

---

---

# Organizational Injustice and Psychological Strain

---

LORI FRANCIS, Saint Mary's University  
JULIAN BARLING, Queen's University

## Abstract

Characterizing perceived injustice as a form of stress, we examined the main and interactive relationships among interactional, procedural, and distributive injustice and psychological strain while controlling for job insecurity. Using moderated multiple regression analysis with a sample of 1,083 government employees, we show that interactional, procedural, and distributive injustice are all unique predictors of psychological strain that account for significant unique variance beyond that explained by job insecurity. Those individuals who perceive more interactional, procedural, or distributive injustice at work reported a higher degree of strain. However, there were no significant interactive effects, suggesting that these three categories of perceived injustice do not interact to predict symptoms of psychological strain.

## Résumé

Tout en considérant l'injustice perçue comme une forme de stress et en tenant compte de la variable de l'insécurité d'emploi, nous avons examiné les relations principales et interactives propres aux injustices en matière d'interaction, de procédure et de catégorie, et la fatigue psychologique. Une analyse de régression multiple soumise à un échantillon de 1 083 employés du gouvernement nous a permis de démontrer que les injustices en matière d'interaction, de procédure et de catégorie sont toutes des variables indépendantes de la fatigue psychologique qui peuvent expliquer une variance unique significative différente de celle de l'insécurité d'emploi. Les personnes qui perçoivent, dans leur milieu de travail, un plus grand nombre d'injustices en matière d'interaction, de procédure et de catégorie rapportent une fatigue plus intense. Cependant, aucun effet interactif significatif n'a été observé, ce qui donne à penser que ces trois catégories d'injustice perçue n'interviennent pas dans la prédiction des symptômes de fatigue psychologique.

A substantial body of organizational research supports the claim that perceived injustice in the work place leads to undesirable reactions (for comprehen-

sive reviews, see Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). For instance, experiencing injustice contributes to such negative outcomes as decreased work performance (e.g., Pfeffer & Langton, 1993) and increased withdrawal behaviour (e.g., Hulin, 1991). Although the violation of organizational justice principles has received considerable research attention, the relationships most frequently considered by researchers have involved outcome variables that are attitudinal or behavioural in nature, for example, organizational commitment (Alexander, Sinclair, & Tetrick, 1995), theft (Greenberg, 1990), and trust in the organization (Konovsky & Pugh, 1994). Until recently, the role of injustice in questions pertaining to employee health, in particular work-related strain, had not been broached in organizational research. However, of late, organizational researchers have recognized that organizational injustice may play a role in the very real problem of strain at work. In particular, researchers have begun to demonstrate that perceptions of organizational injustice are associated with stress-related outcomes, including psychological strain (e.g., Elovainio, Kivimaki, & Helkama, 2001), depression (Tepper, 2001), and counterproductive behaviour at work (Fox, Spector, & Miles, 2001). In doing so, they acknowledge injustice as an emerging issue in the occupational stress literature (e.g., Kelloway, Francis, & Montgomery, 2005).

In the current research, we investigate relationships among the experience of injustice and one stress-related outcome, namely, psychological strain. This work contributes to the existing literature in three main ways. First of all, we concurrently examine the relationships among three different categories of perceived injustice and strain. Although previous studies have examined procedural, interactional, and distributive injustice and reports of strain, few have considered such relationships in a single study (for exceptions see Judge & Colquitt, 2004; Tepper, 2000).

Second, we examine the relationship between perceived injustice and strain in concert with another variable known to be involved in the stress process,

namely, job insecurity. A number of other studies addressing the relationship between injustice and strain have not examined the relationship in the presence of other stress-related factors (e.g., Tepper, 2001). We believe that an examination of how injustice predicts strain over and above another organizationally relevant factor will result in a more complete understanding of the relationship between perceived injustice and strain.

As our third contribution, we examine potential interactive patterns among three types of perceived injustice in the prediction of strain. Three-way interactions among procedural, distributive, and interactional justice perceptions have been demonstrated in the justice literature (e.g., Skarlicki & Folger, 1997). However, existing research has not considered the potential for a three-way interaction among interactional, procedural, and distributive justice perceptions with psychological strain as the outcome of interest. Previous considerations of two-way interactions between procedural and distributive justice perceptions when predicting psychological strain yield mixed results. One study shows that procedural and distributive justice perceptions interact to predict multiple variables related to psychological strain, including depression, emotional exhaustion, and anxiety (Tepper, 2001), but another fails to detect a two-way interaction between procedural and distributive justice when predicting psychological strain (Francis, 2003). With such mixed results and a lack of research considering the role of interactional justice in justice interactions when predicting strain, the current study will elucidate an understudied area in the literature. Before detailing the current study, we first review relevant research to illustrate the relevance and potential impact of the current study.

Occupational stress is a common and severe condition of major concern to both individuals and organizations. Stress is linked to such deleterious individual outcomes as depression, heart disease, and increased alcohol use (Quick, Quick, Nelson, & Hurrell, 1997). The organizational consequences of stress are also severe. For example, work-related stress has been linked to such negative outcomes as decreased organizational commitment, decreased job performance, increased workers' compensation claims, and increased sick time (Jex & Crossley, 2005). Given the damaging outcomes associated with job-related stress, it is not surprising that organizational researchers have endeavoured to gain an improved understanding of this phenomenon.

