

DISSERTATION

MODERATORS OF THE RELATIONSHIP BETWEEN ORGANIZATIONAL  
INJUSTICE AND EMPLOYEE STRESS

Submitted by

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In partial fulfillment of the requirements

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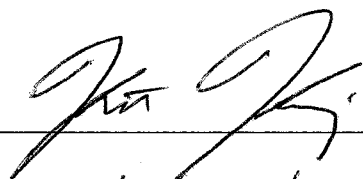
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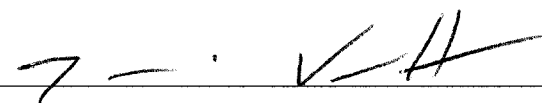
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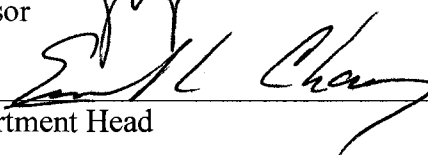
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ABSTRACT OF DISSERTATION  
MODERATORS OF THE RELATIONSHIP BETWEEN ORGANIZATIONAL  
INJUSTICE AND EMPLOYEE STRESS

Although there have been a few notable research studies illustrating the relationship between organizational injustice and stress in the workplace, hardly any researchers have investigated potential moderators of the injustice-stress relationship. I first present an overall theoretical model explaining the relationship between injustice and stress, and then empirically test a portion of the model. Specifically, the empirical investigation examined possible individual difference and situational moderators of the relationship between organizational injustice and perceived stress. Approximately 300 participants, undergraduate students, were recruited from a Western university and given measures of belief in ultimate justice, sensitivity to befallen injustice, equity sensitivity, four types of organizational injustice (distributive, procedural, interpersonal, and informational), social support, perceived stress, and strain in order to test the hypotheses derived from the theoretical model. Results showed that perceived stress fully mediated the relationships between distributive and procedural injustice and strain, and partially mediated the relationship between interpersonal injustice and strain. Also, perceived supervisory support buffered the effects of procedural and interpersonal injustice on stress.

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## DEDICATION

I dedicate my dissertation to my husband, Stephen Johnson. There is absolutely no way I could have completed my Ph.D. without his never-ending love, support, encouragement, and faith in me. I am the luckiest woman to have him by my side.

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## INTRODUCTION

Stress is one of the most widely studied concepts in the social sciences (see Buunk & de Wolff, 1992; Fried, 1993) and the study of the stressful nature of work has gained interest over the past 45 years (Hurrell, Nelson, & Simmons, 1998). Perhaps this increase in interest is due to the large numbers of individuals in the workplace who experience stress in their jobs. In 1999, the National Institute for Occupational Safety and Health published a report showing that between 26% and 40% of all employees perceived their job as very stressful. Furthermore, these findings are not limited to the United States only. Similar results have been found with employees in Europe (Levi & Lunde-Jensen, 1996) and even higher percentages have been reported in Japan (Harnois & Gabriel, 2000). Thus, stress in the workplace is a global phenomenon affecting a large number of employees.

There are a number of organizational consequences related to employees being under stress. For example, a study by Goetzel, Anderson, Whitmer, Oziminkowski, Dunn, and Wasserman (1998) conducted in the United States illustrated that health care costs were approximately 46% higher for employees who experience high levels of stress at work as compared to those who experience low levels of stress. Moreover, stress in the workplace is also related to outcomes such as injuries (Quick, Quick, Nelson, & Hurrell, 1997), faulty decision-making (Macik-Frey, Quick, & Nelson, 2007), high mortality rates (Fletcher, 1991), and absenteeism (Cooper, Liukkonen, & Cartwright,

1996). In 1997, a three year study (<http://www.stress.org/job.htm>) found that over 60% of employee absences were related to job stress, and that absenteeism has large costs to organizations. Specifically, absenteeism costs American companies approximately \$600 per worker each year. For organizations with over 5,000 employees, the study authors report the total amount of money lost due to absenteeism alone can reach over \$3 million. When combining the costs of absenteeism due to stress with other stress-related productivity and health costs, one study (Sauter, Murphy, & Hurrell, 1990) found that stress consequences could be costing American organizations between \$50-\$150 billion annually!

