between the additive and product terms in multiple regression analyses, and effect sizes for moderators generally found in the literature tend to be quite small (Aguinis et al., 2005). Indeed it has been noted that the size of the control buffering effect is likely modest (Payne & Fletcher, 1983). Most tests of the control-demand model have had samples of less than optimal size, with sample sizes below 200 not being uncommon. Given a combination of small effect sizes and low power due to high multicolinearity and
small samples, it should be no surprise that results are inconsistent across studies.

Another issue that deserves mention concerns the level of analysis. Some studies have investigated the model’s predictions at the level of the individual employee, testing for the moderating effects of an employee’s own perceptions of control on the relationship between perceptions of demands (or stressors) and strains. Others have focused on the job classification as the unit of analysis. Such studies test hypotheses about the possible effects of control and demands at the job level on the incidence rates for various illnesses and other outcomes. It would seem that the model itself is concerned with the impact that control has on reactions to demands/stressors by individuals, and thus this would be the most appropriate level of analysis for testing. Indeed Morrison, Payne and Wall (2003) conducted a large multi-level study of more than 6700 employees from 81 different jobs, finding support for the model at the individual but not the job level.

An additional issue with the level of analysis has to do with whether the study investigates general job conditions for an individual or specific events. Most studies ask employees to report on the general level of stressors and control at work. It is presumed that individuals who tend to have high levels of stressors and low control are more subject to strains. However, this approach fails to recognize variability in stressors and strains over time, and fails to link specific stressor to specific control. An alternative to this approach is event sampling, in which multiple measurements are taken for individuals so that strains can be linked in time to specific instances of stressors and control. Bishop et al. (2003) conducted just such a study, finding support for the control buffering effect on heart rate and blood pressure.

Taken all together, there are a variety of reasons that would explain the lack of strong support for the control-demand model. These issues hold for the more complex models that add additional moderators, such as control-demand-support to be discussed next. Clearly additional research studies are needed using large samples, more precise measures of control and a variety of specific demand/stressor measures. Ideally, multi-level studies would be conducted, including both the individual employee and the job classification level. Such large-scale studies would have the statistical power to fully explore differences among types of control and stressors, and to better show the interplay between person-level and job-level relationships. Far more definitive conclusions would then be possible concerning the control-demand model. An example of a larger-scale study that allowed for a comparison of the JCQ measure of discretion (control) with a more specific measure of control was conducted by Wall et al. (1996) who showed that the latter but not the former yielded the hypothesized moderator effects of control on job anxiety, depression and job (dis)satisfaction.
9.2.2 Control-Demand-Support Model

The control-demand model has been expanded to include the additional buffer of social support (Karasek & Theorell, 1990). The combination of high control and high support would jointly buffer the effects of job stressors on strain. Conversely, high stressor jobs with low control and low support will be the most stressful. Some studies have found additive effects of the three components, that is, high stressors, low control and low social support tend to be associated with high levels of a variety of strains, such as job dissatisfaction, psychological distress, burnout (Akerboom & Maes, 2006; McLenahan et al., 2007), and somatic symptoms (Akerboom & Maes, 2006), although not all components were significantly associated with all strains in some studies (Parkes, Mendham & von Rabenau, 1994). As with the control-demand model, tests of the multiplicative or joint buffering effects in the control-demand-support model have been inconsistent. De Lange et al. (2003) reviewed what they termed ‘the very best’ longitudinal studies of the control-demand and control-demand-support. For both models the majority of multiplicative tests were nonsignificant. Furthermore, most studies include more than one strain, and in such studies it is not uncommon to find a significant joint product term for only some of them. For example, Parkes et al. (1994) found a significant joint buffering effect for somatic symptoms but not job dissatisfaction.