One way that stress researchers have attempted to advance research in this area is by clarifying the terminology used to describe various aspects of the

stress process (Pratt & Barling, 1988). In its common usage, stress is a term simultaneously used to describe something people feel as well as something to which individuals are exposed in their environments. However, most researchers now agree on a general stress model that distinguishes three closely related terms: stressors, stress, and strain (Pratt & Barling, 1988). *Stressors* are external, objectively verifiable events such as a heavy workload or poor interpersonal relations in the workplace that contribute to the experience of stress (e.g., Sauter, Murphy, & Hurrell, 1990). *Stress* is an individual's internal response to stressors and is characterized by arousal and displeasure. Finally, *strain* describes the consequences of long-term exposure to stress and includes such physiological outcomes as cancer, gastrointestinal illness, and cardiovascular disease (Kristensen, 1996; Quick et al., 1997) and psychological symptoms, including anxiety (e.g., Billings & Moos, 1982), depression (e.g., Tepper 2001; Zohar, 1995), and cognitive failure (Kivimaki & Lusa, 1994).

In this study, we treat perceived injustice as a reflection of stress, that is, an internal state characterized by arousal and displeasure, and examine its relationship to a prevalent stress-related outcome, psychological strain. We characterize injustice as stress, rather than as a stressor, because it is the individual's internal perception of a situation that results in judgments of injustice. Via our framework, the verifiable external event that contributed to perceived injustice, for instance, being denied a raise, would be the stressor. Therefore, we investigate further the issue of occupational stress by considering organizational injustice as a form of work-related stress and examining its ability to predict psychological strain.

The study of organizational injustice is concerned with people's perceptions of fairness violations in the workplace. However, injustice is not considered as a uni-dimensional construct and many studies have focused on three dimensions of injustice: distributive, procedural, and interactional (Cohen-Charash & Spector, 2001). Questions about distributive injustice focus on people's perception of the fairness of outcomes (Greenberg, 1987). Research in the area of procedural injustice is concerned with the extent of perceived fairness for the procedures by which organizational decisions are made (Cropanzano & Greenberg, 1997). Interactional injustice addresses the degree of perceived fairness in the interpersonal treatment that a person receives (Bies & Moag, 1986).

Research interest in the relationship between injustice and strain has recently grown. Procedural, interactional, and distributive injustice have all been linked with increased reports of strain (Elovainio,

Kivimaki, & Vahtera, 2002; Elovainio et al., 2001; Fox et al., 2001; Francis, 2003; Judge & Colquitt, 2004; Kivimaki, Elovainio, Vahtera, & Ferrie, 2003; Tepper, 2000, 2001; Wager, Fieldman, & Hussey, 2003; Zohar, 1995). For example, in a study focused on interpersonal treatment, Zohar (1995) found that nurses who perceived that their supervisor reacted to their concerns in an unfair manner, reported increased psychological strain. Wager et al. (2003) reported negative changes in blood pressure, a manifestation of physiological strain, among a sample of health-care workers when they were working under an unfair leader relative to when the same individuals completed a shift with a supervisor they perceived as fair. Elovainio and colleagues (Elovainio et al., 2001, 2002; Kivimaki et al., 2003) have reported a consistent relationship between perceptions of both procedural and interactional injustice and elevated levels of psychological strain, increased illness-related work absences, and decreased self-reported health status. Fox et al. (2001) found that perceptions of procedural and distributive injustice were associated with increased reports of negative affect and counterproductive behaviour in the workplace, such as arriving late, avoiding work, and criticizing the organization. Similarly, Tepper (2001) found that perceptions of distributive and procedural injustice were associated with increased psychological strain symptoms, including depression, emotional exhaustion, and anxiety.

In the current study, we extend previous investigations on this matter in a number of ways. One extension is the simultaneous examination of relationships among three common categories of perceived injustice, namely, interactional, procedural, and distributive and strain. Most existing studies on injustice and strain have examined a subset of justice-related perceptions. For instance, Tepper (2001) included only procedural and distributive injustice in his work and found that both types of justice perceptions predicted psychological strain. Elovainio et al. (2001) on the other hand focused on procedural and interactional injustice. They reported that both of these types of justice judgments had significant relationships with a measure of psychological strain.

Two exceptions to the trend of including a subset of injustice categories that we have identified in stress-related research are Tepper (2000) and Judge and Colquitt (2004). Tepper (2000) found that procedural, interactional, and distributive injustice were all linked with psychological indicators of strain. Judge and Colquitt (2004) also considered multiple categories of injustice perceptions. In addition to procedural and distributive injustice, they separately

examined two aspects of interactional injustice, informational and interpersonal. Judgements of interpersonal injustice involve assessments of sincerity and respect in interpersonal interactions. Perceptions of informational injustice consider the extent to which individuals are given honest and adequate explanations in the workplace (Bies & Moag, 1986; Greenberg, 1993). Judge and Colquitt found that, although procedural and interpersonal injustice predicted a measure of stress, distributive and informational injustice did not emerge as significant predictors. It is possible that these mixed results are a reflection of measurement or sampling issues peculiar to the particular studies or the different treatment of interactional justice in each case. Whatever the case, the existence of such mixed results regarding the relationship between distributive injustice and other stress-related variables warrants additional research, particularly those involving multiple categories of injustice perceptions. We do so in the current study and hypothesize that:

*Hypothesis 1:* Perceptions of a procedural, interactional, and distributive injustice will all significantly predict strain. Those who perceive a high degree of procedural, interactional or distributive injustice in their workplace will report higher levels of psychological strain.

Our prediction that distributive injustice will predict strain is contrary to some recent findings (Judge & Colquitt, 2004). However, we note that the majority of studies examining the relationship between distributive injustice and strain have found a significant relationship (e.g., Fox et al., 2001; Tepper, 2000, 2001). Additionally, the theoretical foundation for the current conception of distributive injustice, equity theory (Adams, 1965) purports that exposure to perceived inequity contributes to feelings of tension. As such, we propose that distributive injustice will be associated with reports of strain.