As a consequence of the growing cost of stress outcomes on the workplace, many researchers over the past few decades (see Sonnentag & Frese, 2003) have examined strategies for how to reduce workplace stress. One new and promising strategy for reducing stress in the workplace is to minimize unfairness, or injustice, in the workplace (Greenberg, 2004; Vermunt & Steensma, 2001). As Greenberg (2004) highlighted, executives in organizations can do only so much to address employees' health issues, but they can do a great deal to reduce the stressful working conditions that may lead to those health issues. Greenberg (2004) continued, "This is especially so in the case of stressors caused by workers' perceptions of unfairness, given that managers are actively involved in shaping, if not triggering, these perceptions" (p. 352). Therefore it seems that minimizing injustice in the workplace is a practical and therefore promising strategy for reducing workplace stress. Some researchers have already demonstrated the relationship between injustice and strain resulting from stress in their studies over the past decade (e.g., Elovainio, Kivimaki, & Vahtera, 2002; Greenberg, 2006). Furthermore, others

have begun the search for mediators (Judge & Colquitt, 2004) and moderators (Moliner, Martinez-Tur, Peiro, & Ramos, 2005; Moliner, Martinez-Tur, Peiro, Ramos, & Cropanzano, 2005) of the injustice and stress/strain relationship.

There are two main purposes of the current study. I begin by presenting a theoretical model of the relationship between injustice perceived in the workplace and employee stress, including situational and personal variables that can affect this relationship. The second main purpose of the current study is to test a portion of the model. The empirical study investigates whether perceived stress mediates the relationship between injustice and strain. Strain consists of an objective psychological or physiological response to stress. If injustice has an indirect effect on strain through stress, then logically that means one can identify stress symptoms before strain symptoms. If practitioners or organizational leaders can identify stress prior to strain, then they can intervene with stress-reducing initiatives before stress builds up and results in strain.

Also, the study investigates the moderators of the injustice-stress relationship by examining how the individual difference moderators of belief in ultimate justice, sensitivity to befallen injustice, and equity sensitivity, and the situational moderator of social support affect the relationship between organizational injustice and perceived stress. If researchers can understand under which conditions the effects of injustice on stress are exaggerated or reduced, then it will be possible to identify individuals who may experience the least amount of stress due to injustice. Thus, in certain work situations fraught with perceptions of injustice that may be in the process of change but cannot change rapidly, human resource professionals may be able to select and place into these

situations individuals who tend not to experience large amounts of stress due to injustice. For example, in an organization or business unit that is experiencing a large amount of change (e.g., frequent turnover, adapting to a merger, or hiring new managers), there may be perceptions of injustice even though injustice may not even exist; therefore, employees who do not experience injustice-related stress may be better suited for this type of situation. By selecting and placing workers who are not experiencing much stress in these unjust, or perceived unjust, situations, the organization is not only reducing the amount of stress in the workplace as a whole, but also providing a model for other employees on how to cope with stress. An initiative such as this one could reduce stress-associated costs for the organization in the long run.

#### Organizational Justice: A Brief Background

Since the 1980s when the term “organizational justice” was coined (Greenberg, 1987), questions related to justice or fairness in the workplace have received considerable attention in the industrial/organizational psychology literature (Cropanzano & Greenberg, 1997). Greenberg (1996) noted that employees of an organization are attentive to many situations that involve the concept of fairness. For example, employees notice how they are getting paid in relation to others, how consistently decisions are made day to day and whether they have a voice in those decisions, as well as how sensitively and systematically the decisions and procedures are explained to them. These three examples illustrate the three broad types of organizational justice that one may perceive in the workplace. These three types of justice are called distributive justice, procedural justice, and interactional justice, respectively.

Distributive justice encompasses the perceived fairness of the allocation of organizational outcomes, such as pay, promotions, or bonuses (Deutsch, 1975). The second type of justice is called procedural justice, which consists of the perceptions of fairness of company procedures, policies, and rules (Thibaut & Walker, 1975). The last overall type of organizational justice is referred to as interactional justice (Bies & Moag, 1986). This type of justice can be divided into two specific types of justice, informational and interpersonal (Bies, 2001; Bies & Moag, 1986; Greenberg, 1993). Informational justice includes giving an employee sufficient explanations and information, usually about a decision, while being honest at the same time. Interpersonal justice typically means that an authority figure acts in a respectful and decent manner towards his or her subordinates during the implementation of procedures.