In addition to reasons discussed with the control-demand model, some of the inconsistencies in results for the control-demand-support model might be due to variations in operationalizations of key measures. On the support side, measures differ in the sources and types of support assessed. Some measures tapped instrumental support, that is, the extent to which others offered assistance is getting things done (Sargent & Terry, 2000), whereas other studies included scales that focused more on emotion-focused support (e.g., Akerboom & Maes, 2006). In some studies the source of support mattered, for example, Sargent and Terry (2000) found a joint buffering effect with supervisor support but not coworker support. Thus it is possible that the control-demand-support model is correct, but only under certain combinations of control, demands and support.

De Jonge and Kompier (1997) critically reviewed work on the control-demand-support model, noting a number of methodological issues that might have contributed to the lack of consistent support for the buffering effects. They point out that there is ambiguity in the nature of the relationships proposed, confounding among stressors and control in many of the instruments used, confounding of stressors and control with additional variables, such as socioeconomic status and individual differences, and the possible moderating effect of personality. Finally, they note that the model suggests that
characteristics of jobs are related to strain. However, almost all studies assess stressors and control through self-reports, thus making it difficult to disentangle the effects of the objective environment from people’s perceptions of it.

As with the control-demand model, it might be premature to conclude that the control-demand-support model cannot be supported. Likely the joint buffering effect is rather modest in size, requiring large samples to provide conclusive tests. Furthermore, closer attention needs to be paid to the matching of control and support to stressors. As with control, support should be something that helps the individual cope with the stressor. Instrumental support to deal with heavy workloads might serve as a buffer for the effects of workload on strain, but it is unlikely to buffer the effects of social stressors. Furthermore, instrumental support is likely most beneficial for stressors that are in fact controllable. Uncontrollable stressors would best be buffered by emotional support. What the existing research has demonstrated is that the connections among control, demands and support are likely to be complex, and are in need of additional work that can help disentangle how they might interact.

### 9.2.3 Control-Emotion Model of Stress

Spector (1998) has proposed a control-emotion transactional model of stress that links the objective environment to perceptions of both control and stressors. As illustrated in Figure 9.3, the core of the model suggests a causal flow from the environment, through perceptions of the environment to strains. Negative emotion is the immediate response to stressors, and mediates the relationship with other forms of strain. On the physical side, negative emotion is associated with immediate physiological responses, such as increased blood pressure and secretion of cortisol into the bloodstream. Long-term exposure to such physiological responses can lead to more chronic and serious physical illness.

Control plays an important role in the model, especially perceived control. As Figure 9.3 shows, perceived control is determined by both the objective environment and personality. Individual perception is affected to a great extent by personality, as individuals who have an internal locus of control and individuals who have high self-efficacy (both of which will be discussed in detail later) are predisposed to perceive control, especially when there is ambiguity in the situation. However, perceptions are not divorced from reality, and certainly the degree to which the environment allows control affects perceptions.

The action of control in the job stress model is largely in moderating the relationship between the environment and perception of stressors. It is
situations that are seen as uncontrollable that are most likely to be seen as stressors that lead to negative emotional responses. Situations that are seen as controllable are likely to be perceived more as challenges that can be associated with more positive responses. For example, if an individual is given a job assignment, he or she will be more likely to perceive it as a stressor if he or she has no control over whether or not to accept the assignment, and if he or she perceives an inability to successfully complete the assignment. If the person perceives control over accepting the assignment and believes it is feasible to accomplish it, the perception will be quite different. If he or she sees the assignment as a chance to enhance his or her career or to develop important skills, the emotional response is likely to be positive excitement over the opportunity.