A second way in which the current study extends existing research is by considering perceptions of injustice along with job insecurity, another acknowledged variable in the stress process. An examination of how injustice operates in concert with other organizationally relevant factors in the prediction of strain will result in a more complete understanding of the relationship between perceptions of injustice and strain, and offer insight into the amount of additional variance that perceptions of injustice may explain in psychological strain.

Certainly, the workplace is replete with factors that contribute to stress among employees. For instance, in the 2003 General Social Survey, Canadian

workers reported that work overload and poor interpersonal relations at work were major sources of stress (Williams, 2003). Some studies pertaining to organizational injustice and strain have included such additional factors. For instance, Elovainio et al. (2001) reported that procedural injustice fully mediates the relationship between job control and strain, and Francis (2003) found that justice evaluations partially mediate that relationship. Examining the relationships among justice perceptions, work-family conflict, and stress, Judge and Colquitt (2004) determined that work-family conflict mediates the relationship between perceived injustice and measure that appears to tap psychological strain. Job insecurity is another often considered stress-related variable (Barling & Kelloway, 1996; Sonnentag & Frese, 2003). Those who report a high degree of insecurity in their work also report more strain. However, no studies have examined the incremental predictive ability of justice perceptions when controlling for job insecurity in the prediction of strain. Further, job insecurity is a particularly important variable to consider in the context of the current study. These data were collected from employees at a government organization involved in a substantial organizational transition. As such, employees in this organization may have been particularly concerned about the security of their jobs following the change. In this study, we examine the extent to which organizational justice perceptions contribute to the prediction of psychological strain beyond the variance accounted for by job insecurity. The importance of injustice can be demonstrated further if it accounts for a significant proportion of the variance in individual strain beyond that of job insecurity. We offer the following hypothesis:

Hypothesis 2: Perceptions of injustice will account for unique variance in psychological strain beyond that explained by job insecurity.

The third way that the current study extends existing work is by considering the potential for interactive relationships among the different types of perceived injustice in the prediction of strain. Certainly, it seems intuitive that the ability of perceived injustice to predict strain would be exacerbated under conditions where one perceives that injustice has been violated along multiple dimensions and mitigated when an injustice that occurs along a single dimension (e.g., distributive) and is accompanied by fair treatment on another dimension (e.g., procedural). Previous research has demonstrated three-way interactions among procedural, interactional and distributive justice in the prediction of organizational

outcomes. For instance, Skarlicki and Folger (1997) reported a significant three-way interaction among interactional, distributive, and procedural justice when predicting organizational retaliatory behaviour. In that case, the relationship between organizational retaliatory behaviour and distributive justice only emerged when both procedural and interactional justice were perceived to be low. Existing research has not, however, considered the potential for a three-way interaction among interactional, procedural, and distributive justice perceptions with psychological strain as the outcome of interest. Previous studies that tested two-way interactions between procedural and distributive justice perceptions when predicting psychological strain yield mixed results. Tepper (2001) reported that procedural and distributive justice perceptions interact to predict multiple variables related to psychological strain, including depression, emotional exhaustion, and anxiety such that strain was highest when both procedural and distributive justice were perceived to be low. Francis (2003), on the other hand, did not detect a two-way interaction between procedural and distributive justice when predicting psychological strain across three separate studies, although significant main effects emerged in each case.

One potential reason for the mixed findings when considering the two-way interaction between procedural and distributive injustice perceptions when predicting strain is the way in which distributive and procedural justice were measured in the separate studies. Francis (2003), who failed to find an interaction, assessed fairness perceptions at an event- or issue-specific level. For example, in one case, student respondents were asked to evaluate the procedural and distributive fairness of a university exam. Tepper (2001), who did uncover a significant interaction, asked participants to provide more global assessments about fairness in their organizations. It may be that the event-specific approach to assessing injustice is not the most appropriate when strain is the outcome of interest. As we defined earlier, psychological strain manifests after a longer term exposure to stress. As such, unless the episode in question is a major one, injustices surrounding a single event may not, on their own, result in strain. Whereas the accumulation of many incidences of perceived injustice may constitute a persistent state of stress, and ultimately result in strain (Tepper, 2001). In the current study, we, like Tepper (2001), use global assessments of fairness, asking participants to provide general justice evaluations in their workplace.

The contradictory nature of existing findings pertaining to justice interactions illustrate that a clear

understanding of the manner in which various categories of perceived injustice relate in the prediction of strain has not been achieved. Additionally, interactions involving interactional injustice, including a three-way interaction of interactional, procedural, and distributive injustice, as predictors of strain, have not been explored in the literature. The current study considers these possible interactions. However, because of the equivocal findings regarding interactions among the categories of perceived injustice, specific hypotheses are not offered.

## Method

### Participants

Employee opinion surveys were distributed to 4,591 employees of a Canadian government organization. Completed surveys were returned by 1,378 individuals for a 30% response rate. Respondents worked for various ministries (e.g., transportation, health, and education). Age was assessed using a series of age intervals, and most participants (68%) were between the ages 30 and 50.

### Procedure and Measures

All employees of the government organization were invited to complete an anonymous employee opinion survey. Surveys were delivered to employees via payroll distribution and completed surveys were returned separately to the labour relations division of the government.

*Psychological strain* was measured using the 12-item version of the General Health Questionnaire (GHQ; Banks et al., 1980). The GHQ includes items pertaining to such factors as depression and self-confidence. The respondents were asked to consider their psychological strain symptoms over the past six months. The items were rated on a 4-point response scale ranging from 1 (better than usual) to 4 (much worse than usual). Due to a printing error, one item from the GHQ 12 was missing in this survey (been able to face up to your problems). Thus, the psychological strain score was computed using 11 items. This variable was computed such that higher scores are indicative of more strain. Prior research has shown high internal consistency for this measure ( $\alpha$ 's ranging from .82 to .90; Banks et al., 1980). Internal consistency for the GHQ was high in this study ( $\alpha = 0.92$ ).