Organizational justice is related to important outcomes for individuals and organizations. For example, researchers have found that employees who perceive justice in the workplace are likely to be satisfied at work (Colquitt, Conlon, Wesson, Porter, & Ng, 2001), engage in organizational citizenship behaviors (Organ & Moorman, 1993), trust the organization (Cohen-Charash & Spector, 2001), have high job performance (Konovsky & Cropanzano, 1991) and organizational commitment (Tyler, 1991). Additionally, justice in the workplace has also been found to be related to low turnover (Dailey & Kirk, 1992), withdrawal (Colquitt et al., 2001), and counterproductive work behavior (Cohen-Charash & Spector, 2001). On the contrary, a high level of injustice in the workplace has been shown to be related to anger, distrust, counterproductive and retaliatory behaviors, like theft and sabotage, and even riots in the workplace (Bies & Tripp, 1996; Greenberg, 2002; Tyler, Boeckmann, Smith, & Huo, 1997). Therefore, it is

important for organizations to ensure that employees perceive fairness when considering rewards, procedures, and interpersonal treatment at work.

The different types of justice may be fostered in organizations using varying approaches. Specifically, distributive justice may be enhanced in organizations by following well-known social rules for distributing outcomes, such as equity, need, or equality (Adams, 1965; Deutsch, 1975; Leventhal, 1976) and vary by culture (as reviewed in Leung, 2005). An organization may promote procedural justice by giving employees a voice in the decision-making process (Thibaut & Walker, 1975) or making decisions in a consistent, nonbiased, ethical, and accurate way, that can also be corrected if necessary (Leventhal, 1980). Finally, interactional justice may be promoted in organizations when supervisors are kind to and honest with their employees, and when they explain procedures, policies, and decisions in a sufficient manner to them (Skarlicki & Latham, 1996).

#### *Distinction Between the Types of Justice*

According to Colquitt and Greenberg (2003), when discussing the field of organizational justice, some key questions come to mind. First, are the various types of justice mentioned above distinct from one another? The earliest point in the literature regarding this distinction concerned the difference between distributive justice and procedural justice. Greenberg's (1990) early review of the justice literature demonstrated the distinction between distributive and procedural justice by illustrating different antecedents and outcomes of the two types of justice. Also, studies utilizing confirmatory factor analyses (i.e., Colquitt, 2001; Moorman, 1991; Sweeney & McFarlin, 1993) further illustrated the distinction between distributive and procedural justice.

Overall, there seems to be general agreement in the literature that distributive justice and procedural justice are indeed related, yet distinct concepts.

However, there has been some controversy among researchers regarding the distinction between procedural and interactional justice (e.g., Greenberg, 1990; Tyler & Bies, 1990) stating, on one hand, that interactional justice is a part of procedural justice, not a separate type of justice. On the other hand, later studies (Byrne & Cropanzano, 2000; Malatesta & Byrne, 1997; Masterson, Bartol, & Moye, 2000) helped distinguish interactional justice from procedural justice by differentiating between justice source and justice content. In Byrne and Cropanzano's (2000) study, four separate justice dimensions were shown: supervisor-originating procedural justice, supervisor-originating interactional justice, organization-originating procedural justice, and organization-originating interactional justice, supporting what they coined as the "multi-foci" model.

Finally, a meta-analysis by Colquitt and colleagues (2001) provided more evidence that the types of justice are distinct from one another. This meta-analysis illustrated that distributive and procedural justice are distinct, yet highly correlated; the correlations range from  $r = .34$  to  $r = .57$  (Colquitt et al., 2001). The meta-analysis separated interactional justice into informational and interpersonal justice. Results also showed that interpersonal justice and informational justice were correlated  $r = .66$  after correcting for unreliability, whereas procedural justice was correlated with interpersonal justice  $r = .58$  and procedural and informational justice were correlated  $r = .58$  (Colquitt et al., 2001). Although these different types of justice are highly correlated, which is expected, they do not comprise the same construct.

Another meta-analysis by Cohen-Charash and Spector (2001) addressed the distinction between the three broad types of justice, although they did not separate informational from interpersonal justice. These authors found that distributive and procedural justice correlated between  $r = .51$  to  $r = .61$  across studies, whereas procedural justice correlated with interactional justice  $r = .58$  and distributive justice correlated with interactional justice  $r = .47$ . Once again, these are high correlations, but not so high as to say the different types of justice are one construct. The current study follows the lead of these meta-analyses and many recent justice researchers by suggesting that the four types of justice (distributive, procedural, informational, and interpersonal) are related, but distinct constructs. Therefore, each type of justice will be measured and analyzed separately in the current empirical study.

#### *Organizational Justice Outcomes*

Another question throughout the justice literature that Colquitt and Greenberg (2003) have pondered regards the outcomes of organizational justice. Specifically, many researchers are concerned with understanding which outcomes are associated with which justice judgments. The three different broad types of organizational justice have been found to be related to a plethora of attitudinal and behavioral outcomes in the workplace.

