Organizational Injustice as an Occupational Health Risk

JERALD GREENBERG*
RAND Corporation

Abstract
Content to conceive of inequity distress as a hypothetical construct instead of an intervening variable, a half century of research inspired by equity theory has paid little attention to measuring inequity distress. At the turn of the twenty-first century, however, European epidemiologists, interested in determinants of ill health, found that injustice is a source of adverse emotional reactions that put people at risk for mental and physical morbidity (e.g., depression and coronary heart disease). This research is reviewed here, along with studies identifying pathways accounting for these connections. Specifically, perceived injustices lead to negative emotional reactions and to unhealthy behaviors (e.g., being sedentary, smoking, and drinking excessively), both of which trigger various negative bodily reactions (e.g., elevated serum lipids). These, in turn, subsequently put people at risk of illness. Research has found that such effects are mitigated by organizational interventions that promote perceptions of justice. Three limitations warranting consideration in future research are discussed: (a) the need to address methodological concerns (e.g., reducing common method variance, improving efforts to determine causality), (b) the

*Email: jgreenbe@rand.org

ISSN 1941-6520 print/ISSN 1941-6067 online
© 2010 Academy of Management
DOI: 10.1080/19416520.2010.481174
http://www.informaworld.com
need to assess the cultural generalizability of research findings, and (c) the
need to supplement the existing attention to disease with a new focus on health
and well-being.

Introduction

That work is a potential source of illness, both mental (Blustein, 2008) and
physical (Lax, Grant, Maanetti, & Klein, 1998), is well established. Most of the
work-related illnesses studied focus on exposure to noxious environmental
conditions (e.g., miners suffering respiratory diseases caused by inhaling coal
dust) and potentially debilitating repetitive motions (e.g., office workers at
computer keyboards suffering the pain of carpal tunnel syndrome) (United
States Department of Labor, 2007). Supplementing these physical sources of
occupational illnesses, however, is an even broader range of maladies stem-
ing from encounters with adverse psychosocial factors (e.g., chronic stress-
sors, negative emotional states, absence of social ties). These constitute an
additional layer of risk that is at least as serious although understood less well
(Everson-Rose & Lewis, 2004). This is likely because psychosocial variables
cannot be observed directly, making their links to illness less obvious and
thereby promoting less scientific scrutiny. Yet, these invisible threats are all
too real, and according to the World Health Organization (2008), “psychoso-
cial factors are now major occupational health concerns, joining the tradi-
tional problems of unemployment and exposure to physical, chemical and
biological hazards.”

Among the most widely studied psychosocial determinants of employee
health are workers’ feelings of injustice. This is the result of a surge of
research activity on this topic at the beginning of the twenty-first century, pri-
marily by European scholars. Despite the relative newness of this line of
investigation, a considerable body of evidence already exists. Although new
findings are emerging on a regular basis, existing evidence has been suffi-
ciently consistent and compelling to allow a conclusion to be drawn about the
relationship between justice and health: individuals who perceive injustice in
their workplaces are inclined to suffer mental and physical illness. In the
present paper, I examine the research bearing on this conclusion. I also dis-
cuss the various theories that shed light on these findings, and propose an
integrated conceptualization of the underlying psychological and physiologi-
cal processes involved.

Much has already been written about variables linked to perceived injustice
(e.g., job performance, organizational commitment, absenteeism, dysfunc-
tional behavior, and disruptive conflict) in the management literature, and
research focusing on these dependent variables has been reviewed thoroughly
elsewhere (Colquitt, 2008; Greenberg, 2010; Greenberg & Colquitt, 2005).
However, because most research linking workplace justice to health risks is
relatively new, and because it has been reported primarily in journals in the
fields of medicine, epidemiology, and occupational sociology, it is unlikely to appear on the radar screens of most management scholars. Given the potential importance of this work to theory and practice in the field of management, however, its examination here is warranted strongly.

**Background**

Research linking organizational justice and occupational health has adopted three distinct professional orientations—sociological, psychological, and medical.

**Sociological Orientation: Inequalities in Distributions of Wealth**

Although it is not my focus in this paper, intellectual completeness dictates that I acknowledge an established sociological literature linking health and justice. Typically, this work operationally defines injustice in macro-level terms as the unequal distribution of wealth within societies. Adopting this approach, many researchers (e.g., Wilkinson, 1996) have reported that among developed nations, the healthiest populations are found not in the wealthiest societies but in those with the smallest disparities in income between its richest and poorest members. Highest death rates occur in societies with the widest inequalities in wealth. The best accepted explanation for this is offered by the so-called inequality hypothesis, which claims that the social fabric is weakened in societies that are highly stratified with respect to wealth, resulting in low levels of social cohesion and its corrosive effects, including poor health (Raphael, 2003). Particularly at extreme levels, inequality and relative poverty are associated strongly with high mortality rates. Although this approach has not gone unchallenged (e.g., Eberstadt, 2004), it remains a popular doctrine among contemporary sociologists.

Interesting though it may be, this body of work fails to examine individual-level measures of injustice and, as a result, it is excluded from consideration in this micro-oriented paper. Here, I focus instead on people’s perceptions of fairness in organizations (i.e., organizational justice) (Greenberg, 1987). This orientation is adopted in the psychological and medical literatures, to which I now turn.

**Psychological Orientation: Role of Inequity Distress**

For almost half a century, the dominant approach to distributive justice (i.e., the perceived fairness of the distribution of valued resources) in the organizational sciences has been Adams’ (1963, 1965) equity theory. According to this conceptualization, individuals who feel overpaid (resulting from perceiving that the ratio of their outcomes relative to their inputs is higher than the corresponding ratios of comparison others) are said to experience guilt, and
those who feel underpaid (resulting from perceiving that the ratio of their outcomes relative to their inputs is lower than the corresponding ratios of comparison others) are said to experience anger. These two manifestations of inequity distress are negative emotional states that people are motivated to escape. They can do this by making behavioral and/or cognitive changes with respect to their own outcomes or inputs (e.g., by working less hard or by devaluing their contributions) or, when possible, those of focal comparison others.

Research testing equity theory generally has been supportive (Greenberg, 1982). However, one aspect of the theory that has received little attention concerns the nature of inequity distress. As I have noted elsewhere (Greenberg, 1984), a handful of studies have addressed this issue, but measurement shortcomings make their findings inconclusive. Commenting on this literature a decade ago, Hegtvedt and Cook (2001) concluded that, “whether distress or more specific emotions actually mediate reactions to inequity remains unknown” (p. 107).

Whether or not this should be considered a limitation of equity theory depends on the epistemological status accorded to inequity distress. The inability to capture inequity distress empirically would be problematic if one conceives of inequity distress as a mediator, an intervening variable that leads the independent variable (i.e., inequitable states) to cause changes in the dependent variable (i.e., changes in behavior or reported cognitions). However, equity theory implies that inequity distress is a hypothetical construct—that is, a construct that is not directly observable but whose existence is inferred on the basis of theoretically predictable changes in behavior (learning is a classic example). As such, directly measuring inequity distress, even if possible, is regarded to be unnecessary.

Traditionally, most social and organizational psychologists testing equity theory have not been concerned about the unobserved nature of inequity distress because they were interested primarily in antecedents and consequences of inequity. This has left many content to attribute reactions to inequity to an apocryphal state whose existence was inferred rather than measured directly (Greenberg, 1984). As a result, a connection between the psychological conceptualization of equity (Adams, 1965) and the health of individuals in organizations has not been established in the psychology literature. This is unfortunate given that stress and ill health have been linked strongly (e.g., Warr, 2004), leaving open the possibility that because inequity triggers stress, it may be a risk factor contributing to health problems.

To a great extent, this state of affairs is the result of psychologists’ willingness to conceive of inequity distress as a hypothetical construct, thereby permitting them to leave on the table consideration of the possibility that the unmeasured concept of inequity distress may promote illness. This is surprising when considered in light of two highly influential lines of research in the
field of stress. First, Selye (1955) documented the unhealthy effects of stress a full decade before Adams (1965) developed equity theory. Thus, although the table was set for psychologists studying inequity to feast on knowledge of stress-induced illness, few took seats. Second, after Lazarus (1974) introduced the notion that physiological stress reactions may be triggered by positive stimuli (i.e., eustress), as well as negative stimuli (i.e., distress), it is curious that psychologists failed to make the analogous connections to inequity distress stemming from the ostensibly beneficial state of overpayment and the negative state of underpayment.