*Procedural injustice* was measured using seven items developed by Moorman (1991). Responses were given based on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example

TABLE 1  
Descriptive Statistics and Intercorrelations for All Study Variables

Variable	M	SD	1	2	3	4	5
1. Procedural Injustice	2.5	.86	—				
2. Distributive Injustice	3.1	1.0	.38	—			
3. Interactional Injustice	2.3	.88	.56	.33	—		
4. Insecurity	3.0	.93	.22	.17	.16	—	
5. Strain	2.2	.53	.34	.36	.33	.26	—

Listwise  $N = 1,083$

All correlations significant at  $p < .001$

TABLE 2  
Fit Indices for the Models

Model	$\chi^2$	df	GFI	AGFI	CFI	NFI	RMSEA
3 Factor	995.13*	116	.91	.88	.96	.95	.08
2 Factor	4,320.20*	118	.63	.52	.79	.78	.20
1 Factor	8,745.05*	119	.45	.30	.56	.56	.29

Note.  $N = 1,219$ ; \* $p < .01$ .

item is, "If someone laid a complaint, my organization would collect all the information necessary for decision making." Higher scores indicate a high degree of perceived injustice. This scale showed acceptable internal consistency ( $\alpha = .95$ ).

*Interactional injustice* was measured using five items developed by Moorman (1991). Responses were given based on a 5 point scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example item is, "If I were to speak to my supervisor about a complaint, my supervisor would treat me with kindness and consideration." Higher scores indicate a high degree of perceived injustice. This scale had acceptable internal consistency ( $\alpha = .93$ ).

*Distributive injustice* was measured using five items described by Price and Mueller (1986). Responses were given based on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example item is, "In my workplace I am fairly rewarded considering my responsibilities." Higher scores indicate a high degree of perceived injustice. This scale was internally consistent ( $\alpha = .94$ ).

*Job insecurity* was assessed using five items developed for the current study. Responses were given based on a 5 point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items are presented in the Appendix. Higher scores indicate a high degree of insecurity. This measure was internally consistent ( $\alpha = .81$ ).

TABLE 3  
Standardized Parameter Estimates and Squared Multiple Correlations for the Three-Factor Model

Item	Distributive Justice	Interactional Justice	Procedural Justice	R <sup>2</sup>
I am fairly rewarded...				
...considering my responsibilities.	.83			.70
...in view of the amount of experience I have.	.82			.67
...for the amount of effort I put forth.	.93			.87
...for the work I have done well.	.91			.83
...for the stresses and strains of my job.	.82			.67
If I were to speak to my supervisor about a complaint, my supervisor would...				
...consider my viewpoint.		.86		.75
...consider the situation objectively.		.87		.76
...provide me with timely feedback about any decision.		.78		.60
...treat me with kindness and consideration.		.88		.77
... show concerns for my rights as an employee.		.90		.80
If someone in my workplace laid a complaint my organization would...				
...collect all the information necessary for decision making.			.86	.73
...provide opportunities to appeal or challenge the decision.			.83	.70
...follow standards or policies so that decision could be made consistently.			.88	.77
... hear the concerns of all those affected by the decision.			.90	.81
...provide useful information regarding the decision and its implementation.			.91	.82
...allow requests for clarification about the decision.			.90	.82
...ensure the privacy of all those involved.			.73	.53

Results

Variables were computed using listwise deletion of missing data at the item level. Prior to testing the stated hypotheses, we examined the data for violations of the assumptions of normality, linearity, homoskedasticity, and multicollinearity using SPSS for Windows Version 10.1. The distributions for strain, interactional injustice, and procedural injustice were somewhat positively skewed. However, as the proposed analysis is robust to violations of the assumption of normality, transformations were not performed. No univariate (greater than four standard deviations from the mean) or multivariate outliers were detected. No other violations of assumptions were detected. Descriptive statistics and intercorrelations for all study variables are presented in Table 1.

As there is some debate in the literature regarding the number of dimensions of organizational justice, before testing the hypotheses pertaining to a three-dimensional model of organizational justice, we verified the factor structure using Confirmatory Factor Analysis. We compared the fit of three separate models. The first model contained three factors in which distributive, interactional, and procedural justice loaded on separate factors. The second was a two-factor model, in which distributive justice loaded on one factor, and procedural and interactional justice loaded on a second factor. The third model was one in which all three categories of justice perceptions

TABLE 4  
Beta Weights and Multiple Correlation for Psychological Strain Following Step 4 of the Hierarchical Moderated Multiple Regression

Variable	β	R	R <sup>2</sup>
Job Insecurity	.17*	.475*	.225*
Interactional Injustice	.18*		
Procedural Injustice	.13*		
Distributive Injustice	.24*		
Interactional x Procedural	.003		
Interactional x Distributive	-.06		
Procedural x Distributive	.06		
Interactional x Procedural x Distributive	-.05		

Note. \*  $p < .01$ ; Listwise  $N = 1,083$ .

loaded on a single factor. Unfortunately, due to the nature of the interactional justice items, we were unable to test a four-factor model (Colquitt, 2001) in which interactional justice was separated into informational and interpersonal components.