Spector (1998) discusses evidence in support of many of the links in the model. The one critical link for which evidence is limited is the potential moderating effect of perceived control on the environment-perceived stressor relationship. Few studies exist that have explored this connection, and those that have looked at the moderating effect of control on stressor measures that do not rely on employee perceptions (e.g., supervisor ratings) have not linked specific control to specific stressors. As with the control-demand and control-demand-support models, the moderating role of control is not clear.
9.3 CONTROL PREDISPOSITIONS

Most of the work linking control to stressors and strains, either as direct or moderating effects, has assumed that control affects everyone similarly (de Jonge & Kompier, 1997). However, people differ in their predisposition to perceive control, and it is indeed possible that people’s personality might affect the tendency for control to relate to other variables. It is also possible that many of the findings linking perceived control to other variables are attributable in whole or part to personality, in that certain personality traits might underlie people’s reports of stressors, control and strains (de Jonge & Kompier, 1997). Thus a complete treatment of control must also consider individual differences. Two personality variables are of particular concern in the study of control: locus of control (the tendency to perceive control in situations) and self-efficacy (belief in one’s ability to accomplish something).

9.3.1 Locus of Control

Locus of control (Rotter, 1966) is the predisposition to believe one has control over rewards in life (internality) or that control of rewards is due to the action of luck, fate or powerful others (externality). Indeed locus of control has been shown to relate to perceived control, but the magnitude of relationship between locus of control and perceived control was surprisingly modest in a recent meta-analysis (mean $r = .16$ in Ng et al., 2007). It should be kept in mind that Ng et al. included studies that assessed autonomy which is the extent to which individuals have discretion in completing their job tasks. This is quite different from the general tendency to believe one controls rewards reflected in locus of control. An individual might easily perceive autonomy in doing tasks, but not see the link between that autonomy and rewards. For example, an employee can have a great deal of autonomy at work, but might feel relatively powerless to control raises and other rewards, or to have significant impact on the organization itself. Thus locus of control might be more relevant to some aspects of control than others. Furthermore, it might well be that the existence of autonomy is fairly obvious, leaving little room for the action of locus of control. Regardless of one’s locus of control, one recognizes the existence or lack of autonomy on the immediate job. On the other hand, the rather modest convergence between incumbent and other sources on autonomy (e.g., Spector & Fox, 2003) suggests that perhaps there is a great deal of room for individual differences in perceptions. It seems that locus of control is not the major reason for such perceptual differences.

Despite the rather modest relationship between locus of control and autonomy at work, it has been linked to health and well-being at work, as well as
to job stressors. Ng et al.’s (2007) meta-analysis showed that internality had mean correlations with mental well-being ($r = .30$), physical health whether self-reported ($r = .22$) or objectively measured ($r = .13$), job satisfaction ($r = .26$), turnover intentions ($r = -.14$) and burnout ($r = -.23$). They also reported correlations showing high levels of internality were associated with job stressors of role ambiguity (mean $r = -.15$), role conflict (mean $r = -.21$) and overall job stress (mean $r = -.19$).

Most of the studies meta-analysed by Ng et al. (2007) used general measures of locus of control. Spector (1988) developed a work-specific locus of control scale that assesses predispositions to perceive control over rewards (e.g., promotions and raises) at work. Some studies have shown that work locus of control relates perhaps even more strongly than indicated in the Ng et al. (2007) meta-analysis. For example, Spector (1988) reported relationships in five samples between work locus of control (high scores are externality) and job satisfaction (mean $r = -.54$) and turnover intentions (mean $r = .23$). These are higher in magnitude than in Ng et al. who scored locus of control in the opposite direction.

As suggested for perceived control, locus of control has been explored as a potential buffer of the stressor-strain relationship with inconsistent results (e.g., Lu et al., 2000; Moyle & Parkes, 1999). Many of the same methodological issues arise in testing for the buffering effects of locus of control as with perceived control, such as low statistical power, and the lack of matching between control and stressor. One intriguing possibility is that the buffering effect occurs for women and not men, as was found for health symptoms by Muhonen and Torkelson (2004). Unfortunately, their study did not shed much light on the reasons for gender differences which they concluded are in need of further study.