For example, distributive justice has been found to be positively related to job performance (e.g., Pfeffer & Langton, 1993) and satisfaction with work outcomes (Colquitt et al., 2001), and negatively related to turnover (e.g., Hulin, 1991). Procedural justice is positively related to job satisfaction (Colquitt et al., 2001), organizational commitment (Tyler, 1991), job performance (Konovsky & Cropanzano, 1991), organizational citizenship behaviors (Organ & Moorman, 1993), and compliance (Cohen-

Charash & Spector, 2001), and negatively related to turnover intentions (Dailey & Kirk, 1992). Finally, interactional justice has also been found to be related to important outcomes in the workplace. For example, Masterson, Lewis, Goldman, and Taylor (2000) and Masterson et al. (2000) found that interactional justice predicted perceptions of supervisor legitimacy and high levels of organizational citizenship behavior, and Colquitt and colleagues (2001) summarized literature linking interactional justice to other outcomes such as job satisfaction and low levels of withdrawal.

*Employee stress.* Though all of the aforementioned attitudinal and behavioral outcomes of justice are important, justice researchers have mostly ignored another important category of outcome variables; specifically, outcome variables related to employee health and well-being. This lack of focus on examining the relationship between employee well-being and justice is surprising given that much justice theory suggests there is indeed an association. For example, one of the most well-known organizational justice theories is Adams' (1965) equity theory. In his theory, Adams proposed that individuals wish to be equitably rewarded for their efforts. Those individuals who feel that they are paid less than comparable others will experience a state of underpayment inequity, leading them to feel angry and furthermore, distressed. Adams' theory, which suggests that a type of inequity (distributive injustice) is associated with anger and distress, is one of the first notable incidents in the literature of the association between stress and organizational injustice.

Other justice theorists followed Adams' lead by also suggesting the injustice-stress association. For example, Folger's (1993) referent cognitions theory posits that procedural injustice leads to a number of types of stress such as hostility, resentment, and

outrage. Although the first theory regarding the relationship between stress and injustice (equity theory) was published over 40 years ago, there has been little empirical research specifically examining the relationship between organizational injustice and employee stress (Greenberg, 1984; Judge & Colquitt, 2004). Yet, of the research that has been published (e.g., Brotheridge, 2003; Elovania et al., 2002; Greenberg, 2006; Judge & Colquitt, 2004; Moliner et al., 2005a, 2005b), it seems that the relationship between injustice and stress is an important one for organizational psychologists to consider as it has been shown that there is a positive relationship between injustice and stress in the workplace, and reducing stress in the workplace can lead to important outcomes such as low absenteeism and high productivity (e.g., Kahn & Byosiore, 1992).

#### *Terminology: Organizational Justice Versus Injustice*

Before discussing organizational injustice and stress, I would like to call attention to the fact that most researchers use the term *justice* when discussing fairness in the workplace, although some recent researchers have suggested that it is more appropriate to talk about the psychology of *injustice* than about that of justice (De Cremer & Ruiter, 2003). This slight shift in terminology is because the richness of the organizational justice construct comes more in discussing injustice than justice (Bies, 2001) and individuals tend to be more strongly affected by unfair events than by fair events (Folger, 1984; Folger & Cropanzano, 1998; Judge & Colquitt, 2004). Additionally, the topic of the current paper is distress rather than eustress; hence, discussing injustice instead of justice will perhaps make more logical sense to the reader. Thus, the remainder of the present paper discusses the justice-stress literature in terms of injustice, rather than

justice, and hypothesizes about the injustice-stress relationship, instead of the justice-stress relationship.

### Organizational Injustice and Employee Stress

There is considerable inconsistency in the stress literature surrounding the operationalization of stress (Beehr & Newman, 1978; Kahn & Byosiére, 1992; Sonnentag & Frese, 2003). Thus, before discussing the relationship between organizational injustice and employee stress, a number of terms in the stress literature should be defined. The current study utilizes Pratt and Barling's (1988) stressor, stress, strain framework to provide the well known conceptualizations of these terms. Although Pratt and Barling's framework was developed approximately 20 years ago, many researchers (e.g., Cohen-Mansfield, 1995; Dewe, 1992; Kristensen, 1995) continue to use the framework in their research. Stress refers to any subjective state characterized by displeasure or arousal experienced by an individual due to a stressor. For example, disturbed mood and negative cognitive reactions could be considered stress. Stressors are environmental events or factors that increase the likelihood that a person will feel stress. Stressors can be acute (e.g., a job transfer), chronic (e.g., role conflict), daily hassles (e.g., sitting in traffic), or work-related disasters (e.g., an office shooting; Pratt & Barling, 1988). Finally, strain consists of an objective psychological or physiological response to stress, such as physical illness and poor mental health. Therefore, stressors lead to stress which, in turn, leads to strains. For clarification, it should be noted that some researchers (e.g., Sonnentag & Frese, 2003) use the phrase *short term reactions* to describe stress and *long term reactions* to describe strains.