All model tests were conducted using maximum likelihood estimate in LISREL 8.51 (Joreskog & Sorbom, 2001) and were based on the covariance matrix. Fit indices for the three models are presented in Table 2. An inspection of the fit indices suggests that the three-factor model provides the best fit to the data. In particular, the three factor model provides a better fit to the data than does the model hypothesizing two factors,  $\chi^2_{\text{difference}}(2) = 3,325.97, p < .01$ , and

the model proposing a one-factor solution,  $\chi^2_{\text{difference}}(3) = 7,749.92, p < .01$ . Standardized parameter estimates and squared multiple correlations for the three-factor model are presented in Table 3. All parameter estimates were significant and explained substantial amount of item variance.

To test our hypotheses, we conducted a moderated multiple regression. According to the procedure recommended by Aiken and West (1991), those predictors involved in the interaction were standardized before the interaction terms were computed. With strain as the criterion measure, job insecurity was entered on the first step. Interactional, procedural, and distributive injustice were all entered on Step 2. The 3 two-way interactions between the injustice terms were entered on Step 3, and the three-way injustice interaction term was included on the fourth and final step of the regression.

Listwise deletion of missing data resulted in a sample size of 1,083 for this analysis.  $R^2$  was significantly different from zero for all steps. With all variables entered in the equation,  $R^2 = .23, F(8, 1074) = 39.06, p < .001$ . Following Step 1, with job insecurity entered as the lone predictor,  $R^2 = .07, F(1, 1081) = 79.34, p < .001$ .

As predicted, the addition of the three injustice variables on Step 2 accounted for significant incremental variance in psychological strain,  $\Delta R^2 = .152, F_{\text{change}}(3, 1,078) = 70.14, p < .001$ . Thus perceptions of injustice accounted for an additional 15.2% of the variance in psychological strain beyond that explained by job insecurity. Therefore, Hypothesis 2 is supported. The addition of the two-way interaction terms on the third step did not account for additional variance in the psychological strain reported by the government employees ( $\Delta R^2 = .003, p > .15$ ). Similarly, the three-way interaction term introduced on Step 4 did not significantly contribute to the variance accounted for in the criterion measure ( $\Delta R^2 = .001, p > .15$ ). Thus, in the present study, procedural, interactional, and distributive injustice do not appear to interact in any manner to predict incremental variance in psychological strain.

The beta weights for each predictor following Step 4 of the hierarchical moderated multiple regression are presented in Table 4. Examination of these beta weights indicates that job insecurity was a significant predictor of reported psychological strain,  $\beta = .17, t(1,074) = 6.09, p < .001$ . Not surprisingly, those who felt higher levels of job insecurity also reported more strain. All three types of perceived injustice emerged as significant predictors of psychological strain. For interactional injustice,  $\beta = .18, t(1,074) = 5.07, p < .001$ ; for procedural injustice,  $\beta = .13, t(1,074) = 3.56, p <$

$.001$ ; and for distributive injustice,  $\beta = .24, t(1,074) = 7.65, p < .001$ . As predicted in Hypothesis 1, those who feel that their workplaces are interactionally, procedurally, or distributively unfair report more psychological strain.

## Discussion

The current investigation provides additional support for the proposition that exposure to injustice is a stressful experience. Individuals who perceived higher degrees of procedural, interactional, or distributive injustice tended to report higher incidence of psychological strain symptoms. Certainly, these results are in keeping with those of a number of other recent studies that show perceived injustice as an important predictor of stress-related outcomes (Elovainio et al., 2001; Elovainio et al., 2002; Fox et al., 2001; Francis, 2003; Judge & Colquitt, 2004; Kivimaki et al., 2003; Tepper, 2000, 2001; Wager et al., 2003; Zohar, 1995). These results are similar to those found in Tepper's (2000) investigation treating procedural, interactional, and distributive justice as predictors of psychological strain. However, the results of the current study differ somewhat from another recent study. Judge and Colquitt (2004) reported that procedural injustice and one component of interactional injustice, interpersonal injustice, were significant predictors of a measure of perceived stress. However, distributive injustice and an additional component of interactional injustice, informational injustice, did not emerge as significant predictors.

It is possible that a number of differences between the current study and Judge and Colquitt (2004) may account for the discrepant results. First of all, Judge and Colquitt examined work-family conflict as a mediator of justice perceptions and a measure of perceived stress. Therefore, this study considered indirect, rather than direct, relationships between perceived injustice and stress. Additionally, Judge and Colquitt considered four, rather than a categories of organizational justice. Their treatment separately considered interpersonal and informational justice perceptions, which they viewed as components of interactional injustice. Future research should address these discrepancies in an effort to more clearly ascertain the roles of distributive and interactional injustice. Clearly, additional research should consider the components of interpersonal and informational injustice to see if informational injustice arises as a predictor of strain under other circumstances. Similarly, additional work should be done to identify the role of other potential mediators in the relationship between injustice and strain.

Another interesting finding of the current investi-

gation is that perceived injustice accounted for considerable incremental variance in psychological strain. Perceptions of procedural, interactional, and distributive injustice explained an additional 15.2% of the variance in stress beyond that accounted for by job insecurity alone. The results lend support to the notion that injustice is, in and of itself, an important aspect of organizational stress. We note that perceived injustice explaining variance above and beyond job insecurity may take on particular importance given the current sample. The data for the present study were collected at a time when the government organization in question was undergoing substantial change, and individuals may have been concerned about their job security in the postchange environment.

One of our goals in the current study was to examine potential interactive relationships among procedural, interactional, and distributive injustice in the prediction of strain. There were no significant interactions, even though with such a large sample size there was sufficient power to detect such effects if they were present. This is the only study of which we are aware that examines the potential interactions involving interactional, procedural, and distributive injustice when predicting a measure of psychological strain. Thus, the lack of a three-way interaction, and the failure to detect any two-way interactions involving interactional injustice, is a unique contribution to the literature.