Most of the studies that have investigated locus of control used cross-sectional designs that leave open many possible alternative explanations for results. At least two prospective studies assessed locus of control at pre test and stressors and/or strains at post test, allowing more confident conclusions about the role of personality. Moyle and Parkes (1999) surveyed supermarket employees one month prior and six months following a job transfer. They found that locus of control predicted both job satisfaction and psychological distress over time. Likewise, Spector and O’Connell (1994) assessed locus of control in a sample of college seniors during their final semester in school, and assessed job stressors and strains approximately one year after graduation. Locus of control was significantly related to job satisfaction and work anxiety, as well as autonomy, role ambiguity, role conflict and interpersonal conflict. These two studies lend more confidence to the conclusion that there is something inherent in the individual that leads to perceptions of stressors and strains. Both help rule out the possibility
of occasion factors such as mood, that might have affected reports of all variables. The Spector and O’Connell study rules out the possibility that exposure to the job might have affected personality because none of the subjects in their study had begun the job prior to completing the pre-test survey.

9.3.2 Self-Efficacy

Self-efficacy is the belief an individual has that he or she can successfully accomplish an objective or outcome (Bandura, 1977). Such beliefs can be narrowly construed to a particular task of a specific difficulty level, or they can cover a broad class of situations (Bandura, 1977). Self-efficacy can be considered a personality variable in that individuals differ in their level of self-efficacy in a given context. It can also be considered a form of perceived (or believed) control, in that it reflects the extent to which a person believes he or she can turn effort into success (Bandura, 1989). As a form of control, self-efficacy is expected to be relevant to stress and well-being (Bandura, 1989; Bandura et al., 1988).

Although not entirely consistent in their findings, a number of workplace studies have found that high self-efficacy is associated with low levels of strains, including burnout (Xanthopoulou et al., 2007), emotional distress (Fillion et al., 2007; Jex & Bliese, 1999; Jex et al., 2001; Lubbers, Loughlin & Zweig, 2005; Siu, Lu & Spector, 2007), job satisfaction (Jex & Bliese, 1999) and physical health (Schaubroeck et al., 2001). An exception is Jimmieson (2000), who failed to find a significant correlation of self-efficacy with emotional strain, job satisfaction and somatic symptoms. Furthermore, self-efficacy has been shown to act as a buffer of the relationship of both demands and control with strain. For example, Jex and Bliese (1999) found that workload related to psychological and physical strain only for individuals who were low in self-efficacy. Those who were highly self-efficacious showed little to no increase in strain with increasing demands at work.

Self-efficacy has also been shown to moderate the effect of control on strain, in that individuals who are high in self-efficacy may prefer and respond well to high control, whereas their low self-efficacy counterparts may find high control to be stressful. Evidence for this possibility comes from two studies. Jimmieson (2000) found in a sample of customer service representatives that the job satisfaction of high self-efficacy individuals was lower than low self-efficacy individuals under conditions of low perceived control, and higher under conditions of high perceived control. Furthermore, the somatic health of high self-efficacious employees increased and the low self-efficacious decreased with increasing control.
A more complex three-way interaction between demands, control and self-efficacy was found by Schaubroeck, Lam and Xie (2000). Their results showed an opposite interaction between demands and control for high and low self-efficacy employees. The pattern of results supported the control-demand model for individuals high in self-efficacy in that high control buffered the impact of demands. However, for individuals low in self-efficacy, it was low control that acted as a buffer. For them, having control seemed to be counterproductive, and led to an increase in anxiety as demands increased. It seems likely that when individuals have control, but do not believe they can be effective, the control acts as an additional demand that compounds their strain. Thus control can only have a positive effect when the individual believes he or she is able to successfully use it to accomplish work goals and tasks.

### 9.4 MOVING FORWARD

The area of research on control has been vibrant, showing a clear connection between control and both psychological strains and physical health. As in many active research areas, we are left with perhaps more questions than answers, particularly in figuring out the extent to which control can act as a buffer of stressful job conditions. Throughout the chapter a number of methodological issues with tests of the control-demand and control-demand-support models were noted. Despite these limitations, the literature has provided some strong hints about how complex the relationships can be among control, stressors and other variables in potentially leading to strain.