Strain can manifest in physiological, psychological, and behavioral outcomes (Sonnentag & Frese, 2003). With respect to physiological responses, stress can lead to cardiovascular disease (Theorell & Karasek, 1996), decreased immune functioning (Herbert & Sheldon, 1993), musculoskeletal diseases (Bongers, de Winter, Kompier, & Hildebrandt, 1993), and gastrointestinal illness (Kristensen, 1995). Stress has also been associated with affective and psychological reactions, such as depression (e.g., Schonfeld, 1992), job dissatisfaction (e.g., Matteson & Ivancevich, 1983), and burnout (e.g., Maslach, Schaufeli, & Leiter, 2001). Finally, stress can manifest in behavioral reactions. For example, stress has been found to be associated with increased absenteeism (e.g., Matteson & Ivancevich, 1983), decreased job performance (e.g., Blau, 1981), increased turnover (e.g., Jackson, 1983), and even workplace violence, such as aggression and sabotage (Chen & Spector, 1992).

#### *Injustice as a Stressor*

Due to the serious health and well-being problems that have been found to be related to experiencing stress in the workplace, many researchers have turned to examining the antecedents of stress (i.e., the stressors). One stressor that has been recently examined by researchers is organizational injustice (e.g., Elovainio, Kivimaki, & Helkama, 2001; Elovainio et al., 2002; Greenberg, 2006; Judge & Colquitt, 2004; Moliner et al., 2005b; Tepper, 2001; Zohar, 1995). Researchers began investigating the possible association between organizational injustice and stress due to a couple of factors. First, as mentioned earlier, a few early justice researchers stated that perceptions of injustice led to negative outcomes; particularly, injustice led to feelings of discomfort (Adams, 1965), anger (Bies & Tripp, 1996), or moral outrage (Bies, 1987), which may be

considered types of stress. Also, injustice and stress have been found to be related to the same attitudes or behaviors. Specifically, researchers have linked both injustice and stress to low organizational commitment (Fisher, 1985; Tyler, 1991), poor job performance (Blau, 1981; Kovovsky & Cropanzano, 1991), and high levels of turnover (Dailey & Kirk, 1992; Fisher, 1985). Thus, it seems reasonable to conclude that stress and injustice may be related because they share some of the same outcomes.

One important study by Markovsky (1988) provided initial support for a connection between injustice and strain. In a laboratory study, Markovsky manipulated the fairness of participants' outcomes. He found that those who received either overpayment or underpayment for their efforts (i.e., distributive injustice) had increased skin conductance, whereas those in the fair treatment condition did not. Thus, Markovsky (1988) presented initial evidence that there can be physiological reactions to the perception of injustice.

Other studies have built upon Markovsky's (1988) findings by examining other types of injustice and strain. Two recent studies by Elovainio and colleagues (2001, 2002) examined procedural and interactional injustice, and the strain possibly resulting from these perceptions. Elovainio et al. (2001) found that procedural injustice, but not interactional injustice, mediated the relationship between job control and occupational strain. The occupational strain in their study was operationalized as nervousness, depression, and difficulty concentrating. One year later, Elovainio et al. (2002) examined the relationship between procedural and interactional injustice and the strain outcomes of absenteeism and self-reported health. Utilizing a sample of Finnish hospital workers, the researchers found that both procedural and interactional injustice were related to

absenteeism in both men and women, as well as self-reported health in women but not men. Even though this group of researchers reported that they found sex differences in their results, they concluded the differences were due to utilizing a sample of hospital workers having jobs in line with typical gender roles, not because women are more likely to report health problems than men.

Another researcher (Tepper, 2001) examined the relationship between procedural and distributive injustice and emotional strain symptoms. Tepper (2001) found that both procedural injustice and distributive injustice were related to emotional exhaustion, depression, and anxiety. Furthermore, Tepper (2001) illustrated that distributive and procedural injustice interacted in the prediction of emotional strain, showing that emotional strain is the highest when both distributive and procedural injustice are high. Although Tepper's research adds considerably to the evidence that there is a relationship between injustice and stress, like the other aforementioned studies, it still leaves room for further investigation. Specifically, Tepper examined only distributive and procedural injustice, not interactional, in his study.