Other studies have examined the interactive effects of perceived procedural and distributive injustice in the prediction of strain. The lack of a significant interaction between procedural and distributive injustice in the current study is in keeping with some previous research. For instance, Francis (2003) failed to detect such an interaction in three separate studies examining the relationship between perceived injustice and strain. However, the current results are contrary to those reported by Tepper (2001), who found that procedural and distributive injustice consistently interact to predict outcomes related to psychological strain, such as exhaustion and depression. Such conflicting results suggest that procedural and distributive injustice can interact to predict psychological strain, but that the presence of such an interaction may be dependent upon the context and conditions of the study. Earlier, we suggested that the reason for the conflicting findings of Tepper (2001) and Francis (2003) was that the former relied on global assessments of fairness and the latter on more event-focused justice evaluations. We addressed this possibility in the current study by using general assessments of procedural, interactional, and distributive

justice. Given that significant interactions did not emerge in the current study, the level at which the justice variables are measured does not explain the inconsistent results. However, other differences between Tepper (2001) and the current study may account for the seemingly incompatible results.

One difference between Tepper (2001) and the current study is the degree of relationship between distributive and procedural justice. In two separate studies, Tepper (2001) reported correlations between distributive and procedural justice that were above .6, whereas in the current study the same correlation was .38. This difference is somewhat surprising given that both studies appear to have used similar operationalizations of procedural and distributive injustice. It is possible, especially noting that Tepper's significant interactions accounted for between 1% and 4% of the variance in strain, that the differences in the extent to which the two justice variables are related affects the emergence of an interaction when they are used to predict strain.

Another pertinent factor that distinguishes Tepper (2001) and the current study is that the former used longitudinal investigations to assess the relationship between injustice and strain. As strain manifests as a result of longer-term exposure to stress, it is possible that a longitudinal approach, which would permit longer time frames for the individuals to experience the injustice they initially reported at Time 1, may increase the likelihood of detecting a justice interaction when strain is the outcome of interest.

The final difference between Tepper (2001) and the current study that we will consider as a potential reason for the contradictory results between the two investigations is the nature of the samples. Tepper (2001) sampled respondents from a large public organization in one study and residents of a large city in another. In the current study, we also sampled from a public organization; however, the organization considered in the current study was undergoing a major transition. It is possible that the respondents in our study were experiencing strain as a result of stress stemming from multiple stressors associated with the change. Other than job insecurity, we were unable to control for these types of stress. In this case, such multiply determined symptoms of strain may have masked justice interactions that actually exist.

Whatever the reason for the contradictory nature of the current findings and those reported by Tepper (2001), the mixed results appear to reflect the state of the existing literature on justice interactions. Previously published results on the relationship between procedural and distributive injustice in the prediction of varied outcomes, beyond those pertain-

ing to strain, are also mixed (see Cropanzano & Greenberg, 1997). Folger and Cropanzano (1998) note that when interactions between justice categories do arise, they can take on different forms. One possible form is that the negative outcomes associated with a perceived distributive unfairness only arise when procedural and interactional fairness evaluations are also low. Alternatively, it is also possible that the interaction is such that high distributive justice can mitigate the effects of unfair processes, be they procedural or interactional.

It is obvious that, as of yet, a clear understanding of the manner in which the various types of perceived injustice relate in the prediction of outcomes has not been achieved. Researchers should continue to entertain the potential for and nature of interactive relationships among procedural, interactional, and distributive injustice in the prediction of organizationally relevant outcomes. For instance, future research should look for interactive patterns in studies that explicitly compare event-specific versus global assessments of fairness. A similar comparison of longitudinal versus cross-sectional designs would also be valuable. In doing such research, investigators would provide a necessary exploration of the boundaries of the conditions under which an interactive relationship emerges and what form such interactions might take, as well as identify the circumstances under which the categories of injustice operate independently. Understanding the impact of context and research design on the interactive patterns among the different types justice variables would be valuable to organizational practice, as there are workplace situations in which management has more control over the fairness of procedures or interpersonal treatment than they do the outcome, for example, during a layoff decision.

Like all research, the present study is not without limitations. Our reliance on self-reported measures for justice, job insecurity, and stress is not ideal. Although we acknowledge the potential limitations associated with self-report measures, we nonetheless believe that the current research makes a valuable contribution to the literature. The literature pertaining to injustice and strain is in its infancy. At this point, when little is known about the nuances of the relationship between perceived injustice and strain, valuable information can be obtained from self-report data. Additionally, with respect to the measures of organizational injustice in work environments, it is often not desirable to move away from self-reported information as it is the individuals' perceptions regarding the fairness of their workplaces, rather than objective assessments of fairness, that

relate to important outcomes (Fox et al., 2001).

We do, however, agree that future research efforts should involve objective measures of strain. Stress researchers and consumers of the organizational stress literature have expressed a great deal of concern regarding the widespread use of self-report measures (e.g., Kahn & Byosiere, 1992) and have encouraged the increased use of physiological indices of strain (Sonnentag & Frese, 2003). Certainly, physiological indicators of strain, such as blood pressure, are now increasingly incorporated in occupational stress research (e.g., Wager et al., 2003). In the future, investigators should include such measures in research that explores further the complexities of the relationships among justice perceptions and strain. In doing so, these researchers will move away from the focus on psychological outcomes and into a broader conceptualization of strain.

