

19 The Many Faces of Control at Work

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Jobs differ tremendously in the amount and type of control they allow employees. At one extreme is machine-paced factory work in which the employee must work at precisely determined times, performing specified tasks at the intervals determined by the machine. The classic "I Love Lucy" comedy sketch in a candy factory illustrates what happens when the employee cannot keep up with the assembly line, and shows Lucy frantically stuffing candy everywhere she can as she falls farther and farther behind. At the other extreme are the jobs of high-level management employees who are given assignments that can be done at any place, at any time, and in almost any manner they see fit. (Spector, 2002, p. 134)

Most people spend much of their lives involved in some sort of work. While there have always been many sources of work-related stress, work-related strain is reaching increasingly elevated levels (e.g., Cohen, 1997), with stress being identified as a major occupational health issue. One of the important steps in addressing any workplace health issue is to identify its sources (Cox & Cox, 1993). Although

research has identified numerous work-related stressors that ultimately result in various forms of strain (e.g., Pratt & Barling, 1988), the lack of job control has been identified by many as a very significant job stressor (Warr, 1987; Hepburn et al., 1997; Karasek, 1979; Karasek & Theorell, 1990; Parkes, 1989; Sauter et al., 1990) that warrants continued research and managerial attention (e.g., Spector, 2002). Correspondingly, over the last few decades there has been a continuous increase in research on the impact of control on a variety of work-related outcomes (e.g., Spector, 1986; Thompson, 1981). In this research, there is compelling evidence that control at work is a critical element in employees' health, well-being, and job-related activities (see, for example, Spector, 2002; Terry & Jimmieson, 1999).

In this chapter we address and underscore the importance of control at work. We review the existing empirical literature on relationships between forms of employee control at work and outcomes for employees and organizations, and highlight a number of the remaining questions and limitations that have been identified as important to this work. Of particular interest to us is the fact that research has focused predominantly on the consequences of either *having* or *not having* control at work, neglecting to thoroughly consider the importance or repercussions of *having lost* control or *feeling overcontrolled* at work. In this chapter we attempt to fill this void by including discussions of both losing control and feeling overcontrolled at work. We propose that future research should consider all of these forms of work control given their potential association with important individual and organizational outcomes. We begin with a brief discussion on the theoretical background and conceptualization of control at work.

THEORETICAL AND CONCEPTUAL DEVELOPMENT OF CONTROL AT WORK

Control has long been viewed as an essential and innate aspect of human nature (e.g., Miller, 1972; Skinner, 1995; White, 1959), and it is increasingly recognized as an important determinant of health and well-being (Miller, 1979; Thompson, 1981). Although it is possible to distinguish between objective and perceived control, in this chapter we focus on the perception of control, as this appears to have a stronger relationship with work-related outcomes (e.g., Ganster et al., 2001; Jimmieson & Terry, 1997; Spector, 2002). Perceived control is the belief in one's ability to influence outcomes: events are controllable when it is believed that one's actions affect outcomes, and events are uncontrollable when it is believed that nothing one does or can do will change what will occur (deCharms, 1968; Thompson, 1981).

Control at work focuses on job and organizational characteristics such as the extent to which employees perceive they are able to make decisions about their work (e.g., when and where to work, how to work, what type of tasks to do), and the extent to which there are opportunities for employees to use their skills and knowledge at work (e.g., Karasek & Theorell, 1990). In the work setting, control increases employees' beliefs that situations can be anticipated and managed. Although there are a multitude of workplace stressors (e.g., role conflict, role overload/underload, interpersonal relationships at work, technological advances, uncertainty; see Barling et al., in press), control has emerged as one of the most studied stressors at work,

likely due to its strong association with a wide variety of outcomes (e.g., Ganster & Fusilier, 1989). A stressor refers to an objective characteristic or event in the environment and is something that has the potential to cause strain, which refers to both the short-term and long-term psychological, physical, behavioral, and physiological responses to stress (i.e., an individual's subjective experience of the particular stressor) (Jex & Beehr, 1991; Pratt & Barling, 1988). Not only has control been shown to act as a stressor with implications for subsequent strain, but it has also been found to act as a moderator to the stressor-strain relationship. Not all stressors lead to strain, and under some conditions (e.g., a lack of perceived job control), some stressors might be more closely linked with strain.

Although an employee can have control over any aspect of work (see, for example, Carayon & Zijlstra, 1999; Dwyer & Ganster, 1991; Ganster, 1988; Jackson et al., 1993), most research on work control focuses on control in terms of job characteristics. A wide variety of dimensions of job control have received attention across studies: for example, Hurrell and McLaney (1989) focused on task, decision, physical, and resource control; Wall et al. (1995) considered the importance of timing and method control; and Carayon and Zijlstra (1999) examined task, resource, and organizational control. Research on the topic of control at work continues to vary considerably in terms of what types of jobs are examined, the forms of control included, and the outcomes considered (Evans & Fischer, 1992). Jobs differ tremendously in the amount and type of control they allow employees, and there is no theory that defines the conceptual boundaries of the job control construct (Kasl, 1989; Sauter et al., 1989).