These unfulfilled opportunities notwithstanding, I should note that because most of the early tests of equity theory were short-term laboratory experiments that were low in hedonic relevance, it is unlikely that the magnitude of their inequity manipulations would have been sufficient to arouse much distress, let alone trigger illness stemming from it. Furthermore, as uninformed as psychologists may appear for having failed to consider the unhealthy effects of injustice in the first few decades following the introduction of equity theory, to their credit, this precedes today’s rapidly growing awareness of the role of emotions in perceptions of justice and reactions to injustice (e.g., van den Bos, 2003). It also predates sophisticated physiological measures of emotional states (e.g., Abercrombie, Speck, & Monticelli, 2006) available to contemporary researchers.

**Medical Orientation: Focus on Disease and its Causes**

In contrast to psychologists’ seemingly naïve inattention to inequity as a source of illness, it probably comes as no surprise, given their focus, that medical researchers have been acutely aware of the unhealthy effects of inequity distress. To them, however, what is interesting about inequity distress is that it is regarded to be a “new psychosocial predictor of health” (Elovainio, Kivimäki, & Vahtera, 2002, p. 105). In contrast to organizational psychologists, who traditionally are interested in perceived injustice because of its impact on employee behavior, medical and epidemiological researchers came to appreciate perceived injustice after it was found to be an antecedent of illness in the workplace.

Much of this research follows from Siegrist’s (1996, 2002) and Siegrist, Siegrist, and Weber’s (1986) effort–reward imbalance theory (ERI). Similar to equity theory (Adams, 1965), ERI specifies that people who exert high amounts of effort but receive only low amounts of reward in return will experience negative emotions and stress. Although the theories are similar with respect to underlying processes, they differ in terms of their stated purposes. Whereas equity theory was designed to explain social exchange relationships, ERI was developed in conjunction with research aimed at understanding of psychosocial factors as health risks. With this in mind, it is not surprising that ERI has featured prominently as a framework guiding
medical and epidemiological research (for a review of 45 such studies, see van Vegchel, de Jonge, Bosma, & Schaufeli, 2005).

The vast majority of the medically oriented efforts have focused on coronary heart disease (CHD) (e.g., Hintsanen et al., 2007) and psychiatric morbidity (Kivimäki, Vahetera, Elovainio, Virtanen, & Siegrist, 2007). And because medical researchers are concerned about workplace stress, they measure its effects in the form of bodily reactions, such as cortisol dysregulation (Bellingrath, Weigl, & Kudielka, 2008) and norepinephrine secretions (e.g., Wirtz, Siegrist, Rimmelle, & Ehlert, 2008), near-term physical reactions such as low-back and neck injuries (e.g., Rugulies & Krause, 2007), and the long-term onset of disease stemming from it, such as type 2 diabetes (Kumari, Head, & Marmot, 2004).

Because findings from this research bear on the general principle on which I am reporting, I will discuss this research in the present paper. And because this work has focused on different types of health issues, I examine these as well. It is important to note that this literature focuses on the three established forms of organizational justice—distributive justice, procedural justice, and interactional justice (which includes both interpersonal justice and informational justice). Although much of this work was inspired initially by distributive justice, in recent years it also has turned attention to procedural justice (e.g., Ben-Ari, Tsur, & Har-Even, 2006) and interactional justice (e.g., Kivimäki et al., 2007).

Distributive justice refers to the perceived fairness of distributions of outcomes. Among social psychologists, equity theory (Adams, 1965) is the primary conceptualization of distributive justice, although medical researchers focus instead on ERI, which has been referred to as “a tolerable proxy for distributive justice” (Ferrie et al., 2006, p. 449). Given the considerable overlap between equity theory (Adams, 1965) and ERI (Siegrist, 1996, 2002), I will report medically oriented findings from the ERI literature as relevant to management researchers who may have used equity theory to guide their investigations of the health-related consequences of inequity.

Because much of the more recent medical and epidemiological research also examines procedural justice (i.e., the perceived fairness of processes used to determine outcomes) and interactional justice (i.e., the perceived fairness of the interpersonal manner in which procedures and distributions are explained), I will examine studies focusing on them as well. As will become apparent from the breadth of this research and the consistency of its findings, examining these health-focused studies opens up an entirely new vista for research on organizational justice. This reflects a shift in justice research from dependent variables of primary importance to organizations (e.g., performance, turnover) to dependent variables whose immediate and primary value is to individuals (this is not to imply, of course, that the health of employees is not also of interest to organizations) (Blustein, 2008; Kuoppala, Lamminpää, Liira, & Vainio, 2008).
Effects on Health

The premise of this paper is that perceptions of workplace injustice are linked to ill health. The evidence bearing on this notion is supported by several studies revealing significant negative correlations between perceptions of procedural justice and interactional justice (assessed using Moorman’s, 1991, scale) and the number of medically certified absences among Finnish employees. In Finland, absences from work due to sickness that exceed three days must be certified by a doctor for the employee to be credited with sick leave. Lower levels of both procedural justice and interactional justice have been found to be associated with higher numbers of medically certified absences (Elovainio, Kivimäki, Steen, & Vahtera, 2004) and absence spells that were longer in duration (Elovainio et al., 2005). In fact, one study found that employees reporting low levels of organizational justice were almost twice as likely to be absent as those perceiving high levels of organizational justice (Elovainio, Kivimäki, & Jussi, 2002). Despite the consistent nature of this evidence, it is limited by the fact that the dependent measure failed to reveal anything about the nature of employees’ illnesses. (Although diagnoses must be reported officially, these were not disclosed to the researchers.) Fortunately, additional studies have linked organizational justice perceptions to reports of specific physical and mental maladies. I now report these.

Physical Health Problems

Several studies have reported negative associations between perceptions of justice and self-reported physical health quality. For example, in their survey of over 4000 Finnish hospital workers, Elovainio et al. (2002) found that men who scored low on Moorman’s (1991) procedural justice scale were 1.84 times as likely as high scorers to report their general health as “poor” (on a single-item scale with response options of “good,” “fairly good,” “average,” “fairly poor,” “poor” and “cannot judge”) even after statistical adjustments were made to control for the effects of demographic variables (e.g., income), behavioral risks (e.g., smoking), and psychosocial factors (e.g., social support). The corresponding odds ratio for women was somewhat lower (1.55) but also significant at the 95% confidence interval. Interestingly, the corresponding corrected-odds ratios using Moorman’s (1991) measure of interactional justice was lower for both men (1.30) and women (1.24). Subsequent studies have replicated this general pattern of findings in other samples from the same population, although the differences between men and women were less pronounced (Elovainio, Kivimäki, Vahtera, Keltikangas-Järvinen, & Virtanen, 2003; Kivimäki, Elovainio, Vahtera, & Ferrie, 2003).

Additional evidence from longitudinal research has revealed the dynamic nature of these findings. We see this, for example, in the long-term survey study by Kivimäki, Ferrie, Head et al. (2004) in which justice measures completed at
one time predicted self-rated health at two subsequent times, approximately three and six years later. Drops in organizational-justice perceptions over this period were linked to declines in health, whereas rises in organizational justice were associated with improvements in health.

Taken together, these findings lend strong support to the possibility of a connection between justice perceptions and physical health. As Siegrist (2004) cautions, however, care should be taken in interpreting these findings for several reasons. To begin with, the lack of an externally assessed health measure precludes insight into the nature of the medical problems about which participants are reporting. Additionally, it should be noted that the studies suffer from same-source bias, which threatens to inflate correlations between variables. In view of this, the relatively modest odds ratios reported (often ranging from 1.10 to 1.50) may be overestimates of the true relationships, suggesting that organizational justice perceptions may be more limited predictors of health than claimed. This would appear to be indicative of relationships between justice and health that are more complex than captured by the main effects reported. In this regard, consider the consistent reports of gender differences in the relationship between justice perceptions and health outcomes (weaker findings among women than among men). Instead of conceiving of these as nuisances to interpretation (Siegrist, 2004), I believe they should be characterized as moderators worthy of further study in an effort to understand the underlying complexities between justice and health.

