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Performance-Based Rewards and Work Stress

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Even though reward systems play a central role in the management of organizations, their impact on stress and the well-being of workers is not well understood. We review the literature linking performance-based reward systems to various indicators of employee stress and well-being. Well-controlled experiments in field settings suggest that certain types of performance-based reward systems, such as piece rate pay, cause increases in psychological and physiological stress. Such findings are mirrored in nonexperimental studies as well, but the causal mechanisms for such effects are not well understood. We argue that reward systems generally deserve much more attention in the work stress literature, and identify several mediating and moderating variables worthy of study.

KEYWORDS rewards, stress, contingencies

Workplace stress is believed to be a major contributor to both mental and physical health problems. According to surveys of workers across many occupations, work demands comprise the most stressful experiences in the lives of about 25% of workers and are implicated in a wide range of health complaints such as cardiovascular disease, depression, and musculoskeletal disorders (NIOSH, 1999). The last several decades have witnessed the development of a mature research literature investigating the causes and consequences of work stress that incorporates many different disciplines. In addition to thousands of journal articles, several handbooks (e.g., Quick & Tetrick, 2011) and annual series (Perrewé & Ganster, 2010) are devoted to summarizing and integrating this large body of research. Many specific aspects of the workplace have been studied as potential causes of mental health problems.
and physical health problems. In this article, we will examine the evidence concerning one important work characteristic—performance-based rewards—that, although they play a central role in performance management systems, have received far less attention than many other potential stressors regarding their role in work stress.

We focus on performance-contingent pay because it is a major approach to compensation in most countries around the world. Performance-contingent pay is a type of variable pay system, and variable pay systems range from those that include a stable base level of pay that is supplemented with performance-based pay (e.g., bonuses, commissions, profit sharing) to those that base the worker’s entire compensation on their performance (e.g., sales commissions and piece rate pay plans). Variable pay plans can also vary in the extent to which they are based on company-wide performance indicators, on team performance, or individual performance. There is ample theoretical justification for the use of performance-based pay schemes in the organizational literature in terms of their expected effects on job performance. Expectancy theory and equity theory, as well as the operant model, all provide explanations for why performance-based pay should create incentives for higher performance (Lawler, 1990). The theoretical counter-point has mainly come from intrinsic motivation theorists (Deci, 1975). Their argument rests on the assumption that individuals attribute a locus of causality to their own behaviors, which can range from internal to external. From this perspective, performance-linked rewards will lead to the formation of an extrinsic locus of causality, and the subsequent extrinsic motivation detracts from one’s intrinsic motivation to engage in the activity. Eventually, this reduction in intrinsic motivation is hypothesized to lead to reduced performance on the task. In later years this theoretical perspective was broadened to incorporate well-being outcomes as well as task motivation (Ryan & Deci, 2000). A meta-analysis of the relationship between financial incentives and work performance, however, reveals a significant and robust relationship (Jenkins, Mitra, Gupta, & Shaw, 1998). Jenkins et al. (1998) found an average corrected effect size of .34 between performance-based pay and quantitative measures of performance, but a nonsignificant one for performance quality. The quantitative performance relationship was weakest in laboratory experiments (.24), followed by field experiments (.48), and strongest in experimental simulations (.56). These relationships did not differ across tasks classified as intrinsic versus extrinsic.

Reward plans as actually implemented in work organizations are complex, and their impact on different indicators of performance can vary widely depending on how they are designed and administered. But there is sufficiently compelling theoretical and empirical rationale for their use to make them ubiquitous in almost every industrialized country. Even in some European countries, in which some forms of performance-based pay plans are seen as controversial, they are still commonly employed. For example, in
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a sample of 90 large German firms, 63 reported using a performance-related pay plan, and about half of these had only recently introduced or extended such plans (Kurdelbusch, 2002). Thus, performance-based rewards are commonplace throughout work organizations worldwide. If they constitute a significant source of stress that adversely affects the well-being of workers, this would have large implications for designing healthy workplaces. In comparison to the body of empirical research investigating performance and productivity-related outcomes of performance-based reward plans, empirical studies of employee health and well-being outcomes are relatively scarce.

WHY MIGHT PERFORMANCE-BASED REWARDS BE STRESSFUL?