Many occupational health psychology theories suggest that stress-related outcomes can be improved by increasing employees' control over their work. Research is based on the assumption, and data indicating, that jobs that impose limits on control are associated with less favorable work outcomes. For example, the job characteristics model (Hackman & Oldham, 1975), action theory (Frese & Zapf, 1994), and job design theory (Carayon, 1993) of stress all propose that providing people with control over various aspects of their work will improve health-related outcomes. One of the most influential theories concerning job control is the demand-control model, first proposed by Karasek in 1979. Karasek's model focuses on organizational factors and has been the underlying theoretical basis for much research on job stress. According to his model, the influence of work demands (e.g., psychological stressors, such as a requirement for working fast and hard, having a great deal to do, or not having enough time) on health is moderated by the degree of control (i.e., "the working individual's potential control over his tasks and his conduct during the working day," p. 290). Karasek suggested that job demands were not in themselves harmful, but when combined with low employee control, these demands could affect employees' physical and mental health. The major prediction is that job strain, reflected in employees' mental and physical health problems, occurs when jobs are simultaneously high in demands and low in controllability.

The role of control in determining the effects of work stress in general, and the Karasek model in particular, has been the subject of much research (e.g., Bishop et al., 2003; Sauter et al., 1989). Although studies have shown that job demands can increase strain and strain-related outcomes, and that high job control can reduce

these negative outcomes (Bosma et al., 1997; Johnson et al., 1996), empirical findings have not consistently supported a moderating pattern of influence between these variables (Carayon, 1993; de Rijk et al., 1998; Ganster & Fusilier, 1989; Jones & Fletcher, 1996; Landsbergis, 1988; Perrewe & Anthony, 1990; Sauter, 1989), whereas others have shown the predicted interaction (Fox et al., 1993; Parkes et al., 1994; Wall et al., 1996). To explain these discrepancies, methodological explanations relating to the conceptualization and measurement of job demands and job control have been proposed, as well as acknowledgment of the confounding effects of unmeasured third variables (e.g., socioeconomic status), the use of a varying range of measures of strain, and the differences in power when using alternative methods to test the model (Ganster, 1989; Karasek, 1979; Terry & Jimmieson, 1999; Wall et al., 1996). Additionally, many researchers have suggested that people adapt in different ways to the environment (Kristensen, 1995; Parkes, 1989; Warr, 1994) and that this can influence the nature of the demands-control relationship (Karasek, 1979; Parkes, 1990, 1994; Xie, 1996). Given the frequently contradictory findings, many researchers have expanded their focus to include other variables that might play important roles in the relationship between job control and various outcome variables, and these will be included in the following discussion. We now consider outcomes associated with different aspects of control at work, namely, having control at work, lacking control at work, losing control at work, and feeling overcontrolled at work.

HAVING CONTROL AT WORK

Generally speaking, control is associated with positive outcomes and a lack of control with more negative outcomes. As a result of such findings, in 1988 the National Institute for Occupational Safety and Health in the U.S. put forth a number of recommendations to manage stress at work, and among them was the recommendation that employees be given the opportunity to have input into decisions or actions that affect their jobs and performance. Although studies primarily examine the relationship between job control and individual-level outcome variables, it is important to keep in mind that control likely also has an indirect relationship with organizational-related outcomes through its individual-level impact. For example, when the health and well-being of employees are enhanced, organizational effectiveness will likely improve.

INDIVIDUAL HEALTH-RELATED OUTCOMES

Job control has been shown to relate to a number of important individual-level health outcomes. Numerous studies have shown that perceived job control protects employees against a wide variety of health ailments, including cardiovascular problems (Karasek et al., 1982), coronary heart disease (Karasek, 1990), medically certified sickness absences (Kivimäki et al., 1998), self-reported disease (Bosma et al., 1997), physiological and strain symptoms (Elovainio & Kivimäki, 1996; Jackson, 1983; Karasek, 1979, 1990; Steptoe et al., 1993; Theorell et al., 1990), emotional distress (Barnett & Brennan, 1995; Spector, 1986), and musculoskeletal problems (Bongers

et al., 1993). Interestingly, some research suggests that job control can exert its effect on strain-related outcomes through justice evaluations (Elovainio et al., 2001). The ability to control particular aspects of the work environment can alter the perceived fairness of organizational-related variables (e.g., procedural justice) (see also Thibaut & Walker, 1975).