Unlike Tepper (2001), Greenberg (2006) examined the relationship between both distributive and interactional injustice and strain. In his study with nurses at four different hospitals, Greenberg (2006) first showed that nurses experiencing payment inequity, or distributive injustice, reported problems with insomnia. Then, Greenberg (2006) demonstrated that nurses whose nursing supervisors received training in interactional justice had less insomnia than those nurses whose supervisors did not receive this training. Although Greenberg (2006) only focused on interactional justice

training in an environment burdened with distributive injustice perceptions, he demonstrated how increasing organizational justice can reduce strain.

In summary, past researchers have shown that different types of injustice are related to behavioral, physiological, and psychological strain. However, none of the aforementioned studies examined the relationship between injustice and perceived stress, which, according to Pratt and Barling's (1988) framework, is experienced after a stressor but before the resulting strain. Recently, researchers have begun to examine perceived stress after an injustice, while also searching for mediators and moderators of the injustice-stress relationship.

#### *Mediators and Moderators of the Injustice-Stress Relationship*

The justice and stress literature has shown a few possible mediators and moderators of the injustice and stress relationship, and many authors are calling for more research of this nature to be conducted. For example, Judge and Colquitt (2004) hypothesized that work-family conflict mediated the relationship between all four types of injustice and perceived stress. After controlling for job satisfaction and work-family policies, Judge and Colquitt (2004) found that work-family conflict mediated the relationships between procedural and interpersonal injustices and perceived stress. Furthermore, recent researchers (Moliner et al., 2005a) considered employee's sex as a possible moderator of the injustice and strain relationship. In their research examining employees from a chain of Spanish hotels, the authors found that the relationships between procedural injustice and two dimensions of burnout (i.e., cynicism and emotional exhaustion) were moderated by employees' sex. Specifically, women

perceiving high levels of procedural injustice reported experiencing higher levels of cynicism and emotional exhaustion than men.

With the exception of Moliner et al. (2005a), there are very few published studies that examine how individual differences may moderate the injustice-stress relationship, even though a number of justice and stress researchers (i.e., Brotheridge, 2003; Tepper, 2001; Vermunt & Steensma, 2005) have suggested that this may be a valuable area of research. Before continuing the discussion of other possible moderators of the injustice-stress relationship, notable models of stress in the literature are presented that form the basis of a new theoretical model of injustice and stress.

#### Models of Stress

Over the past few decades, a variety of models of stress have been introduced in the stress literature. Sonnentag and Frese (2003) distinguished between models of stress that explain the process itself versus models of stress that explicate the relationship among stressors, stress, and strain. Specifically, models that explain the stress process describe what happens when an individual is exposed to a stressor. For example, one of the most prominent models that explains the stress process is Lazarus and Folkman's (1984) transactional model of stress. The other broad type of stress models specifies patterns of stressors associated with strains. For example, a well-known model that describes the relationship between stressors and strains was developed by Kahn and Byosiene (1992). Both Lazarus and Folkman's (1984) and Kahn and Byosiene's (1992) models are the most relevant to the current paper and therefore will be discussed before I draw on them as the basis for the theoretical injustice-stress framework that will be presented.

### *Lazarus and Folkman's (1984) Transactional Model*

According to Lazarus and Folkman's (1984) transactional model of the stress process, a stressor is only considered stressful if individuals experiencing the stressor and assessing the situation conclude that the environmental demands outweigh their capabilities to deal with the demands. In other words, individuals' experience of stress depends on their cognitive evaluation of the situation. This means that exposure to stressors, such as high job demands or role ambiguity, does not always result in people experiencing stress.

As said by the transactional model, the stress appraisal process consists of two phases. The first phase, called primary appraisal, involves individuals determining whether or not the potentially stressful event is harmful. For example, is something to be lost or gained from the situation? Does the event impinge on individuals' values or needs? If no harm is appraised, then the event is not considered a negative stressor. Instead, individuals may consider the event a challenge that invokes eagerness and excitement and thus, the event could be considered a positive stressor. If individuals, however, perceive the event as a threat, they then move on to the second phase of the process, the secondary appraisal, which may follow very quickly after the primary appraisal. During the secondary appraisal phase, individuals assess the extent to which they can minimize the harm due to the threat or avoid it completely. In other words, people examine what coping options are available to them, the likelihood that a given coping option will accomplish what it is supposed to, and the likelihood that one can apply a particular strategy effectively. If people believe that they can avert harm by coping, then the event is not considered a stressor. However, if individuals believe they

are essentially helpless and cannot avert harm or that they cannot cope effectively, then the event will indeed be considered a stressor and they will experience discomfort (i.e., stress). Over time, this perceived stress can build up and lead to strain.