Fortunately, instead of using self-reports of general health, some studies exploring the connection between justice and health have examined reports of specific health problems. Insomnia (i.e., experiencing difficulties for at least four weeks in falling asleep and staying asleep) is one such ailment. Again studying several thousand Finnish hospital workers, Elovainio et al. (2003) found that insomnia was related negatively to perceptions of procedural and interactional justice. Interestingly, however, it also was found that insomnia mediated the relationship between justice perceptions and self-reports of health quality. Reflecting this, the odds that low perceptions of organizational justice were related to accounts of poor health were higher than unity, although this relationship dropped significantly after taking insomnia into account. Although preliminary, these findings are important in that they begin to shine light on some potential underlying processes. Apparently, whatever it is about injustice that promotes illness appears to manifest its effects through insomnia.

Another specific health problem that has been linked to perceptions of injustice—and a particularly serious one—is CHD. Evidence bearing on this relationship is found in studies by Kivimäki and his associates that conceptualize justice in two different ways. In the first study, Kivimäki et al. (2002) examined cardiovascular mortality as reported in a national registry in Finland between 1973 and 2001. Participants were 812 men and women who
worked in the metal industry in Finland who were free of CHD when the study began in 1973 and with whom the researchers followed up regularly during the study period. Comparisons were made between the number of deaths attributed to CHD and the degree to which participants reported experiencing ERI. The results were clear: after adjusting for age and gender, employees with high ERIs (i.e., low salaries, lack of social approval, and few career opportunities relative to the effort required at work) were 2.4 times more likely to die from CHD than those who suffered no such imbalances. Biochemically, the researchers were able to anticipate these results, as reflected by raised levels of serum total cholesterol (noted at the five-year follow-up) and increased body mass index (noted at the 10-year follow-up) among those in the high ERI group.

Subsequent research by Kivimäki and another research group (Kivimäki et al., 2005) took a different approach to assessing organizational justice. Specifically, using their own five-item ad hoc paper-and-pencil measure, the researchers assessed perceptions of organizational justice among over 6000 male civil-service workers in London. These data were collected at two time points in the mid to late 1980s that were between two and four years apart. Following this, participants were tracked for approximately nine years, during which records were kept regarding incidents of nonfatal myocardial infarctions (revealed using electrocardiograms) and self-reports of angina (confirmed independently by medical records and abnormalities revealed on coronary angiograms). In addition, fatalities due to CHD were flagged using reports in an official British government registry. Established risk factors for CHD also were assessed so that they could be included as control variables in data analyses (e.g., age, body mass index, smoking, alcohol consumption, etc.). The findings were clear: after controlling for risk factors, justice perceptions were significant predictors of all measures of CHD. In fact, among men perceiving high levels of organizational justice, incident CHD was on average 30% lower than it was for those perceiving intermediate or low levels of organizational justice.

Mental Health Problems

In addition to collecting reports of physical health problems, many of the earlier-reported studies also gathered information about participants’ mental well-being. The General Health Questionnaire (GHQ) (Goldberg & Williams, 1988) was used for this purpose. This instrument consists of items (either 12, 28, or 30, depending on the version) describing various self-reports of mental states to which respondents indicate frequency of occurrence on scales anchored “not at all,” “no more than usual,” “rather more than usual,” and “much more than usual.” Examples include, “Have you recently been getting scared or panicky for no good reason?” and “Have you recently felt that life is entirely worthless?” The GHQ is used to assess depression and social...
dysfunction (Werneke, Goldberg, Yalcin, & Ustun, 2000) and has been validated against standardized psychiatric interviews (Goldberg & Williams, 1988).

Two studies (Elovainio et al., 2003; Kivimäki, Elovainio, Vahetera et al., 2003) found that after adjusting for gender, age, income, and health at baseline, workers reporting low levels of procedural justice (using Moorman, 1991) were approximately 1.45 times more likely to report minor psychiatric morbidity (using the 12-item version of the GHQ) than those reporting high levels of procedural justice. As in the case of physical illness, the odds ratios were lower for interactional justice. These findings were extended in a longitudinal study (Kivimäki, Elovainio, Vahtera, Virtanen, & Stansfield, 2003) in which managerial procedures believed to be unfair significantly predicted depression (as diagnosed by a doctor) among initially healthy female hospital workers two years later. However, the results for interactional justice were not statistically significant.

Contrasting with these European studies, which examined only main effects of various forms of organizational justice on depression, two studies by Tepper (2001) conducted in the United States focused on interactive effects. Specifically, in his first study, Tepper (2001) examined the relationship between responses to brief, ad hoc measures of distributive justice and procedural justice completed by some 3300 employees of a public organization at the first time point and scores on a measure of clinical depression (the depression subscale from the Brief Symptom Inventory) (Derogatis, 1993) completed two months later. The findings revealed a significant interaction effect such that when both distributive justice and procedural justice were low, depression was highest—significantly higher, in fact, than under any other combinations of justice levels.

In a follow-up study using a different measure of depression (the Diagnostic Interview Schedule) (Robins, 1986), Tepper (2001) corroborated these findings, even when neuroticism was included as a control factor. This is important in view of evidence revealing that negative affectivity (an alternative label for neuroticism) moderates the relationship between stressors (e.g., distributive injustice) and strain reactions (e.g., self-reports of depression) (Burke, Brief, & George, 1993). Indeed, it has been argued that correlations between measures of stress and health overestimate the true association between these variables because both measures share a significant negative affectivity component (Watson & Pennebaker, 1989). Accordingly, the fact that Tepper (2001) replicated the significant relationship between injustice and depression reported in his first study, even after controlling for neuroticism, suggests that variance in the injustice–depression relationship cannot be accounted for by the effects of this dispositional variable.

Another study conducted in the United States that explored the relationship between organizational justice and depression took a different approach
to justice. Instead of analyzing individual responses, Spell and Arnold (2007) focused on justice climate, which they operationally defined by averaging the individual justice perceptions of members of various workgroups and assigning this collective justice score to each individual. This is the so-called “direct consensus approach” to climate described by Chan (1998) and used in organizational justice studies by Liao and Rupp (2005). The individual measures that Spell and Arnold (2007) combined were the distributive justice and procedural justice scales developed by Colquitt (2001), which are considered the de facto standard justice measures (Greenberg, 2010). The measure of depression used in this study was the depression subscale developed by Axtell, Wall, Stride, Pepper, Clegg, Gardner, and Bolden (2002). The researchers partially replicated the interaction effect for individual-level responses reported by Tepper (2001). Specifically, they found that the highest levels of depression were reported by individuals whose groups perceived low levels of both distributive justice and procedural justice.

It is noteworthy that Spell and Arnold (2007) also found the opposite effect—that is, lowest levels of depression were reported when collective levels of distributive justice and procedural justice were high. These findings extend Tepper’s (2007) individual-level findings, which revealed that depression is sensitive only to low levels of justice but not to high levels. Spell and Arnold’s (2007) symmetrical findings in this regard follow from research revealing both negative reactions to injustice and positive reactions to justice (for a review, see Greenberg, 2010). It is not apparent, however, why these findings were observed by Spell and Arnold (2007) but not by Tepper (2001). Whether they are due to the use of a collective measure of justice as opposed to an individual measure or to different measures of depression cannot be determined. Clearly, more research is needed to explore this question. Doing so would shed light into whether depression is responsive to gains in injustice (negatively) or gains in justice (positively), which promises to contribute to efforts to avoid the problems associated with depression in the workplace (e.g., Suls & Bunde, 2005).

To this point, I have reviewed research revealing both physical and mental illnesses linked to perceptions of injustice. Although the findings are inconsistent with respect to the effects of gender and the impact of specific forms of justice, it is clear that, overall, injustice is predictive of ill health to some extent.

**Underlying Processes**

Having established the existence of a relationship between perceived injustice and ill health, the stage is now set to identify the underlying processes that account for it. What, then, are the various pathways that result in this connection? In this section, I describe research suggesting the existence of relationships that appear to form the links in this chain. Specifically, I describe six particular relationships depicted in Figure 1: (1) perceived injustice → negative
emotions, (2) perceived injustice → unhealthy behavior, (3) negative emotions → unhealthy behavior, (4) negative emotions → negative bodily reactions, (5) unhealthy behavior → negative bodily reactions, and (6) negative bodily reactions → illness. (It is important to note that the arrows reflect assumptions of causality that may not have yet been established empirically.)