One issue that is of concern in this literature is that the vast majority of studies have been cross-sectional, and usually with single-source self-report surveys. Such designs are quite useful at early stages of research to show that variables of interest are in fact related. There are some studies that have used more complex designs, such as multi-source that included both incumbents and their coworkers or supervisors. Yet others have been longitudinal, although limitations to such designs when they use arbitrary time periods need to be kept in mind (Spector, 2002). Clearly, more work is needed to rule out feasible alternative explanations for observed relationships among variables, and to better establish causal connections. The control-demand model itself is clearly implying that control plays a causal role, yet most tests involve designs that do not allow for confident causal conclusions.

In addition to design limitations, there are measurement issues that need to be considered in this area. At least some of the variability in results across studies might be attributable to the use of different measures that
are not completely comparable. Furthermore, many of the tests of the control-demand model used the discretion measure from the Job Content Questionnaire (Karasek et al., 1998). A number of critics have noted that this scale confounds control with task characteristics such as skill utilization (Ganster & Fusilier, 1989), so the effects of control might well be obscured.

Measures of perceived control often have rather general items that may leave themselves open to subjective biases, thus potentially confounding the measure of control with other variables. In an attempt to reduce such bias, Spector and Fox (2003) devised the Factual Autonomy Scale (FAS) that asked specific questions about the respondent’s control, such as whether or not they needed a supervisor’s permission to take a lunch break. In two studies they compared results with this new scale to the popular autonomy subscale of the Job Diagnostic Survey (JDS; Hackman & Oldham, 1975). Both studies were multi-source with both self-reports of autonomy by incumbents plus either supervisor (Study 1) or coworker (Study 2). Convergence of sources for both Study 1 and 2 on the FAS was considerably higher ($r = \text{significant } .53$ and .38, respectively) than for the JDS ($r = \text{nonsignificant } .15$ and .16, respectively). Furthermore, the relationship of job satisfaction was weaker with the FAS ($r = .09$ and .22, respectively) than with the JDS ($r = .21$ and .45, respectively). Finally, corresponding correlations of autonomy and criteria between the employees and the other two sources were closer in magnitude for the FAS than the JDS. For example, the correlations between autonomy and job performance for employees versus supervisors were .22 versus .27, respectively for the FAS, but were .04 versus .45 for the JDS. Taken together these results suggest that the FAS is assessing something that comes closer to reflecting the objective environment that is less influenced by employee attitudes (i.e., job satisfaction) and feelings about work.

Since much of the control-health literature is concerned with establishing a connection between exposure to job conditions and subsequent illness, such as heart disease, it makes sense to focus attention on general workplace conditions. However, many of the models and studies have been concerned with the underlying process by which control might operate. Such processes often occur at the moment-by-moment level, and would be best studied episodically. Event sampling methods would be particularly instructive in showing if in fact control over potentially stressful incidents affects appraisal and perception, and if it serves as a buffer alone or in combination with other factors. These methods have the potential to shed a great deal of light on the control process.

Control as it occurs in the objective environment, as it is perceived, and as an inherent part of one’s personality are all important elements in stress and health. Although much of the evidence is merely suggestive, perhaps the most reasonable conclusion is that control plays an important role in health and
well-being. While it might be tempting to assume that the higher the level of control the better, some studies have suggested caution in that at times control can be a detriment to people (e.g., Schaubroeck et al., 2000). Thus there may well be an optimal level of control, depending upon characteristics of job environments and people. Further work is needed to better clarify exactly what those environmental and individual characteristics are, and how they interact in influencing health and well-being of employees.

REFERENCES


JOB CONTROL IN EMPLOYEE HEALTH AND WELL-BEING