Various aspects of control have been related to individual health outcomes. For example, Fenwick and Tausig (2001) found that control over work scheduling had a positive effect on health outcomes. Van Yperen and Hagedoorn (2003) found that timing and method control reduced fatigue: in particular, as job demands increased, high job control was needed to limit fatigue. Bond and Bunce (2001) showed how by giving employees more discretion and choice in their work, a work reorganization intervention led to an increase in people's job control, and after a year, people's mental health improved, sickness absence rates improved, and self-rated job performance rose. Parker et al. (1997) demonstrated that increased role clarity and participation in decision making were associated with improved psychological health during a period of downsizing. They found a significant relationship between increases in control and job satisfaction 4 years after a strategic downsizing (in association with an empowerment initiative). Adams and Jex (1999) found that perceived control of time was related to health and job satisfaction. In addition, job control has been shown to have a positive impact on employees' family-related outcomes (e.g., Fenwick & Tausig, 2001). For example, in the study by Adams and Jex, perceived control was negatively related to work interfering with family and family interfering with work.

Although most research examining the impact of job control on work-related variables is cross-sectional, some recent longitudinal data exist that support the cross-sectional findings. For example, Dwyer and Fox (2000) found that job control predicted enhanced health over a 5-year period. Ganster et al. (2001) found that subjective and objective measures of workload demands interacted with personal control perceptions in predicting cumulative health care costs over a 5-year period. They found that high control at the beginning of their study predicted lower use of medical services over the following 5 years, as well as better mental health. In a 5-year follow-up study, Kivimäki et al. (1997) found that a high degree of job control predicted lower medically certified sickness absence in municipal workers. Nonetheless, other longitudinal research is not as supportive of this relationship. For example, Sargent and Terry (1998) found that task control, decision control, and work scheduling control had no long-term effect on depressive symptoms after controlling for initial levels of depression (see also Daniels & Guppy, 1994; Parkes, 1991; Parkes et al., 1994).

INDIVIDUAL PROACTIVE AND LEARNING-RELATED OUTCOMES

Until recently, researchers had not investigated proactive and learning-oriented outcomes of demand-control combinations (Theorell & Karasek, 1996). Considering a wider range of outcomes, beyond strain and strain-related variables, is consistent with the notion that mental health should not just be considered an absence of stress symptoms, but should also be viewed in terms of positive mental health indicators

(Warr, 1987, 1994). Correspondingly, an important outcome of job control is that it appears to improve individuals' ability to cope with various aspects of work, and in addition, it increases employees' effectiveness at work, both of which are critical for successful organizational functioning. One prediction from Karasek's (1979) model is that positive outcomes, such as motivation and learning, occur when an individual's job has high levels of both psychological demands and controllability.

A substantial amount of research has shown that control promotes individual outcomes such as organizational commitment, intrinsic motivation, and involvement (Spector, 1986). Parker and Sprigg (1999) found that higher job control (as well as low job demands and proactive personality) predicted employees' learning-related outcomes (i.e., sense of mastery, role breadth self-efficacy, and production ownership). Perceived control also seems to help employees minimize emotional reactions to job stressors, thus promoting a more constructive problem-focused coping strategy, rather than an alternate, and frequently more destructive, emotion-focused strategy (Latack, 1986; Spector, 2002). Job control not only results in employees having greater opportunity for solving and preventing problems (Jackson, 1989), but also potentially enhances employees' motivation to take ownership for a broad range of problems (Parker et al., 1997), promotes the development of knowledge needed to prevent faults (Wall et al., 1992), and has been associated with higher levels of "integrated understanding" (i.e., breadth of knowledge about the organization, such as understanding the bigger picture and knowing what other departments do) (Parker & Axtell, 2001, p. 1089). Research has further shown that enhanced job control (along with improved communication quality) predicted higher role breadth self-efficacy (i.e., employees' confidence that they can carry out a range of proactive, integrative, and interpersonal tasks) (Parker, 1998). Studies have also shown a link between job control and employee creativity (e.g., Oldham & Cummings, 1996), an outcome often cited as beneficial for both individuals and organizations.

INDIVIDUAL WORK-RELATED OUTCOMES

Perceptions of workplace control are also related to a number of individual-level work-related variables (see Parker et al., 2003). Much research has demonstrated the relationship between control and a variety of work-related variables, including increased job satisfaction (Dwyer & Ganster, 1991; Greenberger et al., 1989; Krausz et al., 2000; McGilton & Pringle, 1999), increased organizational commitment (Barling & Kelloway, 1996; Krausz et al., 2000), decreased turnover intentions (Barling & Kelloway, 1996; Spector, 1986; Wall & Clegg, 1981), and increased employee attendance (Dwyer & Ganster, 1991; Smulders & Nijhuis, 1999; Spector, 1986). Of particular importance is a study by Yelin (1986) showing that with job control, employees with chronic illness are more likely to continue working, compared to employees with chronic illness but little job control.