According to the transactional model of stress (Folkman & Lazarus, 1990), the level of stress experienced by an individual is determined by how that person cognitively appraises the events encountered. Upon exposure to some working condition or event, individuals’ primary appraisals assess whether the condition represents a threat to well-being or a benign or challenging condition. If the primary appraisal is one of threat, a secondary appraisal generates the individuals’ estimates of their ability to effectively cope with it. Performance-based reward systems very likely trigger such cognitive appraisals. As Brief and Atieh (1987) stressed more than twenty years ago, economic outcomes are likely to be among the most salient potential stressors encountered in the workplace. The stressful effects of job loss and employment insecurity have been well-known for a long time (Kahn, 1981). Short of actual loss of one’s job, however, is the issue of income security and predictability. Because a performance-based reward system renders at least a part of the worker’s compensation as variable, it is likely to be seen as a significant feature of the work environment that will trigger a stress-related cognitive appraisal process.

The critical question concerns whether individuals will appraise such systems as threats or challenges. On the one hand, a performance-based reward system could be appraised as a challenge or opportunity if individuals believed that they could determine the level of performance that was linked to their pay. Organizational behavior management (OBM) principles, for example, require reinforcement to be contingent on behavior that individuals can control (Duncan & Smoot, 2001; Frisch & Dickinson, 1990). In expectancy theory terms, this would refer to their effort-to-performance expectancy, which could be determined by a variety of factors, including the nature of the tasks themselves in terms of their controllability or aspects of the individuals such as their self-efficacy. On the other hand, individuals might perceive little direct control over the performance metrics that determine their pay. Uncertainty and lack of control over important outcomes
have been shown to be among the most important correlates of mental and physical well being in the workplace (Kain & Jex, 2010). Thus, the concept of control is likely to be an important factor in determining the impact of performance-based reward systems on well-being. Intuitively, it would seem that the closer rewards are linked to the performance of individual workers, the more likely that they will perceive that they have control over the rewards. It follows that there will be less perceived individual control when rewards are based on team, departmental, or organization-wide performance metrics. Such control beliefs may not follow the use of performance-based pay plans, however, if the performance metrics are seen by workers as biased, arbitrary, or based on favoritism, as is often the case when performance is assessed with subjective appraisals.

In addition to control perceptions, moreover, performance-based rewards can indirectly generate other working conditions that can have a pernicious effect on worker well-being. For example, whereas rewards that are tightly linked to individual performance have the potential to augment workers' sense of control over their pay, such reward systems might also be accompanied by intrusive performance monitoring systems, cooperation-reducing competition among workers, and reductions in coworker support, all of which might negate any beneficial effects of control. Pfeffer and Langton (1993), for example, demonstrated that in academic departments with greater levels of salary dispersion (presumably based on performance-based pay raises), job satisfaction was lower and there was less collaboration among faculty members. Pfeffer (2007) has argued that rewarding workers on the basis of individual performance can create dysfunctional distinctions among workers and perceptions of unfairness. Perhaps for these reasons a number of surveys have indicated widespread dissatisfaction with individual performance-based pay plans (Hewitt and Associates, 2004).

In summary, how individuals are rewarded at work is perhaps one of the most salient features of the work environment and can serve as a source of satisfaction, challenge, and fulfillment, or a source of uncertainty, mistrust, and perceived inequity. Although much research has examined the effects of performance-based pay on performance itself, there has not been a systematic review of its effects on worker stress and well-being. Our objective in this article, then, is to review studies that have examined relationships between performance-based reward systems and various indicators of employee stress and well-being. We have attempted to be broadly inclusive and review any study that compared different reward systems on the basis of affective, behavioral, or physiological responses, except those pertaining to job performance itself. As we note below, this literature varies widely in the research strategies used, and includes both experimental and nonexperimental studies. We conclude with a methodological critique of this literature and suggestions for further research.
REVIEW OF THE EMPIRICAL LITERATURE

We have categorized the available empirical evidence concerning relationships between performance-contingent rewards and employee well-being into two types: experimental studies conducted in the laboratory and field and nonexperimental field studies. Most of the research has fallen under the second category, examining stress and strain outcomes of performance-contingent pay largely using survey research methods. As we explain below, each of these two research strategies has its own strengths and weaknesses, and we conclude our review with an integration of these literatures that accounts for methodological limitations in each.