Perceived Injustice → Negative Emotions

It should not be surprising that the first link in the chain connecting injustice and ill health involves negative emotions (path 1). Such reactions are central to equity theory’s (Adams, 1965) claim that inequities create aversive emotional states, and these have been alluded to in the literature (e.g., Cropanzano & Baron, 1991; Zohar, 1995). Despite this, evidence regarding emotional reactions to inequity was lacking for many years (Greenberg, 1984). Then, in 1999, Weiss, Suckow, and Cropanzano (1999) linked discrete emotions to injustice in a seminal laboratory experiment.

These researchers had undergraduate students perform a desert-survival task as members of teams in which they were led to believe that their team performed either better or worse than another team. This resulted from either an unfair procedure that benefited them (i.e., they were given some correct answers), an unfair procedure that benefited the other team (i.e., the other team was given some correct answers), or a fair procedure (i.e., neither team was given any advantage). Following these manipulations, participants completed a questionnaire assessing the extent to which they were experiencing each of four distinct emotions: happiness, anger, guilt, and pride. With respect to these, the key findings were as follows:

- For happiness, the fairness of the procedure had no significant impact. All that mattered was whether participants believed their teams won (in which case, happiness was high) or lost (in which case, happiness was significantly lower).
• For anger, outcome and procedure had interactive effects such that the highest levels of anger were expressed in the condition in which participants lost the competition after the other team was given an unfair advantage. Levels of anger were significantly lower (and roughly equivalent to one another) in all other conditions.

• For guilt, outcome and procedure also had an interactive effect. The highest levels of guilt were expressed among participants who won the competition after being given an unfair advantage. Levels of guilt were significantly lower in all other conditions.

• For pride, the highest levels were expressed among participants who won the competition fairly and who won the competition despite the other team being given an unfair advantage. Mean levels of pride were significantly lower in all other conditions.

These findings suggest that emotional states are triggered by the favorability of outcomes in conjunction with beliefs about the fairness of the procedures used to determine those outcomes. Whereas happiness is solely outcome driven, to experience pride people must believe that they won a competition either fairly or despite unfair conditions that disadvantage them. Analogous results were found for negative emotions. People felt anger when unfair procedures led them to lose and guilt when unfair conditions led them to win.

In a questionnaire study, Barclay, Skarlicki, and Pugh (2005) reported analogous results. Specifically, these researchers found that laid-off employees who believed that their layoffs were handled in a procedurally fair manner experienced higher degrees of guilt and shame than those who believed that procedural violations occurred during the layoff process. This suggests that the use of fair procedures precluded the opportunity to discount negative self-attributions that otherwise would be available if procedures were unfair, thereby making workers feel worse about this outcome. In keeping with this notion, Barclay et al. (2005) also reported that this tendency (i.e., for people experiencing procedurally fair layoffs to experience guilt and shame) was greater when the negative impact of the layoff was considerable (e.g., when they failed to receive a severance package) than when the effect of the layoff was less severe.

Taken together, these findings support the idea that certain justice conditions trigger “affective events” as conceived by affective events theory (Weiss & Cropanzano, 1996). Interestingly, as Barclay et al. (2005) suggest, it is not only unfair states that result in negative emotions but fair states as well. In this case, the negative emotions are not particularly intense and result from inward-focused states of guilt and shame. However, states of unfairness are more inclined to trigger “hot” emotional reactions, such as anger and rage (Tripp & Bies, 2009), the kind of injustices that lead to burnout (e.g., Moliner, Martinez-Tur, Ramos, Peiro, & Cropanzano, 2008).
Perceived Injustice → Unhealthy Behavior

Although management scholars are familiar with the idea that emotional reactions occur in organizations (De Cremer, 2007) and, as noted above, that these can result from perceptions of injustice, they are generally unaware of another type of reaction to perceived injustice that is known to health researchers—unhealthy behaviors. Specifically, health researchers have reported that responses to perceived injustices may manifest themselves in the form of unhealthy behaviors—most notably, sedentary life-style, smoking, and heavy alcohol consumption (path 2).

Sedentary life-style. Kouvonen et al. (2006) suggested that when workers feel inequity (operationalized as high ERI), they are likely to feel frustrated, apathetic, alienated, and disengaged from work. Behaviorally, this manifests itself as passivity. Spilling over into leisure time, passivity may lead to sedentary life-styles, with physical inactivity posing health risks.

The researchers examined the connection between high imbalances between effort and reward and sedentary life-style among almost 36,000 Finnish workers. ERI was assessed using established measures (for a review of these, see Siegrist et al., 2004). Sedentary life-style was measured by multiplying the number of hours spent per week engaging in various physical activities of different intensity levels (e.g., walking, jogging, running) by the typical energy expenditures associated with them and adding them together for each activity. The resulting metabolic index was dichotomized into sedentary and active groups using established medical criteria (Kujala, Kapiro, & Koskenuvo, 2002). A modest relationship was found between ERI and sedentary lifestyle. Among both men and women, high individual ERI was associated with highly sedentary life-styles, even after controlling for possible covariates (e.g., age, occupational status).

Smoking. Another form of unhealthy behavior that has been linked to feelings of injustice is smoking. For example, it has been found that people experiencing high levels of ERI are more inclined to smoke than those experiencing low levels (Peter, 1995). More recently, in a study of over 34,000 Finnish employees, Kouvonen et al. (2007) explored the extent to which feelings of procedural injustice and interactional injustice were associated with smoking intensity. The researchers found that smokers who experienced low levels of justice in their organizations, both procedural and interactional, reported being heavier smokers than those who experienced high levels of justice. This finding resulted even after controlling for age, education level, socioeconomic status, marital status, and trait negative affectivity. Importantly, the researchers found that the link between justice perceptions and smoking also remained strong after controlling for ERI (which taps distributive justice as opposed to procedural justice or interactional justice).
and job strain. This is noteworthy because it suggests that organizational justice “is not just a marker for other work-related psychosocial factors that might influence smoking intensity” (Kouvonen et al., 2007, p. 430) but a key determinant on its own.

Heavy alcohol consumption. Using the same cohort of Finnish workers, Kouvonen et al. (2005) examined some 15,000 employees who indicated that they drank alcohol. At two time points separated by an average of 3.6 years, workers completed the procedural justice and interactional justice scales from Moorman (1991). Alcohol consumption also was assessed on both occasions by asking participants to indicate the amounts of various alcoholic beverages (e.g., beer, wine, etc.) they drank during an average week. People were classified as heavy drinkers if they consumed at least 210 g of alcohol per week.

It was reported that low levels of procedural justice significantly predicted heavy drinking among both men and women. This occurred even when taking into account such control factors as age, gender, and marital status. However, no such effects were found for interactional justice. This suggests that alcohol consumption was influenced more by the unfair policies and procedures used by organizations than by the unfair treatment of individual supervisors (who generally are referenced in measures of interactional justice).

It warrants mentioning that the unhealthy behaviors linked to feelings of injustice were all from the same “10 Town Study” conducted in Finland. As a result, we do not have the kind of independent findings using different populations that would be ideal in a series of studies. Additionally, many of the effects noted were not particularly strong. Despite these limitations, one cannot overlook the consistency across studies: regardless of the type of unhealthy behavior studied, a link between it and injustice (particularly procedural injustice) was always found.

Negative Emotions → Unhealthy Behavior

So far, I have described two types of reactions to workplace injustice—emotional responses (path 1) and unhealthy behavioral responses (path 2). It should be noted, however, that the emotional reactions to injustice themselves can be a cause of unhealthy behavior (path 3). Indeed, it is not unusual for people who suffer adverse emotional reactions to attempt to cope with these states in ways that are potentially unhealthy. Specifically, people sometimes turn to excessive alcohol use, “drowning their sorrows” to help minimize negative emotional states (Cooper, Frone, Russell, & Mudar, 1995). Also, many people smoke cigarettes when they feel nervous or upset, as is likely to be the case with adverse emotional reactions to injustice (Green & Johnson, 1990). And finally, it has been found that some people are inclined to follow sedentary lifestyles to compensate for jobs that are particularly stressful subject to negative emotional reactions (Wu & Porell, 2000).
Negative Emotions and Unhealthy Behavior → Bodily Reactions → Illness

Thus far, I have established that people respond to perceived injustices in ways that prompt negative emotions (path 1) and unhealthy behaviors (path 2) and that these negative emotions themselves may trigger unhealthy behaviors (path 3). Now, I consider how these emotional reactions (path 4) and unhealthy behaviors (path 5) manifest themselves as bodily reactions, which in turn, are linked to illness (path 6). I combine bodily reactions and associated illnesses in this discussion because they tend to be linked inextricably by researchers, many of whom are interested in negative bodily reactions primarily because of the illnesses to which they are associated.