Job control has also been shown to influence a number of safety-related variables that are vital to organizations. In a longitudinal study, Parker et al. (2001) found that job control was indirectly related to safety compliance via organizational commitment. Likewise, Simard and Marchand (1995) found that control positively influenced workgroups' propensity to take safety initiatives, and Geller et al. (1996)

argued that individuals' task control was positively related to proactive safety behaviors. Thus, it is apparent that having control at work has definite positive implications for the health and well-being of both employees and their organizations.

LACKING CONTROL AT WORK

The man whose life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention.... The torpor of his mind renders him not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment..." (Smith, 1937, p. 734-735).

In the same way that having control at work tends to relate to positive outcomes, feeling that one lacks control at work is associated with negative outcomes. Although the quotation above provides an excessively negative outlook on the experience of a lack of control at work, the bulk of the evidence does indicate a fairly consistent relationship between a lack of perceived job control and a variety of detrimental individual and organizational outcomes.

INDIVIDUAL HEALTH-RELATED OUTCOMES

As previously discussed, perceived job control is related to a number of individual health-related outcomes. Some research has focused on specifically examining the relationship between a lack of perceived job control and individual health-related outcomes (Sauter et al., 1990; Seligman, 1975; Terry & Jimmieson, 1999; Thompson, 1981; Wall et al., 1990; Warr, 1999). Over the past few decades, researchers have provided evidence that low levels of job control are related to negative stress-related outcomes (e.g., anxiety, absenteeism, physical complaints, illness, burnout, reduced performance; for reviews of the research, see Jex & Beehr, 1991; Sauter et al., 1989; Spector, 1986). The findings from these studies are quite compelling.

In 16 of 22 studies, Theorell and Karasek (1996) showed significant associations between high-demand-low-control jobs and cardiovascular disease or cardiovascular disease symptoms. For example, Bosma et al. (1998) found a link between a lack of job control (i.e., skill discretion and decision authority) and cardiovascular disease. In a 5-year follow-up study, these researchers found that both objective and subjective low control in the workplace predicted subsequent coronary heart disease among both men and women government employees. Another study found that high job demands and low decisional job control resulted in a higher heart rate and "pressure rate product" (i.e., an estimate of myocardial oxygen demand) among male patrol officers (Bishop et al., 2003). Landsbergis (1988) found that job dissatisfaction, depression, psychosomatic symptoms, and burnout are higher in jobs that combine high workload demands with low control (i.e., decision latitude). This association remained significant after controlling for age, sex, education, marital status, number of children, hours worked per week, and shift worked. Spector et al. (1988) found that low levels of perceived control were associated with anxiety, frustration, physical symptoms for the past 30 days, and doctor visits for the prior 3 months. McKnight

and Glass (1995) showed that among nurses, perceptions of uncontrollability were directly associated with depression, emotional exhaustion, and perceived lack of accomplishment at work.

The findings above all demonstrate the negative effect that a lack of job control can have on individual health-related outcomes. In addition, a recent longitudinal study by Amick et al. (2002) has garnered considerable attention given its profound finding. Amick et al. (2002) followed workers in a 24-year study of 5000 households in the U.S. and found that working in low-control jobs (i.e., a lack of decision-making control over work performed on the job) for one's entire working life is associated with a 43% risk of premature death. One need not look much further than these longitudinal data to appreciate that research strongly suggests that a lack of control at work can have critical implications for individuals' health and well-being.

INDIVIDUAL WORK-RELATED OUTCOMES

Perceptions of a lack of workplace control are also related to a number of individual-level work-related variables, including absence and turnover intentions (Spector, 1986). Additionally, just as enhancing perceptions of control appears to lead to faster learning and better task performance, reducing perceptions of control can lead to motivational and cognitive deficits (Seligman, 1975). The use of electronic performance monitoring is associated with lower feelings of control on the part of the employees who are being monitored in this fashion (Smith et al., 1992). In one study that examined the use of this type of monitoring, workers with complete control over monitoring felt more in control than workers with no control over monitoring. Of particular importance to this discussion is that those with control over monitoring also demonstrated superior task performance and higher task satisfaction (Stanton & Barnes-Farrell, 1996).

Although lacking control at work tends to be related to a number of detrimental individual and organizational outcomes, and having control at work tends to be related to a number of positive individual and organizational outcomes, there are boundary conditions that need to be understood to fully comprehend the potential impact of control on these outcomes.