Nonresponse bias is often a concern in large, survey-based investigations such as this one. The current response rate of 30% is not particularly low for an organizational survey of this type. However, it is possible that those who are most highly vulnerable to stress and strain were more likely to complete the survey than were other individuals. This may be of particular concern when response rates are low. However, fears regarding nonresponse bias are allayed by research conducted by Schalm and Kelloway (2002), who show that low response rates do not necessarily bias study results. Their premise is that nonresponse is only a concern if it distorts the effects under consideration. That is, response bias is problematic if low response rates are associated with increased effect sizes. Their investigation of previously published work resulted in a nonsignificant correlation between response rate and effect size. Additionally, given that the data for the present study were drawn from a much larger organizational survey, there is no reason to believe that individuals who were particularly sensitive to issues of injustice or strain per se would be more likely to respond to the survey.

Although demonstrations that the experience of injustice contributes to strain are becoming more commonplace, very little is known about the actual mechanisms that govern the relationship among perceived injustice, stress, and strain (Judge & Colquitt, 2004), and there is no agreement regarding the particular role that perceived injustice plays in the stress process. For instance, we treat perceived injustice as a reflection of stress that occurs in response to an external stressor. That is, perceived injustice is an internal state that develops in response to an external event, for instance, a promotion decision-making process.

According to our treatment, perceived injustice contributes to the experience of strain. Elovainio and colleagues (Elovainio et al., 2001; Elovainio et al., 2002; Kivimäki et al., 2003) take a similar approach and discuss how justice evaluations predict indicators of various indicators of strain. Other researchers, however, appear to treat perceived injustice as a stressor and examine its relationship to stress (e.g., Judge & Colquitt, 2004). To that extent, considerable work in articulating, describing, and dissecting this process is needed.

The results of the present study carry a number of important practical implications for Human Resources practice with respect to the management of the costly problem of occupational stress (Karasek & Theorell, 1990). The clear demonstration that injustice contributes to psychological manifestations of strain should direct attention toward injustice as a potential component of stress management initiatives. One approach to managing stress in the workplace is Preventive Stress Management (Quick et al., 1997). Preventive Stress Management emphasizes that the well-being of an organization and its employees are interdependent. As such, this approach notes that stress-related interventions ideally include both organizational and individual efforts. It also highlights both the *reduction* of stressors in the workplace and the *management* of existing stress and strain. The recognition that perceived injustice is stressful might guide program development under the principles of Preventive Stress Management.

Given the goal of reducing the number of stresses in the workplace, acknowledging that a state of perceived injustice is stressful is a starting point for the design of preventative interventions. For instance, if perceived injustice is recognized as a type of stress, Human Resources experts might include organizational justice principles in curricula for management training programs. Those managers who are aware of the damaging effects of injustice may be more mindful to enact fair procedures, treatment, and outcomes when dealing with employees, thus reducing the incidence of unfair scenarios in the workplace.

With respect to the goal of improved management of existing employee stress and strain, the characterization of injustice as a type of stress may benefit counselling and employee assistance initiatives. For instance, these programs may help employees recognize situations that lead to perceptions of unfairness as a contributing factor in their experience of stress and strain. As such, employees may be able to learn to cope with their feelings about the perceived unfairness or manage the source of the perceived injustice.

This research was supported by funding from the Nova Scotia Health Research Foundation to the first author and the Social Sciences and Humanities Research Council of Canada to the second author. The authors thank Noel Keeley for his assistance with data collection. Portions of this study were presented at the Work, Stress and Health Conference, Toronto, ON, March 2003.

Correspondence should be addressed to Lori Francis, Department of Psychology, Saint Mary's University, Halifax, Nova Scotia, Canada B3H 3C3 (E-mail: Lori.Francis@SMU.ca).

### References

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 267-299). New York: Academic Press.
- Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage Publications.
- Alexander, S., Sinclair, R. R., & Tetrick, L. E. (1995). The role of organizational justice in defining and maintaining the employment relationship. In L. E. Tetrick & J. Barling (Eds.), *Changing employment relations: Behavioral and social perspectives* (pp. 61-89). Washington, DC: American Psychological Association.
- Banks, M. H., Clegg, C. W., Jackson, P. R., Kemp, N. J., Stafford, E. M., & Wall, T. D. (1980). The use of the General Health Questionnaire as an indicator of mental health in occupational studies. *Journal of Occupational Psychology*, 53, 187-194.
- Barling J., & Kelloway, E. K. (1996). Job insecurity and health: The moderating role of workplace control. *Stress Medicine*, 12, 253-260.
- Bies, R. J., & Moag, J. S. (1986). Interactional justice: Communication criteria of fairness. In R. J. Lewicki, B. H. Sheppard, & M. Bazerman (Eds.), *Research on negotiation in organizations*, (Vol. 1; pp. 43-55). Greenwich, CT: JAI Press.
- Billings, A. G., & Moos, R. H. (1982). Stressful life events and symptoms: A longitudinal model. *Health Psychology*, 1, 99-117.
- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 86, 278-321.
- Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86, 386-400.
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology*, 86, 425-445.
- Cropanzano, R., & Greenberg, J. (1997). Progress in organizational justice: Tunneling through the maze. In C. L. Cooper & I. T. Robertson (Eds.), *International review*