Reactions to negative emotions. Research has established not only that injustices are linked to illness but that biological pathways mediate this relationship. For example, the anger associated with underpayment inequity and high ERI has been linked to high levels of ambulatory blood and heart rate throughout the working day (Vrijkotte, van Doornan, & de Geus, 2000). The same study also found that anger is associated with lower vagal tone—that is, low variability in heart rate during respiratory cycles. Such evidence of heightened cardiovascular activity is of concern because it has been linked to the development of cardiovascular disease (Schwartz et al., 2003; Treiber et al., 2003), suggesting that it is a mechanism involved in findings linking injustice to CHD (e.g., Kivimäki et al., 2005).

Additional research has focused on another biochemical pathway to CHD. For example, Siegrist, Peter, Cremer, and Seidel (1997) reported that prolonged periods of heightened emotional states are linked to high levels of atherogenic lipids, such as LDL cholesterol, and plasma fibrinogen. This is in keeping with the suggestion by Richards, Hoff, and Alvaranga (2000) that the primary factor responsible for the adverse health effects of injustice is elevated serum lipids, whose connection to injustice has been revealed in controlled laboratory experiments (Vermunt & Reil, 2005). Two particular inflammatory and procoagulant responses have been implicated in this connection: C-reactive protein (CRP) and von Willebrand factor (vWF). Synthesized in the liver, CRP is an acute-phase reactant that is predictive of CHD (Armani & Becker, 2005). vWF also predicts CHD but works differently (Whincup et al., 2002). Released from vascular endothelial cells and platelets, vWF promotes thrombus formation by stimulating the aggregation of platelets to the walls of damaged blood vessels.

Using CRP and vWF as markers, Hamer et al. (2006) studied 92 healthy men in England who were employed full time. These researchers found that both CRP and vWF were elevated among workers who believed they failed to receive rewards that were in keeping with the levels of effort they exerted on the job (i.e., when ERI was high), suggesting that their risk of CHD was high. Together with findings suggesting that high levels of ERI are associated with increases in CHD (e.g., Kivimäki et al., 2002), it would appear worthwhile to
monitor levels of key serum lipids among workers experiencing workplace injustice in an effort to detect potentially fatal conditions.

Reactions to unhealthy behavior. Medical researchers have found, not surprisingly, that the forms of unhealthy behavior studied in conjunction with organizational injustice—sedentary lifestyle, smoking, and excessive alcohol consumption—themselves are linked to bodily reactions that subsequently lead to ill health. Because these connections are more likely to be of interest to medical researchers than management researchers, I will discuss them only briefly. My main objective here is to establish that there are indeed bodily responses involved.

In the case of sedentary behavior, evidence suggests that the body responds by lowering levels of HDL (so-called “good cholesterol”) and by raising blood triglyceride levels (Katzmarzyk, Church, Craig, & Bouchard, 2009). Such responses have been linked to CHD, in part due to hypertension resulting from raises in body mass index (Rankinen, Church, Rice, Bouchard, & Blair, 2007). And, with respect to mental reactions, the obesity that results from sustained levels of sedentary behavior has been linked to depression (Onyike, Crum, Lee, Lyketsos, & Eaton, 2003).

The physiological effects of cigarette smoking and from excessive alcohol drinking have been well established and need not be reiterated here. Some people respond to perceive injustices by increasing smoking (Kouvonen et al., 2007) and drinking (Kouvonen et al., 2005), ostensibly in an effort to reduce the stresses and adverse emotional reactions (Feldner, Babson, & Zvolensky, 2007; Pohorecky, 1991) that result from feelings of injustice. In such cases, of course, the escapes come at exceptionally high costs when one takes into account the highly carcinogenic effects of smoking (Bellenir, 2004) and the toxic effects of excessive alcohol consumption (Royal College of Physicians, 2001).

Mitigating Illness by Promoting Organizational Justice

Considering the ill-health effects linked to perceptions of organizational injustice, it is encouraging that some studies have reported interventions successful in reducing health problems among employees by enhancing their perceptions of organizational justice. These may be considered primary prevention studies, since they are designed to assess the prophylactic effects of interventions aimed at lessening the degree to which injustice is experienced. Given the direct relevance of this work to the present paper, I describe it in some detail.

Another approach to minimizing adverse reactions to injustice among employees focuses on secondary prevention, typically in the form of stress-reduction techniques designed to help employees manage adverse reactions before their cumulative effects become any more serious. Because few studies
have examined stress-management efforts linked specifically to workplace injustices, I describe secondary-prevention efforts only briefly and with the hope of encouraging such research.

Finally, because tertiary prevention involves treating the medical symptoms of stress, it falls outside the purview of this paper (and my expertise), so I will not discuss it at all. Still, the fact that 75–90% of all visits to physicians’ offices are for stress-related ailments and complaints (American Psychological Association, 2006) suggests that preventative measures, if they are used, are having only limited benefits. Regardless of their approach to treating stress-related ailments (Everly & Lating, 2002), physicians involved in such activities are unlikely to be lacking business.

Primary Prevention: Prophylactic Benefits of Interactional-Justice Training

In commenting on the challenges of developing techniques for avoiding injustice in the workplace, Ferrie et al. (2006) noted that “it is not clear exactly what ‘treatment’ should be designed to increase perceptions of justice” but that it may be “possible to train supervisory staff in interpersonal skills and good practice” (p. 449). Indeed, I have done precisely this (Greenberg, 2006, 2008).

Greenberg (2006, 2008). Building upon research revealing that people treated with high levels of interactional justice are inclined to accept unfavorable outcomes, such as pay cuts (Greenberg, 1990), unfavorable policy changes (Greenberg, 1994), and job losses (Lind, Greenberg, Scott, & Welchans, 2000), I developed and tested an intervention (Greenberg, 2006) designed to help employees accept a pay cut by training their supervisors in how to promote interactional justice among their subordinates. I examined self-reports of insomnia (using the scale validated by Jenkins, Jono, & Stanton, 1996) by nurses at four hospitals belonging to the same parent company located in different cities in Northeastern United States. As part of a reorganization plan, the compensation system for nurses was changed in two of these hospitals such that their pay was reduced by approximately 10%. Nurses’ pay was unchanged in the other two hospitals at the time of the study. In one hospital in each group, I trained the supervisors of the nurses in ways of promoting interactional justice in the eyes of subordinates. I did this by giving lectures, analyzing case studies, and conducting interactive exercises in sessions held over two four-hour days. Specifically, training focused on three interpersonal aspects of interactional justice—(1) treating others with politeness, dignity and respect, (2) demonstrating emotional support, (3) avoiding intimidation, manipulation and degradation—and three informational aspects—(1) providing thorough, accurate and complete explanations, (2) communicating information in a timely manner, and (3) being accessible to others.

Insomnia ratings were collected at four time points over a 39-week period relative to the introduction of training. The stressful nature of the pay cuts (as suggested by equity theory in response to underpayment) was reflected by
the high levels of insomnia reported by nurses who experienced those reductions. Specifically, the insomnia levels of nurses who suffered pay cuts was significantly higher than those of (a) nurses whose pay was unchanged and (b) themselves before their pay was reduced. Revealing that the training intervention was effective, the levels of insomnia displayed by these nurses dropped significantly after their supervisors were trained in ways of promoting interactional justice. In keeping with earlier research, these findings suggest that high levels of interactional justice attenuate people’s negative reactions to unfavorable outcomes. More importantly, they reveal that supervisors can be trained successfully to bring about these beneficial effects among their subordinates.

It is noteworthy that I have replicated these dramatic findings in another study (Greenberg, 2008). Instead of involving pay cuts as a source of distributive injustice, this investigation focused on insomnia among factory workers, some of whom worked under conditions in which layoffs occurred. This effectively increased these workers’ workloads while also prompting insecurity about their own futures with their company. As part of a complex quasi-experimental design, I used the same protocol used for the nursing supervisors to train the foremen of some of these factory workers in ways to promote interactional justice among their direct reports. Compared to the nursing supervisors, however, foremen’s spans of control were broader, and they also had more limited contact with their charges. As a result, they had more limited opportunities to communicate in ways that enhance interactional justice among subordinates. Despite this, foremen who were trained to promote interactional justice successfully mitigated insomnia among their direct reports.