BOUNDARY CONDITIONS RELATED TO CONTROL AT WORK

Despite the strong relationship between job control and many outcome variables, research clearly indicates that there are local or individual reactions to job control, particular situational variables, and differences in employees' desire for control that can alter these effects (e.g., Burger, 1989, 1995; Elovainio et al., 2000; McGilton & Pringle, 1999). For example, Elsass and Veiga (1997) found that although perceived control is inversely related to job strain, strain increases as the discrepancy between actual and desired levels of job control increases. Many people respond favorably to control, but for others it can exacerbate the detrimental effects of this form of stress.

There has been increasing attention devoted to how individual characteristics moderate responses to job control. In a number of studies, the moderating effect of job control is only evident for a subpopulation within the sample, for instance, for employees who are high in private self-consciousness (Kivimäki & Lindström, 1995), those with an internal locus of control (Daniels & Guppy, 1994), or those with an external locus of control (Parkes, 1991). This suggests that personality characteristics might in some cases determine whether employees benefit from high control in their jobs. Rodriguez et al. (2001) found that the stress-reducing effect of control is observed exclusively in employees with an internal locus of control. It has been suggested that locus of control is important because employees with an internal locus of control are likely to cope actively with job stress, whereas those with an external locus of control are likely to refrain from action, because they believe that changing the situation is beyond their ability (e.g., Parkes, 1989).

Hollmann et al. (2001) found that control over work method and timing had positive effects on musculoskeletal problems only when the physical workload was relatively light. These researchers suggest that the effects of high levels of physical workload on musculoskeletal symptoms are so strong that they override any buffering effect of control. Lee et al. (1990) found that people with high levels of type A behavior, who also have high perceived job control, perform better and have greater job satisfaction than those low in perceived control. Parker and Sprigg (1999) found that Karasek's (1979) demands-control interaction only applies to more proactive employees who are more likely to take advantage of higher job control and use it to manage job demands. These researchers argued that more passive employees likely do not take the opportunity to use job control when it is available.

Researchers acknowledge the important role of social support in the relationship between job control and outcome variables, and often suggest that strain is predicted by low job control, high job demands, and low work support (Dollard et al., 2000; Karasek & Theorell, 1990; Landsbergis et al., 1992; Leong et al., 1996; Noblet et al., 2001). In one study looking at the effects of a number of variables (i.e., job control, job demands, social support, balancing work and nonwork, length of working week, lack of resources to accomplish tasks, and constant pressure to perform to a high standard) on job satisfaction and psychological health, the combined influence of job control, job demands, and social support contributed 98% of the overall explained variance in job satisfaction and 90% of the overall explained variance in psychological health, of all of these variables (Noblet et al., 2001). In these studies, social or work-based support often moderates the effect of job demands and control on employee health (Johnson & Hall, 1988). Schaubroeck and Fink (1998), for example, showed that while supervisor consideration was positively related to performance outcomes when control was low, under high perceived control, consideration was negatively related to performance and extrarole behavior.

In a similar vein, an interesting finding appeared in a recent study by Arnold (2003). Although control over one's job choice is typically related to positive outcomes, including satisfaction, psychological well-being, and health (Isaksson & Johansson, 2000), Arnold found that reporting that one chose to be a sex worker moderated the relationship between occupational identification and well-being. In both "no choice" and "some choice" conditions for entering into sex work, when

occupational identification was low, well-being was low. However, when perceived choice was low, and occupational identification was high, well-being was enhanced. Arnold suggests that if individuals perceive they have little or no choice about whether to work in a stigmatized role, then perhaps this protects their well-being by providing them more psychological protection against the idea that they have made a poor choice.

Finally, self-efficacy has been shown to moderate the relationship between job control and various outcome variables. Schaubroeck et al. (2001) found that high job control reduces the relationship between job demands and poor health among individuals with high self-efficacy. High job control exacerbated the association between job demands and poor health among individuals low on self-efficacy. Meanwhile, Schaubroeck and Merritt (1997) showed that among those low in self-efficacy, having perceived control can have adverse health consequences. In their study, high control combined with high job demands exerted negative health consequences for employees reporting lower self-efficacy. People who are not confident in various aspects of their jobs might be distressed by the greater responsibility of dealing with demands that stem from increased control.