Experimental Laboratory and Field Studies

Laboratory experiments examining performance-based pay and other rewards mostly stem from an interest in testing intrinsic motivation and self-determination hypotheses derived from cognitive evaluation theory (CET; Deci & Ryan, 1987). The premise of CET is that making a reward contingent on meeting a specific level of performance will have the effect of reducing the worker’s sense of autonomy. This hypothesis is relevant to the question of stress and well-being because worker control and autonomy have played such a key role in the work stress literature (Ganster & Fusilier, 1989, Karasek & Theorell, 1990). If performance-based rewards produce decrements in autonomy, this would have significant implications for worker stress and well-being, because autonomy or control is one of the most robust correlates of stress outcomes in the workplace (Kain & Jex, 2010). This hypothesis was tested in a laboratory experiment by Eisenberger, Rhoades, and Cameron (1999), who instructed students to perform a visual comparison task and receive a monetary reward based on meeting a set level of performance. They found that in the contingent reward condition, participants reported higher levels of perceived autonomy while doing the task, which clearly contradicted CET. In a later series of two experiments, however, Houlfort, Koestner, Joussemet, Natel-Vivier, and Lekes (2002) confirmed Eisenberger et al.’s (1999) conclusion that contingent reward did not lead to feelings of social control. But their results also supported the CET prediction that contingent rewards would create feelings of pressure and anxiety. The discrepant findings were reconciled by Houlfort et al.’s (2002) contention that Eisenberger et al.’s measure of control did not differentiate between affective autonomy and decisional autonomy. In other words, contingent rewards might not lead to feelings of a loss of decisional control and may even boost feelings of competence, while at the same time they may increase feelings of pressure and anxiety. Another series of laboratory experiments by Muraven, Rosman, and Gagné (2007), however, uncovered no effects of contingent rewards on mood, arousal, or anxiety.
Thus, laboratory studies do not completely support the CET notion that contingent rewards will lead to feelings of loss of control, at least in terms describing individuals’ sense of their own control over their decisions. There is some evidence, however, that working under contingent rewards can be anxiety-producing, although this is not always replicated in different laboratories and with different tasks. Of course, laboratory studies are of very short duration, and the rewards at stake are very minor outcomes in the lives of the individuals participating in them. When one’s livelihood and economic security are contingent on meeting performance criteria, however, the anxiety effects sometimes evident in the laboratory might be significantly greater.

Experiments in field settings have generated more compelling evidence than those produced in the laboratory that pay systems can affect stress levels in employees. Among the first quasi-experimental studies was the longitudinal investigation of tax accountants reported by Friedman, Rosenman, and Carroll (1958), who tracked the blood cholesterol levels of tax accountants as they approached the tax deadline and after workloads later returned to normal. They observed that cholesterol levels rose precipitously during tax season and dropped back to normal afterward. Although they did not isolate the specific effects of performance-contingent rewards, it is reasonable to assume that accountants perceive a contingency between their meeting deadlines and their subsequent compensation, especially to the extent that they are billing on a fee for service basis. Levi (1972) was the first to report an experimental examination of piece rate pay on stress outcomes in a natural field setting. He studied 12 female invoicing clerks who performed a few simple operations and produced postal invoices. For four days Levi collected self-report and urinary catecholamine measures of stress, with the participants alternating two days on hourly wage and two days on piece rate. He found that subjective reports of fatigue and physical discomfort, as well as levels of adrenaline and noradrenaline, were significantly higher on piece rate days than on salary days. Production rates also doubled on piece rate days, although Levi concluded that exertion rates were not likely sufficient to account for the differences in stress hormones. Two other field experiments that specifically manipulated performance-based pay were conducted by Timio and colleagues (Timio & Gentili, 1976; Timio, Gentili, & Pede, 1979). We review these in more detail because of the rigor of their designs.

Timio and Gentili (1976) randomly assigned confectioner workers to one of two groups in a cross-over design in which each worker alternated between four-day schedules of working on a piece rate pay system or an hourly wage. One group went from salary to piece rate and back to salary while the other group went from piece rate to salary and then back to piece rate. Groups were compared on daily measures of adrenaline, noradrenaline, and 11-hydroxycorticosteroids, hormones that are elevated under conditions of stress and arousal. The effects of piece rate pay were clearly evident, with
rates of stress hormones two to three times higher during piece rate days than during hourly wage days. Timio, Gentili, and Pede (1979) replicated these results with a larger group of confectioner workers using the same alternating schedule that varied on and off piece rate pay. The results for stress hormones were again significantly elevated by working under piece rate pay. In order to test whether workers would adapt to such conditions over time, they replicated the comparisons six months later and found the same results.