Another methodological difference between my two intervention studies deserves mention. In the nursing study (Greenberg, 2006), supervisors were trained only after the pay cut was introduced, thereby creating a situation in which the need to implement their interactional justice skills was made salient. In other words, supervisors provided a therapeutic benefit by helping workers respond to an undesirable outcome. Such a condition was created in the factory study as well (i.e., training followed information about the layoff). In addition, the factory study also included a condition in which foremen were trained in interactional justice before the layoffs were announced. Under these conditions, supervisors had opportunities to respond to their subordinates’ concerns at the time they arose, thereby inoculating them from adverse emotional effects in the first place. Not surprisingly, the effects of training in interactional justice were even stronger under these conditions. Taken together, these findings suggest that interactional-justice training should be made a part of the training regime of all supervisors, arming them with skills they can use both when negative outcomes present themselves and in everyday interactions.
In these two studies, the beneficial effects of interactional-justice training involved improving the emotional states of workers who suffered distributive injustices resulting from organizational changes that affected them adversely. Ideally, such negative reactions could be avoided altogether, eliminating perceptions of distributive justice (i.e., by not reducing pay or by not increasing workloads due to layoffs). However, given the rapidly changing nature of organizations coupled with people’s inherent sensitivities to their own relative outcomes in the workplace, it seems inevitable that people may perceive at least some minor degree of distributive injustice on a regular basis. With this in mind, it is especially important for supervisory personnel to help manage their subordinates’ perceptions of—and reactions to—injustice by promoting interactional justice. Fortunately, the training protocol contains no unique content: the six skills used to enhance interactional justice are among the most basic foci of existing effort to develop fundamental managerial competencies. Clearly, however, the successes of my intervention studies suggest that such training deserves to be stepped up and made more salient, perhaps through the use of “booster shots” to regularly scheduled training initiatives.

*Bourbonnais et al. (2006a, 2006b).* Fortunately, I am not alone in examining the health-promoting benefits of enhancing perceptions of organizational justice in the workplace. A team of Canadian health researchers, Bourbonnais, Brisson, Vinet, Vézina, and Lower (2006b), developed and implemented a broadly based participative intervention designed to improve the well-being of hospital employees by enhancing various elements of their psychosocial work environments (including the promotion of organizational justice). Specifically, following a series of interviews with staff members, the researchers worked with hospital personnel to develop 56 different initiatives designed to make various changes in their organization, some of which included promoting organizational justice:

- To promote distributive justice, job rotation plans were introduced. These avoided uneven distributions of work, and permitted sharing evenly the burden for performing undesirable tasks.
- To promote procedural justice, supervisors agreed to involve nurses in the making of decisions into which they have input.
- To promote interactional justice, team meetings were conducted to identify ways of enhancing the levels of dignity and respect that nurses received from their coworkers.

The effectiveness of these and other interventions were evaluated a year later by comparing the health status of employees before and after they were involved in these interventions and with those of a control group of comparable hospital employees who were not involved in the interventions (Bourbonnais et al., 2006a). Specifically, within the intervention group, the researchers
reported a significant reduction in sleep-related problems, as well as a reduction in reports of burnout. Unfortunately, the very broad nature of the entire set of interventions used in the study makes it impossible to determine the unique benefits of any single event, making it challenging to replicate these benefits elsewhere. Regardless, supplementing Greenberg (2006, 2008), the findings of Bourbonnais and his associates tell a compelling story about the potential to use justice-based interventions as a primary mechanism for promoting occupational health.

Utility and Ethics of Interventions. The costs and benefits of organizational-justice-training interventions beg to be considered relative to the alternative—doing nothing. Might organizations expect to receive sufficient “bang for the buck” to make such justice interventions worthwhile investments? A definitive answer to this question would require evidence from far more justice-training intervention studies than have been conducted to date. The few such studies that have been reported have revealed consistently positive results with respect to various organizational and individual outcomes (for a review, see Greenberg, 2009a). In the case of health-related outcomes, what we know is so preliminary as to suggest that future organizational interventions be presented to host organizations as experimental research as opposed to practices whose effectiveness has been established.

Based on available evidence, there would be little reason to suspect that organizations undertaking such interventions would experience anything other than low costs and high benefits. Training protocols are simple to administer and can be incorporated into more broadly based managerial training programs requiring offsite participation by trainees in two four-hour sessions. To date, results have revealed significant reductions in stress reactions taking the form of insomnia (Greenberg, 2006, 2008). Although specific financial benefits resulting from the training have not yet been established, the high costs of insomnia in the workplace to both employees (Martin, Aikens, & Chervin, 2004) and their organizations (Godet-Cayré et al., 2006) are such that its reduction promises to be beneficial to these victims, if only temporarily. Admittedly, this presents a Catch-22 situation. To establish the definitive health benefits of specific training initiatives requires additional research and for organizations to consider hosting such research; they surely will want to believe that the results will be beneficial. With this simple cost–benefit analysis to guide us, however, participating in research involving justice-training interventions would appear to be worthwhile investments for host organizations.

The justice-training interventions described here should be considered along with several other psychosocial interventions whose highly cost-effective nature has been established in a variety of medical settings (Sobel, 1995). Indeed, a host of inexpensive programs designed to educate patients about
ways of coping with the conditions they face have been effective in improving health (Friedman, Sobel, Myers, Caudill, & Benson, 1995). Two mechanisms have been proposed that account for these effects. First, it is possible that psychosocial risk factors increase disease susceptibility because they lower hosts’ resistance to disease. A second possibility is that psychosocial factors influence adaptation to illness.

Both mechanisms appear to be involved in the case of interventions designed to raise levels of interactional justice. For example, it is possible that high levels of interpersonal justice will mitigate the physiological reactions that ultimately result in illness (Boaz, 2002). Also, because interactional justice exposes victims of injustice to new information regarding their stressors, such individuals are likely to receive social support that helps them learn new ways of coping with the symptoms while also enjoying the comfort of knowing that they are not alone in their suffering (Tomaska, Thompson, & Palacios, 2006). Although these are reasonable possibilities based on extrapolations from other psychosocial interventions in medical settings (Friedman et al., 1995; Sobel, 1995), it is clear that additional research is required to determine their direct applicability to interventions involving interactional-justice training.

In concluding this section, mention should be made of the potential for abuse that may arise if organizational leaders treat employees in a distributively unfair manner (e.g., by cutting pay) based on the belief that they can subsequently neutralize any resulting adverse reactions. Obviously, if an injustice were created intentionally with nefarious motives, it would be highly unethical. Having the opportunity to offset employees’ harm (at least somewhat) does not give managers the right to inflict harm for its own sake.

Sometimes, however, undesirable conditions must be created as a byproduct of efforts to promote the greater welfare. This occurs, for example, when pay cuts are introduced in an effort to save jobs, as has been occurring widely in recent years (Kiviat, 2009; O’Donnell, 2008; Zimmerman, 2009). Under such circumstances, it may be argued that management has an ethical obligation to minimize the adverse psychological impact of this practice, such as by training managers to treat employees in an interactionally fair manner. This obligation is augmented by the fact that evidence (Greenberg, 1990, 2006) points to the effectiveness of palliative treatments in such instances.

This discussion resurrects classic arguments regarding the need for organizations to draw on knowledge from social scientists (Baritz, 1960) while also serving the interests of the individuals working in them (Brief, 2000). Interactional-justice training interventions clearly do both. The introduction of such techniques clearly is not value free, as some would advocate. Rather, it represents an effort to promote the welfare of human beings under conditions that otherwise would be more difficult to endure. And the admonition—indeed, the obligation—of social scientists to do precisely this has been voiced repeatedly over the years by individual scholars (Connell & Nord, 1996;
Organizational Injustice • 227

Howard, 1985; Lefkowitz, 2008) and is embraced by professional organizations (e.g., American Psychological Association, 2002).

**Secondary Prevention: Justice-Inspired Stress Management**

Given the prevalence of adverse health reactions to workplace injustice, it is apparent that it is not always possible to minimize injustice perceptions at their sources. Indeed, the broader problem of illness stemming from workplace stress has created a vast industry devoted to helping workers cope with work-related stress, including no lack of self-help books on this topic (e.g., Davis, Eshelman, McKay, & Fanning, 2008; Smith, 2008).