LOSING CONTROL AT WORK

We have discovered that many employees are using their e-mail and phones to communicate with outsiders — even, on occasion, for personal reasons. These communication tools are for business only. Therefore, effective today, we are deploying a new technology to block e-mails and phone calls to and from anyone other than company employees. (Houston, 2003, retrieved August 1, 2003, from <http://asia.cnet.com/newstech/perspectives/0,39001148,39129192,00.htm>)

While this is not an actual company memo, it refers to newly developed technology that does indeed have the potential to do what it purports to do. Tightening control over telephone calls, electronic messages, and other organization-related communication tools does occur, as does a reduction in employee job control in many other aspects of work. This is significant, because control that employees felt they had prior to the introduction of the technology is threatened or lost. Loss of control appears to be a particularly potent aspect of control, one that has many motivational, emotional, and cognitive consequences (e.g., Mineka, 1982; Mineka & Henderson, 1985; Wortman & Brehm, 1975), but one that has not been regularly considered in examinations of control at work. It appears that stronger consequences occur following a loss of control compared with a lack of control (Baum et al., 1992; Hanson et al., 1976), because original expectations of control have been shattered, leaving a greater sense of disappointment and apathy. Indeed, when examining control-related outcomes, many investigators have found that the most severe consequences occur following a loss of control (Baum et al., 1992; Hanson et al., 1976).

Wortman and Brehm (1975) proposed a reactance–learned helplessness theory to explain how individuals react to a perceived loss of control. The process of losing control is expected to follow a specific pattern such that reactance occurs followed by helplessness. They proposed that when threats are made to an individual's per-

ception of control over an outcome, that person becomes angry and hostile, and actively attempts to maintain or regain control (e.g., Brehm, 1966, 1972). When individuals learn that their loss is unchangeable, they show low arousal and apathy, give up trying to regain control, and experience helplessness (Seligman, 1974, 1975). Research in naturalistic settings has confirmed this pattern of reaction to a loss of control (Baum et al., 1986; Heath & Davidson, 1988; Zippay, 1995). Of particular relevance is the study of people following the disaster at the Three Mile Island nuclear plant.

Baum et al. (1993) argue that events involving loss of control and violation of expectations for control have different effects than do events in which control was never expected. In early spring of 1979, an unprecedented accident occurred at the nuclear-generating facility at Three Mile Island in Pennsylvania when a reactor suddenly overheated (see Baum, 1990; Baum et al., 1983a, 1983b, 1993; Davidson et al., 1982). During the accident and emergency period, radiation was released and a variety of threats to life and health were reported in local and national media. Information provided by officials during this period was often confusing or contradictory, and after a series of reported dangers were aired, an evacuation advisory was issued for pregnant women and young children living near the reactor. Since the residents were given conflicting information by various authorities, the credibility of the information they received was reduced. Many residents felt they could not control events and also doubted others' (i.e., authorities) ability to do so (Baum et al., 1993). Some feared they had been exposed to radiation, and not only were they powerless to do anything to prevent exposure, but they were also unable to do anything to counteract the possible long-term consequences of that exposure. Estimates indicate that up to two thirds of the residents of a 5-mile ring around the reactor left their homes during the emergency. When residents returned to their homes, large amounts of radioactive gas remained in the reactor containment building and more than 400,000 gal of radioactive water was on the floor of the reactor building.

Evidence of long-term stress reactions has been reported among people living near the reactor at the nuclear-generating facility (Baum, 1990; Davidson & Baum, 1986). Several researchers found evidence of demoralization, symptom distress, and emotional upset among people living in the vicinity of the plant (see Baum, 1990). Residents who reported greater feelings of helplessness or less perceived control over their surroundings showed more signs of stress than did other individuals. Residents of the Three Mile Island area exhibited more symptoms of stress almost 18 months after the accident than did people living under different circumstances (e.g., residents of an area near an undamaged nuclear plant) (Baum et al., 1983b) and continued to report stress related to the accident 5 years later (Baum et al., 1993). Consider the following excerpt posted in the *Washington Post* reader forum 20 years after the incident:

I lived near Three Mile Island and worked nights within the five mile radius while attending college. I will never forget how sunny it was that Wednesday morning when I innocently walked to my car and went home to sleep. When I got up that afternoon, I learned of the accident. Then on Friday, it worsened and I had just taken my car into

the shop for repairs. I called a taxi, reclaimed my car, hastily packed some things, and left the area.

The experience still makes me cry because of the intense emotions of fear and anger and confusion. The fact that radiation is invisible and odorless seemed to make it easy for some people to act as if it is also harmless. I still wonder about the health effects because the mean dose over the entire population is meaningless — what matters is the wind and if the radiation plume carrying the largest doses happened to be where you were those days.... I'll never be the same. (The Washington Post Company, 1999, para. 28)

The severity of the impact of this accident on residents living near the plant is clear in the words used in the quotation above. The chronic stress following an event such as this is likely related to the effect of losing control, such as the violation of expectations for regulating aspects of one's life normally under control (Baum et al., 1993). Data from studies at Three Mile Island in the wake of the nuclear accident suggested that loss of control, as well as the frequent experience of intrusive thoughts about the accident and its aftermath, were related to persistent stress (e.g., see Davidson et al., 1982). Residents living near Three Mile Island reported more control-related problems than did comparison subjects living more than 80 miles from the damaged power plant. In one study, for example, Three Mile Island residents performed more poorly on a behavioral task in terms of the number solved, attempts made, and time spent on the task than individuals living outside of Three Mile Island (Davidson et al., 1982). The events of the Three Mile Island disaster also made residents apprehensive of future accidents and the outcomes of those potential events.