These studies are rare in that they involved a high level of experimental control and were conducted under real working conditions. They raise questions, however, about what mechanism produced the dramatic increases in stress hormones under piece rate pay. Were these effects generated by psychological stress responses such as anxiety, felt pressure, or feelings of uncertainty, or do they reflect the effects of increased physical exertion that might be expected when individuals work under an incentive system? Unfortunately, in neither study did the investigators collect self-report measures that might have served as potential mediating variables. Timio et al. (1979), however, collected physical measures of exertion by sampling the amount of oxygen expired by workers under each condition. From these samples they could estimate physical energy expenditures, which did not differ across payment conditions. These data seem to argue against the alternative explanation that increased productive effort accounted for stress hormone elevations. This conclusion also reinforced that made by Levi (1972) that physical exertion effects did not account for differences in stress hormone output observed in his study.

The experimental evidence from laboratory and field studies supports the plausibility of the hypothesis that performance-based pay can induce stress responses that might adversely affect the health of workers. The most compelling evidence comes from the field experiments by Timio and colleagues (Timio & Gentili, 1976; Timio et al., 1979) and Levi (1972) that are able to make a strong case for the causal effects of piece rate payment plans on physiological indicators of stress. Although increased physical exertion does not appear to be the explanatory variables for the effects of piece rate, neither is there direct evidence that the stress hormones were triggered by affective or cognitive stress mediators. We do not know whether the confectioners working on piece rate cognitively appraised their jobs as threatening or high pressure, nor do we know what effects piece rate pay had on their sense of control or self-efficacy. These are important questions for future researchers to address.

Nonexperimental Field Studies

The experimental and quasi-experimental evidence presented thus far suggests a causal effect of performance-based pay on employee well-being,
especially pay systems such as piece rate that put all of the workers’ pay at risk. We now turn to nonexperimental field investigations of performance-contingent pay. Although nonexperimental studies do not provide strong evidence for causal inferences, such studies in field settings have the capability to examine a wider range of variables that might mediate or moderate the effects of performance-based pay on worker well-being.

One large-scale field study by Brisson, Vinet, Vézina, and Gingras (1989) explored the long-term effects of piecework jobs on severe disability after retirement. In this study, archival information was combined with personal interview data to explore the relationship between number of years working in piecework and prevalence of severe disability after retirement with 533 Quebec female garment workers who had left the garment industry between 1976 and 1985. Results showed that duration of employment in piecework (i.e., jobs in which the worker is paid per garment completed) significantly predicted prevalence of severe disability after retirement—even after accounting for age, smoking, education, task type, and total length of employment. Compared to workers who had been in piecework for 0–4 years, those in piecework for 5–10 years had a risk ratio of 2.2, and those who had been in piecework for 10–19 years had a risk ratio of approximately 3.5. To illustrate the strength of this effect, approximately 25% of women who had been in piecework for 10–19 years had incurred a severe disability, as compared to 9.6% of women who had been in piecework for less than four years (Brisson et al., 1989).

In research that has supported the relationship between performance-based pay and decreased employee well-being, the pay system of interest tends to covary with certain characteristics of the job or work environment. Confounding the effect of payment strategy in Brisson et al.’s study are the stressors inherent in the piecework jobs they examined, including time stress, repetitive motion, and monotony. A study of over 2,500 factory workers in Israel took a closer look at one of these variables, exploring subjective and objective monotony as mediators of the relationship between performance-contingent pay and worker strain (Shirom, Westman, & Melamed, 1999). In this field study, third-party job analysis was used to gather data regarding job characteristics and type of pay system (categorized as time-based, piece rate, individual wage incentives, or group wage incentives), and self-report questionnaires were used to gather data on workers’ psychological distress (depression, anxiety, and somatic complaints). After controlling for age, sex, educational attainment, marital status, and ethnic origin, all three performance-based pay systems (piece rate, individual wage incentives, and group wage incentives) were associated with higher levels of self-reported depression and somatic complaints as compared to time-based pay. Piece rate pay also significantly predicted anxiety and had the strongest relationships with all three psychological distress outcomes. Furthermore, both objective (rated by third-party job analysis) and subjective
(rated by the worker) monotony partially mediated the relationships between performance-based pay and depression and somatic complaints. This study is informative because it controlled for a series of potentially confounding variables, notably monotony, task cycle time, work underload, and the trait of emotional reactivity. The effect sizes for performance-based pay on the outcome variables, however, were quite small, accounting for only about 1% of the variance in the outcomes.