- of industrial and organizational psychology, (Vol. 12; pp. 317- 372). London: John Wiley & Sons.
- Elovainio, M., Kivimaki, M., & Helkama, K. (2001). Organizational justice evaluations, job control, and occupational strain. *Journal of Applied Psychology, 86*, 418-424.
- Elovainio, M., Kivimaki, M., & Vahtera, J. (2002). Organizational justice: Evidence of a new psychosocial predictor of health. *American Journal of Public Health, 92*, 105-108.
- Folger, R., & Cropanzano, R. (1998). *Organizational justice and human resource management*. Thousand Oaks, CA: Sage Publications.
- Fox, S., Spector, P. E., & Miles, D. (2001). Counterproductive work behaviour (CWB) in response to job stressors and organizational justice: Some mediator and moderator tests for autonomy and emotions. *Journal of Vocational Behavior, 59*, 291-309.
- Francis, L. (2003). Organizational justice, sensitivity to injustice and the experience of stress. (Doctoral dissertation, University of Guelph, 2003). *Dissertation Abstracts International, 64*(1-B), 451.
- Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review, 12*, 9-22.
- Greenberg, J. (1990). Employee theft as a reaction to underpayment inequity. *Journal of Applied Psychology, 75*, 561-568.
- Greenberg, J. (1993). The social side of fairness: Interpersonal and informational causes of organizational justice. In R. Cropanzano (Ed.), *Justice in the workplace: Approaching fairness in human resource management* (pp. 79-103). Hillsdale, NJ: Erlbaum.
- Hulin, C. L. (1991). Adaptation, persistence and commitment in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed.; Vol. 2; pp. 445-506). Palo Alto, CA: Consulting Psychologists Press.
- Jex, S. M., & Crossley, C. D. (2005). Organizational consequences. In J. Baring, E. K. Kelloway, & M. Frone (Eds.), *Handbook of work stress* (pp. 575-599). Thousand Oaks, CA: Sage Publications.
- Joreskog, K. G., & Sorbom, D. (2001). *LISREL 8.51 user's guide*. Chicago, IL: Scientific Software International.
- Judge, T. A., & Colquitt, J. A. (2004). Organizational justice and stress: The mediating role of work-family conflict. *Journal of Applied Psychology, 89*, 395-404.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 3, pp. 571-650). Palo Alto, CA: Consulting Psychologists Press.
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. New York: Basic Books.
- Kelloway, E. K., Francis, L., & Montgomery, J. (2005). *Management of occupational health and safety*, (3rd ed). Scarborough, ON: Nelson.
- Kivimaki, M., Elovainio, M., Vahtera, J., & Ferrie, J. E. (2003). Organizational justice and the health of employees: Prospective cohort study. *Occupational and Environmental Medicine, 60*, 27-34.
- Kivimaki, M., & Lusa, S. (1994). Stress and cognitive performance of fire fighters during smoke diving. *Stress Medicine, 10*, 63-68.
- Konovsky, M. A., & Pugh, S. D. (1994). Citizenship behaviour and social exchange. *Academy of Management Journal, 37*, 656-669.
- Kristensen, T. S. (1996). Job stress and cardiovascular disease: A theoretical critical review. *Journal of Occupational Health Psychology, 3*, 246-260.
- Moorman, R. H. (1991). Relationship between organizational justice and organizational citizenship behavior. Do fairness perceptions influence employee citizenship? *Journal of Applied Psychology, 76*, 845-855.
- Pfeffer, J., & Langton, N. (1993). The effects of wage dispersion on satisfaction, productivity, and working collaboratively: Evidence from college and university faculty. *Administrative Science Quarterly, 38*, 382-407.
- Pratt, L. I., & Barling, J. (1988). Differentiating between daily events, acute and chronic stressors: A framework and its implications. In J. J. Hurrell, Jr., L. R. Murphy, S. L. Sauter, & Cooper (Eds.), *Occupational stress: Issues and developments in research* (pp. 41-53). New York: Taylor & Francis.
- Price, J. L., & Mueller, C. W. (1986). *Handbook of organizational measurement*. Marshfield, MA: Pittman.
- Quick, J. C., Quick, J. D., Nelson, D. L., & Hurrell, Jr., J. J. (1997). *Preventive stress management in organizations*. Washington, DC: APA Books.
- Sauter, S. L., Murphy, L. R., & Hurrell, Jr., J. J. (1990). Prevention of work-related psychological disorders: A national strategy proposed by the National Institute for Occupational Safety and Health (NIOSH). *American Psychologist, 45*, 1146-1158.
- Schalm, R. L., & Kelloway, E. K. (2002). The relationship between response rate and effect size in occupational health psychology research. *Journal of Occupational Health Psychology, 6*, 160-163.
- Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural and interactional justice. *Journal of Applied Psychology, 82*, 434-443.
- Sonnentag, S., & Frese, M. (2003). Stress in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology, Vol. 12: Industrial and Organizational Psychology* (pp. 453-491). Hoboken, NJ: Wiley.
- Tepper, B. J. (2000). Consequences of abusive supervision. *Academy of Management Journal, 43*, 176-190.

Tepper, B. J. (2001). Health consequences of organizational injustice: Tests of main and interactive effects. *Organizational Behavior and Human Decision Processes*, 86, 197-215.

Wager, N., Fieldman, G., & Hussey, T. (2003). The effect on ambulatory blood pressure of working under favourably and unfavourably perceived supervisors. *Occupational and Environmental Medicine*, 60, 468-474.

Williams, C. (2003). Sources of workplace stress.

*Perspectives on Labour and Income*, 4(6), 5-12.  
Zohar, D. (1995). The justice perspective of job stress. *Journal of Organizational Behavior*, 16, 487-495.

*Received May 15, 2004*

*Revised January 6, 2005*

*Revised June, 2005*

*Accepted June 26, 2005*

---

## Appendix

### Items Used to Measure Job Insecurity

Please indicate the extent to which you agree or disagree with each of the following statements where:

Strongly Disagree  
1

Disagree  
2

Neither Agree Nor Disagree  
3

Agree  
4

Strongly Agree  
5

1. I can keep my current job for as long as I want it. (R)
2. This job has retirement security. (R)
3. I can be sure of my present job as long as I do good work. (R)
4. I am not really sure how long my present job will last.
5. I am afraid of losing my present job.