An improved understanding of the loss of control at work is particularly important given that changes to the present state of work are likely to decrease employee job control. For example, Aronsson (1999) notes that work in the future will have greater mobility than it did in the late 1990s. Movement is expected between unemployment and employment, between full-time and part-time work, between occupations, between study and paid work, and between work and home. Associated with this might be increased perceptions of loss of control over work. Findings from a study by Karasek (1990) indicated that white-collar job changes often resulted in reduced job control, and that this was especially true for older workers and women. Moreover, technological changes to work, along with an increase in service and information work, can result in increased losses of job control for employees. For example, a study of clerical video display terminal operators demonstrated that they felt less control in their work than did their counterparts who did not use video display terminals (see Sauter et al., 1983; Smith et al., 1981).

Given that changes to the world of work appear to be occurring at an ever-increasing rate, understanding loss of control takes on paramount importance. Indeed, it has been suggested that reactions to one of the salient changes in today's workplace — the possibility of terrorism — might be explained by the loss of control (Inness & Barling, in press); whereas previously employees could feel assured of their security at work, there are now constant reminders of the potential for terrorist acts, and thus constant reminders of their loss of control.

FEELING OVERCONTROLLED AT WORK

In addition to having control at work, lacking control at work, and losing control at work, employees have the potential to feel overcontrolled at work. Researchers have begun to look at this aspect of control, and although there is scant research in comparison to the other forms of control at work, it appears to have the potential to profoundly affect both individuals and organizations.

Although employees might feel overcontrolled as a result of a number of work-related factors (e.g., coworkers, customers, and electronic systems), research to date has focused on perceptions of supervisory overcontrol, likely as a result of the power differential between supervisors and employees. Many supervisors can be overcontrolling, such as when they monitor their subordinates' personal and work behaviors too closely. While a certain level of supervisory control is appropriate, overcontrol can have deleterious effects on employees (Shirom et al., 2000), given that when employees lack a perception of personal control over certain elements of work, they often experience negative repercussions. Of prominent importance is that when employees feel overcontrolled by their supervisors, they might feel the need to restore the loss of balance in this relationship with their supervisors. Research has indicated that one way of accomplishing this is to strike back at the overcontrolling agent. Research findings indicate that feeling overcontrolled is associated with aggression against the overcontrolling agent (Dupré & Barling, 2004; Ehrensaft et al., 1999), as well as feelings of being treated unjustly by the overcontrolling individual (Dupré & Barling, 2004). In situations where individuals do not receive something to which they feel entitled (e.g., rewards), or are subject to something that they feel is inappropriate (e.g., unfair interpersonal treatment), a perception of injustice is likely to occur, probably because the experience of overcontrol causes the individual who feels overcontrolled to focus on the relationship and to feel that he or she has been treated inequitably (e.g., see Grote & Clark, 2001).

FUTURE RESEARCH

While a strong case can be made for the importance of a variety of aspects of job control, fundamental questions remain concerning the conceptualization and operationalization of the construct. There is a definite need for an improved understanding of job control, and how various aspects of job control affect subsequent outcomes.

Different dimensions of control do play different roles in influencing strain. For example, Carayon and Zijlstra (1999) found that high *task* control was related to low work pressure, whereas high *organization* control was related to high work pressure (both of these relationships were mediated by work pressure). Researchers need to take this into consideration in their research and attempt to delineate the predictors and outcomes associated with various forms of control at work. Another important point to consider and address in future research is that evidence suggests that aspects of control at work influence one another. For example, Jimmieson and Terry (1997, 1998, 1999) provided evidence that informational control might compensate for the negative impact of other forms of control. More recently, researchers have proposed a multidimensional conceptualization of control (Terry & Jimmieson,

1999). While some research has discussed different facets and levels of control (e.g., Sauter et al., 1989), very little empirical research has actually examined these different facets and levels (for an exception, see, for example, Troup & Dewe, 2002).