Two additional job characteristics, heightened workload and lack of job control, have been highlighted as potential mediators in more recent field research. In a large-scale survey study of over 15,000 workers between the ages of 25 and 65 in Taiwan, job characteristics and perceived stress and strain of workers in variable pay systems (including performance-based pay in addition to a fixed salary, piece rate pay with no fixed salary, and time-based pay with no fixed salary) were compared with those of workers in fixed pay systems (workers with fixed salaries only) (Yeh, Cheng, & Chen, 2009). Results of this national survey study showed that employees with performance-based or piece rate pay had higher self-reported personal burnout and work-related burnout than employees with fixed salaries, even after controlling for worker age, education, marital status, employment grade, other job characteristics, and family care workloads. There were distinctions, moreover, among the different forms of variable pay. Workers with performance-based pay added to a fixed salary reported the longest working hours and highest levels of stress, while workers with no fixed salary (with piece rate pay or time-based pay) reported the lowest levels of job control and job satisfaction. In the breadth of this single study, two very different paths from performance-contingent rewards to stress are evident. For workers with performance-based rewards in addition to a fixed salary, heightened time at work covaries with stress and burnout; and for workers with piece rate pay only, low job control and job satisfaction covary with burnout.

Other researchers have supported the direct effect of performance monitoring on worker well-being, indicating that constant and close monitoring may be a potential mediator in the performance-contingent reward and stress relationship. Inherent in this mediation model is the assumption that for pay to be linked with performance, workers’ performance must be closely and consistently recorded. In one study of monitoring as a stressor, 745 telecommunication workers working within the same company were compared based upon several psychological and physical health outcomes (Smith, Carayon, Sanders, Lim, & LeGrande, 1992). Employees who were constantly electronically monitored at work perceived their working conditions as significantly more stressful and reported significantly higher levels of psychological tension, anxiety, depression, anger, health complaints, and fatigue (Smith et al., 1992).
The empirical evidence from nonexperimental field studies reviewed thus far suggests that performance-based pay systems are detrimental for employee well-being. However, not all field studies support unconditional negative effects of performance-contingent rewards and pay. In research on organizational leadership, contingent reward leadership style (i.e., leaders who reward subordinates based on performance) has been shown to have a positive relationship with employee well-being. For example, in one study measuring leadership and burnout in a sample of 625 nurses, those who reported having a supervisor high on contingent reward leadership style reported lower levels of emotional exhaustion (one component of burnout) (Stordeur, D’Horre, & Vandenberghe, 2001). Although the effect size was small (with contingent reward leadership accounting for only 2% of the variance in emotional exhaustion), the positive impact of contingent rewards for workers in such a high stress occupation remains noteworthy.

Research on organizational fairness, and specifically on distributive justice, has also suggested a positive relationship between performance-contingent pay and employee well-being. In one example of this research, Howard and Dougherty (2004) collected survey data from 154 employees in ten different companies regarding their companies’ payment strategies and their related attitudes. Of all the different payment strategies reported, only that based on personal performance (the “individual output reward strategy”) was significantly related to perceptions of high pay fairness (with individual performance-based pay accounting for approximately 9% of the variance in pay fairness perceptions). No other payment strategies (including payment based on group performance, human capital, position in the organization, or market value estimates) had significant positive relationships with either pay satisfaction or pay fairness (Howard & Dougherty, 2004). Although this study did not measure stressors or strain, it did suggest that employees may have some favorable views of or reactions to performance-based pay.

Several potential moderating variables have been proposed that help to explain the inconsistent findings across field studies, including control (or autonomy), performance level, financial requirements, and job type. Building on Karasek’s demand-control model (Karasek, 1979), some researchers have argued that performance-contingent rewards will likely cause job demands to increase, but will only lead to employee stress and strain if the employee perceives little job control. In some cases, performance-contingent rewards may be associated with lower perceived control (e.g., employees perceive their supervisor as gaining control instead), and in others they may be associated with higher perceived control (e.g., employees have more control over how much they will earn). In this way, performance-contingent reward systems could be stressful if control is low and could be neutral or even beneficial to employee well-being.
if control is high. Important questions, therefore, are whether and why employees perceive the same pay system differently and if those perceptions matter for stress reactions.