Lazarus and Folkman (1984) further describe how certain individual differences can affect the cognitive appraisal process. The first type of individual difference, called beliefs, affects the appraisal process in at least two ways. First, beliefs guide individuals' decision of what is salient in any given situation. Second, beliefs assist individuals in determining the implications of a situation. As other researchers (i.e., Fiske & Taylor, 1991) have shown, individuals tend to pay more attention to information (i.e., make more salient) if it confirms their beliefs and they tend to interpret information (i.e., infer implications) in a way that is consistent with their beliefs. Lazarus and Folkman (1984) suggested that beliefs tend to affect the secondary appraisal in most situations, rather than the primary appraisal, because beliefs affect whether an individual feels he or she can cope with a potentially stressful event.

Another type of individual difference that Lazarus and Folkman (1984) suggest affects the appraisal process is called a commitment. Commitments can be defined as goals, values, or choices that can affect the primary and secondary appraisal process of stress, although they tend to affect the primary appraisal more often than the secondary appraisal. Lazarus and Folkman (1984) state:

Commitments express what is important to the person, what has meaning for him or her. They determine what is at stake in a specific stressful encounter. Any encounter that involves a strongly held commitment will be evaluated as meaningful to the extent that the outcome harms or threatens the commitment or facilitates its expression. (p.56)

Although Lazarus and Folkman's (1984) transactional model is the most prominent model that explains the stress process itself, it does not specifically include personality traits. This is somewhat surprising because as Schneider (1983) suggested, personality alters the cognitive construction of a person's environment and forms the meaning of various responses to that environment. Thus, one may expect that personality traits can affect the primary and secondary cognitive appraisal processes, similar to how beliefs or commitments do. Although Lazarus and Folkman's (1984) model is not complete because it excludes personality and does not describe how stress relates to other variables, it is important nonetheless as it is the only model on the stress process that provides a detailed explanation of cognitive appraisal (Kahn & Byosiére, 1992).

Cognitive appraisal is important to consider when examining the relationship between injustice and stress. Unlike other stressors in which the threat is immediate, such as an abrupt loud noise or an obvious safety hazard, realizing injustice as a stressor will always include some kind of a cognitive appraisal of the situation, even if the appraisal is slowly deliberate or completed quickly by using a heuristic (see Cropanzano, Byrne, Bobocel, & Rupp, 2001). Therefore, it is important to include cognitive appraisal in the study of the injustice-stress relationship.

#### *Kahn and Byosiére's (1992) Model*

In Kahn and Byosiére's (1992) review chapter on stress in organizations, they discuss a variety of models by a number of researchers (i.e., Dohrenwend, Pearlin, Clayton, Hanburg, Riley, & Rose, 1982; French & Kahn, 1962; Ivancevich & Matteson, 1980; Levi, 1981; Schuler, 1981) that frame the relationship between stressors and strains. Although all the models mentioned in their chapter add notably to the stress

literature, Kahn and Byosiére (1992) found each incomplete in some way. By incorporating most of the aforementioned models plus additional empirical findings, Kahn and Byosiére (1992) proposed an overall model to explain the relationship between stressors, stress, and strains. This model includes organizational antecedents that generate specific stressors, cognitive mediators between stressors and strains, contextual and individual moderators of both the stressors-cognition and cognition-strains relationships, and the outcomes of strains. Although this model is well-rounded when compared to many other stress models, it does not specifically describe how certain variables may affect the cognitive appraisal process. Moreover, Kahn and Byosiére's model is broad and about stressors in general, not injustice as a stressor, which is the topic of the current paper.

In summary, both Lazarus and Folkman's (1984) model describing the stress process itself and Kahn and Byosiére's (1992) model describing the relationships between stressors and strains are notable frameworks, yet neither one is complete as described earlier and neither incorporates injustice as a stressor. Actually, there are no models of stress established in the literature today that specifically incorporate injustice as a stressor. Thus, because of the previous models' shortcomings with specific regard to injustice, I propose the Injustice and Stress Framework (ISF). The theoretical ISF, which aligns with the first purpose of the current paper, is based on Kahn and Byosiére's (1992) model on stressors and strains, and also includes Lazarus and Folkman's (1984) transactional model on cognitive appraisal. My theoretical model specifically incorporates organizational injustice as a stressor and also includes how personality and

situational variables may moderate the appraisal process, along with beliefs and commitments which were originally mentioned by Lazarus and Folkman (1984).