Because there are a number of aspects of control, it might be more useful to consider the factors that an individual strives to control, as well as the perceived degree of control over those factors, rather than focusing solely on whether an individual has control over a given situation in general. For example Dwyer and Fox (2000) found a moderating role for hostility in the link between job control and health care costs, but different results for job control when it came to cardiovascular health. Increased control resulted in reduced cardiovascular and respiratory health complaints among nurses, even for those with high hostility. The authors postulated that the discrepant results for job control when predicting different outcomes occurred because nurses have control over different aspects of their work. Control over work schedules and running stations, for example, might have more positive effects than control over other aspects of work such as increased decision-making control and accountability over patient care. In certain circumstances, and for particular employees, some aspects of control are likely more important than others. In a similar vein, it would be worthwhile for future research to continue to examine moderators that might influence the impact that various forms of job control have on individual and organizational outcomes.

Shapiro et al. (1987) noted the lack of uniform operational terminology in research on control and health, and suggested the need to more systematically address theoretical and conceptual aspects of the control construct. Some work has suggested that when job control is conceptualized and operationalized very specifically, inconsistent findings can be rectified. For example, Wall et al. (1996) used more focused measures of demands and control and found clear evidence that the elevation of risk with a demanding job appears only when demands occur in interaction with low control on the job. Parallel analyses using a measure of decision latitude (a general measure encompassing a wide range of job properties, including control, task variety, and learning opportunities) rather than job control did not show an equivalent effect. Likewise, in a review of 10 years of empirical research, Van der Doef and Maes (1999) found that the conceptualization of demands and control was a key factor in discriminating supportive from nonsupportive studies of the moderating influence of job control in the demand-control model. The conceptualization of control has varied across studies from very general to much more specific. As a result of the variation in the control construct, the existing literature might be underestimating both the role of job control as a moderator of job stressors and the direct impact that job control has on various outcome variables.

In part, some of the ambiguity about work and aspects of health arises because of the lack of rigorous studies. It remains a challenge to tie particular outcomes to particular work stressors, given the difficulty associated with choosing the appropriate temporal lag between the measurement of the stressor and the strain associated with it (Barling, 1990). As has been discussed, cross-sectional, self-report study designs predominate in the literature, and thus there is a definite need for additional longitudinal research in the domain of job control. In addition, it is also important to consider processes across levels of analysis. Multilevel processes are not well

articulated or examined in the work stress literature (Bliese & Jex, 1999). An understanding of such processes would be useful to better understand the effects of work control. Jackson (1989) proposed an uncertainty framework for studies of job control that identifies the origins of, and responses to, uncertainty at different levels of analysis. In this model, individuals' feelings of control reflect their own job control as well as perceptions of control that derive from the larger systems in which individuals are embedded (e.g., departments' power within the organization). Of special interest are data suggesting that control is important not only for the well-being of workers, but also for the success of the organization. Karasek (1979) argued that increased control can reduce stress without threatening productivity, and research would benefit by furthering this argument.

We believe that it would be particularly worthwhile to focus more research attention on both losing control at work and feeling overcontrolled at work. Research on this topic focuses predominantly on being in control and, by extension, being out of control, but should be extended to consider losing control and being overcontrolled. Of relevance here is the finding that job control has been shown to exert greater performance benefits in uncertain environments where flexible responses are required (e.g., Wall et al., 1990). Jackson (1989) made a similar argument in relation to health, proposing that control is important because, when faced with the stressor of uncertainty, people who feel in control will be more likely to use proactive problem solving rather than emotion-focused coping. In light of such suggestions, along with the fact that situations like these might at the same time result in a loss of control (as discussed above), it is imperative that research further investigate the notion of loss of job control to understand its implications for employees in a variety of current employment circumstances.

Advances in stress research in general and job control research in particular have been impeded by a lack of consensus among research findings. It is imperative that researchers strive to overcome the aforementioned limitations in future research. It has been said that the "challenge for the next decade of research is to identify the mechanisms that underpin the effects of work control" (Terry & Jimmieson, 1999, p. 137). Attaining this challenge would provide an enhanced understanding of the impact that job control has on both individual and organizational outcomes.

CONCLUSION

Control remains a fundamental aspect of work, and research highlights the importance of perceived work control for employee and organizational health and well-being. The issue of control at work has been, and continues to be, a common area of research. Given that many "employees have perceived a gradual loss of control over their work lives" (Sparks et al., 2001, p. 498), research on this important aspect of work needs to continue. Although much work has been guided by the notion that control exerts a positive effect across individuals, perceptions of job control can vary across individuals and situations in determining subsequent consequences. Future research in this area faces many challenges given that there are a number of issues that need to be considered to enhance the understanding of control at work. However, the considerable advances in research and understanding in recent years would

suggest that the same will occur over the next few years, and it is likely that inconsistent findings will be clarified and that an improved integration of this literature is possible. The sense of personal control over various aspects of life has been a major focus of interest in understanding the stress process and in explicating the links among stressors, health, and well-being. A better understanding of how job control works in the stress process will most definitely contribute to a healthier and more productive workforce.

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