Researchers have also shown that employees may react differently to performance-contingent rewards depending on their own level of performance. Specifically, employees who perform at lower levels may react more negatively and experience more stress from performance-contingent rewards, while employees who perform at higher levels may react more positively and experience less stress from performance-contingent rewards. In support of this hypothesis, a meta-analysis of the performance and turnover relationship (Williams & Livingstone, 1994) showed that the relationship between performance and turnover is significantly stronger in organizations using a performance-contingent reward system (unweighted $\rho = -0.27$) than in organizations not using a performance-contingent reward system (unweighted $\rho = -0.18$). Presumably, employees with low performance receive less pay and rewards under this system and are thus more likely to be dissatisfied and experience stress. Although turnover is not purely a stress reaction, it might be related to stress reactions. Future research is needed on the potentially complex relationship between an individual's form of pay (piece rate versus others), level of performance, and stress reactions to determine whether higher performers might not be as harmed or might even thrive under an individual performance-based pay system.

Finally, job type has been proposed as an important potential moderator in the performance-contingent rewards and stress relationship (e.g., Howard & Dougherty, 2004). Howard and Dougherty (2004) showed meaningful differences between worker groups in their effort levels and perceptions associated with various pay strategies. However, very little research has examined multiple job types and job levels in the same study, preventing us from making an adequate comparison between white-collar and blue-collar workers, for example. More research is needed to better understand how different job types and levels may change the relationship between performance-contingent rewards and stress.

In sum, the body of nonexperimental field studies investigating the relationship between performance-contingent pay and rewards on employee well-being has yielded mixed results. While the majority of studies have supported the general negative effects of performance-contingent pay, recent research has supported potential moderating and mediating variables and has exposed this issue as less than clear-cut. While these nonexperimental field studies cannot determine causality, they do suggest interesting relationships among variables and provide a snapshot of how employees respond to performance-based pay systems within the complex environments of real organizations.
CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

Theorists and practitioners have claimed for a long time that performance-based reward systems, and especially piece rate plans, may be injurious to worker health. Yoder (1947) surmised that workers on such systems were likely to overwork themselves to the detriment of their well-being. More recently, Pfeffer (2007) has enumerated the possible unintended consequences of performance-based pay schemes on the social climate of the work group. Despite this long-standing interest, relatively few studies have systematically assessed the stress-related effects of contingent pay. The experimental studies in actual work situations (Levi, 1972; Timio & Gentili, 1976; Timio et al., 1979) provide the most compelling evidence that performance-based pay can generate increased physiological stress responses. But this evidence only comes from piece rate pay and not from other forms of performance-contingent pay. The nonexperimental field studies, while not being able to make a strong case for the causal effects of contingent rewards, suggest that there are psychological and health-related correlates of contingent pay, especially piece rate.

Field research shows that a number of other working conditions tend to covary with performance-contingent pay plans. What some investigators label mediating factors, such as monotony (Shirom et al., 1999), can also be labeled as confounding variables. Indeed, when they are controlled, the effects of contingent pay on well-being outcomes are reduced. That is precisely the major limitation of nonexperimental studies: performance-contingent pay plans, especially piece rate, tend to be used more on jobs that are repetitive and potentially monotonous, and such jobs also tend to be the most stressful (Caplan, Cobb, French, Harrison, & Pinneau, 1975).

Research on performance-contingent pay and stress has focused mostly on blue-collar, industrial jobs. In contrast, occupations that often employ performance-based pay plans are increasingly white collar, and even professional. Researchers should begin to concentrate on a wider range of occupations. Many types of sales positions, for example, use performance-based pay, yet they do not appear in the stress literature. Recent calls to hold professionals such as teachers (e.g., see Springer et al., 2010) and health care workers (e.g., see Rosenthal & Dudley, 2007) more accountable by making their pay contingent on performance suggest other interesting contexts for studying the stress effects of performance-based pay.

Understanding the causal mechanisms underlying the effects of performance-based pay requires much closer attention to the mediating and moderating variables involved in this relationship. For example, the impact of one’s pay plan is likely mediated by the cognitive appraisals of the worker, and this evokes several questions for future research. How do such performance-based plans, or what aspects of such plans, evoke appraisals
of threat? Are any stress effects of such pay plans caused by a lowering of control beliefs, income uncertainty, or disrupted social factors triggered by such plans in the workplace? None of these hypothesized factors have been systematically studied. Given the highly salient impacts of reward systems in organizational settings, they provide a rich opportunity to better understand the factors that have a significant impact on worker stress and well-being.

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