Although it is limited, evidence suggests that stress-related health problems stemming from perceptions of injustice are responsive to secondary prevention initiatives—that is, efforts to reduce the adverse effects of stress (Kinman & Jones, 2008). Indeed, it has been found that perceptions of ERIs are responsive to stress-management programs based around organizational change (Lavoie-Tremblay et al., 2005; Tsutsumi & Kawakami, 2004).

From a justice-specific perspective, any conceptualization of organizational justice has the potential to inform interventions designed to manage workplace stress and improve employee health. In the case of ERI, for example, it would appear that stress could be reduced by doing such things as balancing the rewards received with the effort expended on the job and making rewards commensurate with employees’ qualifications. To my knowledge, Aust, Peter, and Siegrist (1997) report the only study that uses justice-based interventions to reduce employee stress. Participants in this study were 54 highly stressed male inner-city bus drivers. Approximately half were assigned to the intervention group, requiring them to attend a 12-week program designed to raise awareness of the adverse effects of ERI, whilst members of the control group were involved in no such activity. The intervention consisted of training in methods of relaxing, coping with anger, and managing conflicts with superiors. All participants completed a measure of need for control, regarded to be an unhealthy way of coping with job demands. Compared to the pre-intervention period, drivers trained in these techniques revealed significantly lower amounts of need for control 12 weeks after the training ended. At that time, members of the trained group also showed significantly lower scores on this measure than members of the control group. Assuming that self-reports of need for control translate into behavioral efforts to avoid excessive control (which can have unhealthy effects) (de Rijk, Le Blanc, Schaufeli, & de Jonge, 1998), the findings suggest that participants derived health benefits from the training.

Based on these findings, the authors concluded that “a theory-based worksite stress management program in an occupational risk group is feasible and shows beneficial psychological effects” (Aust et al., 1997, p. 297). As appealing as this suggestion may be in the abstract, there is good reason to question the
extent to which the researchers’ findings constitute evidence supportive of ERI. This is because the interventions suggested by ERI that were used in their research are far from unique to the theory itself. Indeed, any number of sources suggest that efforts to promote relaxation, coping, and anger-management skills are effective means of mitigating the harmful effects of stress (e.g., Davis et al., 2008; Groves, 2004). By itself, ERI suggests no unique techniques for helping people deal with stress in ways that promote health. Thus it need not be introduced in this regard. I am not saying that the theory is irrelevant but that its contributions in this connection are far from unique and fall within a set of suggestions that could be derived from other approaches.

Intellectual honesty requires that I level the same criticism against my own studies on training managers in ways of promoting interactional justice (Greenberg, 2006, 2008). That is, we do not need to draw on research and theory on interactional justice to realize that certain sources of illness may be avoided by failing to treat people in a manner that is interpersonally affronting (Davis et al., 2008). Where the theory provides benefits, however, is in shedding light on how and why those effects occur. And this, in turn, promises to be the basis for future interventions that may not only have more unique content but that also may be more effective.

Limitations and Future Directions

The research reviewed here makes a compelling case for a link between perceptions of injustice and health. However, several limitations in this work need to be addressed and new directions need to be pursued to understand these relationships fully and to use them as the basis for reducing health risks in the workplace. I discuss these here.

Methodological Concerns

Throughout this paper, various methodological issues have arisen that warrant mention because of the limitations they pose to our understanding of the connection between injustice and illness—and, as such, their implications for future research on this topic. I address two such issues here—common method variance and causality.

**Common method variance.** In commenting on the justice and health literature, Kawachi (2006) has cautioned—correctly, in my opinion—that common method variance may artificially inflate correlations given that reports of both health problems and experiences of justice come from the same individuals. Ferrie et al. (2007) acknowledge that although this may be true on some occasions, there have also been studies—many of which were cited here—in which objective health measures are used. These include medically certified sickness absence (Elovainio et al., 2002), as well as records revealing both incidents of CHD (Kivimäki et al., 2005) and deaths stemming...
Importantly, these investigations have revealed results that are not significantly different than those in which self-report measures of health were used. Such findings may bolster to some extent confidence in the validity of studies using self-reported, single-source data.

Despite this, it still is useful to improve upon research designs in which the potential for common method variance exists. As a recommendation for doing this in future studies linking justice and health, Kawachi (2006) has suggested aggregating individual justice responses at the group level, thereby conceptualizing organizational justice as an organizational-level characteristic instead of an individual perception. Indeed, there is precedent for doing this in research on procedural justice climate (e.g., Ambrose & Schminke, 2007; Rupp, Bashshur, & Liao, 2007), in which justice is routinely conceived of at the unit level of analysis. Ferrie et al. (2007) note that such an approach has also been used in research linking justice and health.

In one study, for example, aggregate indices of procedural justice and interactional justice were formed by computing mean procedural and interactional justice scores of hospital workers employed in various departments (Kivimäki et al., 2007). The researchers found that individual-level and group-level justice measures predicted subsequent mental disorders equally well. Despite this, other research has revealed that group-level reports of interactional justice were less predictive of absences due to medically certified sickness than were individual-level reports. As Ferrie et al. (2007) note, however, this is not surprising in view of the fact that interactional justice perceptions are primarily individual responses to other individuals. Thus group-level aggregation as a solution to the problem of common method variance may not always be applicable.

Causality. Noting the correlational nature of prospective cohort studies, Ferrie et al. (2007) acknowledge that it is very difficult to implicate organizational justice as a direct cause of health using the strict criteria established in medical research (Hill, 1965). However, suggestive evidence of causality does exist. For example, Ferrie et al. (2006) examined changes in interactional justice reported over time relative to the onset of psychiatric problems. The researchers reported that psychiatric morbidity dropped as perceptions of interactional justice rose, and rose as perceptions of organizational justice dropped. Commenting on these findings, Kawachi (2006) noted that they “bolster the case that reverse causation is not the major explanation for the observed association” (p. 578). At the same time, however, Kawachi (2006) also cautioned that “if health declines and changes in perceptions of justice are contemporaneous, it is difficult to completely rule out reverse causation, even with longitudinal change analysis” (p. 578).

Also addressing the matter of causality, Ferrie et al. (2006) argue that controlled experiments on justice and health are called for but are difficult to
conduct in the workplace. The closest we come to such studies are the quasi-experiments used by researchers conducting some intervention studies. Take my interactional-justice training studies, for example (Greenberg, 2006, 2008). It is important to note that the naturalistic nature of these quasi-experiments precluded the possibility of assigning participants at random to all conditions, as typically would occur in true experiments. Although these studies may fall short of creating the ideal conditions for establishing causality in medical research (e.g., as advanced in the classic work of Sir Austin Bradford Hill, 1965), it is safe to consider them a major step in this direction. Noting this methodological improvement, I regard as prematurely pessimistic the opinion of Ferrie et al. (2007), expressed in their rejoinder to Kawachi’s (2006) critique, that establishing a causal link between interactional-justice perceptions and illness is unlikely to occur. Notwithstanding limitations resulting from the challenges of randomly assigning participants to organizations, the nature of my quasi-experimental research design enhances confidence that the interactional-justice training intervention of supervisors did, in fact, reduce insomnia among their subordinates.

Although not always expressed, causality appears to be assumed by researchers conducting intervention studies (e.g., Aust et al., 1997). Indeed, the assumption of causality is fundamental to the research design: if injustice causes ill health, then good health should be promoted by doing things to raise the levels of organizational justice. If the relationship were not inherently causal, then efforts to promote justice could not be assured to being about the desired health benefits, and the potential benefits of justice-promoting interventions would not be realized.

Cultural Generalizability

The vast majority of investigations testing the association between injustice and illness are prospective cohort studies. Over a period of time, the researchers follow a group of individuals who are alike in most respects but who differ in some key way—here, perceptions of justice (e.g., ERI, judgments of procedural justice and interactional justice). At various points throughout the study, period comparisons are made with respect to outcome variable of interest, which in the studies reviewed here are various assessments of health (usually self-reported). Most such investigations have focused on two large and well-established cohorts—the “Whitehall II study,” involving over 10,000 British civil-service workers based in London over about 10 years (e.g., Ferrie et al., 2006) and the “10 Town Study,” in which over 35,000 Finnish health care workers in hospitals located in 10 small towns were followed over seven years (e.g., Vahtera et al., 2004).

It is clear that these ambitious, long-term projects have revealed a great deal of valuable information about the connections between injustice and illness. At the same time, however, an obvious question of generalizability arises...
whenever we study the same populations repeatedly. To what extent are the findings of these two sets of studies generalizable to employees performing different types of jobs in different cultures? Unfortunately, the dearth of research falling outside these two cohorts makes it impossible to address this critical question.

I refer to this as “unfortunate” because nationality may play a key role in determining people’s assessments of justice and their reactions to injustice (Greenberg, 2010). As a result, limiting our knowledge about the link between injustice and illness to any two cultures is likely to restrict our ultimate understanding of this relationship (Leung, 2005). It is likely, for example, that questionnaire items tapping dignity and respect are likely to be interpreted very differently by Asians (into whose cultures such concepts are well engrained) than by the people from Western cultures on whom present findings are based.

Because people from different cultures may have different feelings about the importance of and sensitivity to the nature and form of their interpersonal treatment from others (Kim & Leung, 2007), it is reasonable to suspect that they may respond in ways that have different impact on illness. Cultures also differ with respect to people’s attitudes toward healthcare and their willingness to report various physical and mental symptoms (Hartog & Hartog, 1983), and this also would be likely to influence the extent to which the studies linking justice and health are culture-bound. With an eye toward overcoming such cultural constraints, I encourage future researchers to study the relationship between justice and health in a wider variety of cultural contexts. What such investigations may reveal promises to provide greater insight into the nature of justice and health.

Focus On Health and Well-Being Instead Of Disease

Throughout this article, my emphasis has been on adverse health stemming from injustice. However, considering the movements toward positive psychology (Seligman & Csikszentmihalyi, 2000) and positive organizational science (Dutton & Ragins, 2006), it is reasonable to consider the opposite possibility—that justice promotes health. The disease-prevention orientation that dominates the field of medicine (Breslow, 1999) and the prevailing focus on injustice as opposed to justice (Greenberg, 2006, 2009b), however, make it difficult to find support for this possibility.

As Aspinwall and Tedeschi (2010) suggest, to claim that positive psychology concepts (e.g., optimism, sense of coherence) promote mental and physical well-being requires identifying the pathways through which such effects may occur. Two such mechanisms have been identified. One of these is suggested by Antoni, Carver, and Lechner’s (2009) research on the psychosocial determinants of health among women with breast cancer. Specifically, these researchers propose that “positive factors” such as dispositional optimism and
benefit finding may affect neuroendocrine and immune-system regulation, which in turn affect tumor growth through stress-induced dysregulation. Additional research suggests that the causal mechanism works in the opposite direction as well. Specifically, people who find religious or spiritual meaning in their families’ histories of disease are inclined to take protective action against becoming victims of such disease themselves (Leaf, Aspinwall, & Leachman, 2010) and to seek social support, and to find greater meaning in loss when they anticipate becoming victims (McIntosh, Silver, & Wortman, 1993).

Despite the attention to factors such as optimism and spirituality in these studies, the research continues to focus on avoiding or reducing adverse reactions to disease. As such, questions could be raised about whether such efforts truly move us beyond the neutral point and toward a positive pole, as the positive organizational science movement purports to do (e.g., Cameron, Dutton, & Quinn, 2003). Indeed, mechanisms have not yet been articulated that would explain how the fair treatment of an individual would promote health and well-being (on this, see Greenberg, 2006). Arguing against the possibility of such mechanisms is evidence suggesting that physiological reactions are triggered by deviations from steady states and that these are more potent in cases of negative stimuli than positive stimuli (Ito, Larsen, Smith, & Cacioppo, 1998).

In the case of organizational justice, I have argued elsewhere (Greenberg, 2006) that the opportunities for positive deviations are limited to cases of interactional justice. One cannot exceed standards of distributive justice because it is a point where balance exists, and if exceeded, constitutes injustice. Neither can one exceed procedural justice in the form of voice, because too much voice, as well as too little voice, is believed to be unfair (Peterson, 1999). However, it is, in fact, possible for people to receive far higher levels of interactional justice than they might have expected. That this would promote joy and positive feelings toward one’s organization follows from the literature showing positive attitudinal and behavioral reactions to high levels of interactional justice (Greenberg, 2010). What is not yet established, however, is that this also promotes levels of mental and physical well-being beyond the norm (i.e., to enjoy what economists might refer to as “abnormal returns” on their investment in interpersonal justice). In examining this possibility, researchers will have to contend with challenges stemming from people’s rapid adaptation to positive conditions (Brickman & Campbell, 1971; Helson, 1964) and with it, the absence of activating forces that would encourage individuals to grow and flourish as suggested by the positive organizational movement (Frederickson, 2001).

Conclusion

My objective in preparing this paper was to shed light on health as an outcome worthy of consideration by management researchers interested in
organizational justice. To date, most management scholars have ignored this critical factor, focusing instead on reactions to justice outcomes whose connections to organizational functioning are more direct in nature, such as job performance and attitudes (Greenberg, 2010; Greenberg & Colquitt, 2005). However, considering that the importance of employee health as a dependent variable is self-evident, and as outlined here, that a connection between justice and health has been established, the value of further exploring this connection should be readily apparent. In fact, given that some of the relationships are matters of life and death (Kivimäki et al., 2002) and that we already have knowledge about how to mitigate some of the causal determinants (Greenberg, 2006), the case for examining injustice as an occupational health risk cannot be overstated. It is my hope that by analyzing the strengths and limitations of this topic, I will have stimulated some of my colleagues to address the many important issues that remain to be studied.

A potentially exciting aspect of such efforts is that its grounding in the medical literature may require management scholars to collaborate with other professionals who have medical training. Such interdisciplinary efforts promise to be quite fruitful and beneficial in that they lead us to move in directions that we otherwise would not have pursued. In this connection, it is indeed encouraging that some management scholars have already published articles in our field’s major journals that highlight the important roles of various biomedical and physiological connections (e.g., Dulebohn, Conlon, Sarinopoulos, Davison, & McNamara, 2009; Heaphy & Dutton, 2008). It is my hope that the present work will build upon such efforts and blaze some fascinating new trails in the future.

Acknowledgment

The author acknowledges the helpful comments of Art Brief, Marko Elovainio, Deshani Ganegoda, Jim Quick, and Jim Walsh on an earlier draft of this article.

Endnotes

1. Following customary usage in the organizational behavior and social psychology literatures, the terms “justice” and “fairness” are used interchangeably in this article, as are “injustice” and “unfairness” (Greenberg & Colquitt, 2005). Also in keeping with these literatures, all references to various forms of justice or injustice are regarded as perceptual in nature. This stands in contrast to sociologically oriented conceptualizations of justice couched in terms of structural qualities (e.g., Tornblom, 1977) and philosophical approaches that reference moral ideals (e.g., Rawls, 1971).

2. On the distinction between hypothetical constructs and intervening variables, readers are referred to the classic article by MacCorquodale and Meehl (1948).
3. Although Adams depicts overpayment as a negative state, experimental evidence suggests that people actually may be pleased about it privately (Rivera & Tedeschi, 1976).

4. Despite its lack of specificity, this scale has been validated in several studies in which more negative responses were found to be linked to occurrences of specific medical problems requiring a doctor’s treatment and, at the extreme, to mortality (e.g., Idler & Angel, 1990; Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997). As Elovainio et al. (2003) indicated, “More than 20 published studies have consistently shown that global self-rated health is an independent predictor of mortality, despite the inclusion of numerous specific health status indicators and other relevant covariates known to predict mortality” (p. 289).

5. As used here, the term “rather” is used in the British colloquial manner to mean “somewhat.”

6. During stressful experiences, sympathetic nervous system activity heightens, allowing the heart rate to meet the challenge of boosting blood flow (Lane, Addcock, & Burnett, 1992).

7. Curiously, although there is considerable research on the physiological benefits of exercising (e.g., United States Department of Health and Human Services, 1996), studies of the effects of sedentary lifestyles are only now appearing. Importantly, from what is known thus far, these two lines of research are not parallel: the benefits of exercise are not necessarily the obverse of the costs of sedentary behavior.

8. According to the American Cancer Society (2010), “Smoking damages nearly every organ in the human body, is linked to at least 15 different cancers, and accounts for some 30% of all cancer deaths.”

References


Organizational Injustice • 241