#### Injustice and Stress Framework (ISF)

The proposed theoretical model of injustice leading to employee stress in organizations is presented in Figure 1. The ISF first incorporates the organizational antecedents that lead to injustice. For example, outcome negativity and lack of voice are antecedents to the perception of injustice (Cohen-Charash & Spector, 2001), as well as to feelings of relative deprivation (Folger, 1984). If an individual experiences these antecedents, then he or she is likely to perceive injustice. The injustice can be distributive, procedural, interpersonal, or informational depending on the type of antecedent (i.e., lack of voice leading to procedural injustice perceptions). Once the individual perceives injustice, he or she will cognitively appraise the injustice through primary and secondary appraisal to determine whether or not the injustice is a stressor. If the individual does indeed believe the injustice is a stressor based on the conventions set forth by Lazarus and Folkman (1984), then he or she will perceive stress.

After an individual perceives stress, he or she may experience some type of strain, whether behavioral, physiological, or psychological. The individual may experience one type of strain or could experience different types of strain at the same time. If strain occurs, it can then lead to the larger organizational consequences of stress in the workplace, like increased health care costs and decreased productivity. Properties of the situation, such as perceived supervisory support or coworker support, may moderate any link in the model (Kahn & Byosiene, 1992). Additionally, properties of the person, such

as self-esteem, locus of control, or demographic characteristics can also affect any relationship in the process (Kahn & Byosiére, 1992).

The first major contribution of the ISF is that by combining Kahn and Byosiére's (1992) model with Lazarus and Folkman's (1984) model one can fully explain what happens when people perceive injustice and how it can lead to organizational outcomes, such as high health care costs. Prior research has shown how injustice leads to stress, but has offered little or no explanation for why. Additionally, prior work (e.g., Judge & Colquitt, 2004) has demonstrated that there are mediators to the injustice-strain relationship, but without a clear theoretical model explaining how or why we cannot predict which variables can serve as mediators or moderators. By integrating two models, one can use the ISF to hypothesize under which conditions injustice leads to stress and explain why. Therefore, the second major contribution of the ISF is the identification of moderators of the injustice-stress relationship. The next section describes moderators in detail.

#### *Individual Difference Moderators of the Injustice-Stress Relationship*

According to the ISF, beliefs, personality traits, or commitments associated with perceptions of injustice moderate the appraisal process. Three moderators are belief in ultimate justice (a belief), sensitivity to befallen injustice (a personality trait), and equity sensitivity (a commitment). Even though these three individual differences have been shown to affect an individual's justice perception formation, to constrain the current project to a manageable scope the relationships between these variables and the formation of injustice perceptions are not hypothesized in the study. The empirical study will focus on what happens after an individual perceives injustice, not before, even though to be

thorough the full cycle is included in the ISF. For previous findings on the associations between belief in ultimate justice, sensitivity to befallen injustice, and equity sensitivity and perceptions of injustice, see Maes and Schmitt (1999), Mohiyeddini and Schmitt (1997), and King and Miles (1994), respectively.

#### *Belief in a Just World and Belief in Ultimate Justice*

An individual with a belief in a just world (Lerner, 1980) believes that good things happen to good people and bad things happen to bad people. Another way to define this belief is that when people believe that the world is a just place, individuals get what they deserve and deserve what they get (Hafer & Olsen, 1998). Belief in a just world has been found to be fairly stable in individuals, and individuals with a high belief in a just world tend to believe that the social environment is orderly and has reason (Furnham, 2003).

Due to contradicting results in some of the belief in a just world research, as well as a plethora of studies showing that the construct of belief in a just world has more than one factor (e.g., Ambrosio & Sheehan, 1990; Whatley, 1992), some researchers have hypothesized that belief in a just world consists of a few different factors (e.g., Dalbert, Lipkus, Sallay, & Goch, 2001; Maes, 1994). There seems to be no agreement of how many factors exist (Furnham, 2003), yet research conducted thus far has shown some promising results that there is indeed more than one general factor. In one conceptualization of the multiple factors of belief in a just world, Maes (1994) suggests that researchers should distinguish between the belief in a just world dimensions of a belief in immanent justice and a belief in ultimate justice. Individuals with a strong belief in immanent justice tend to view a misfortune as a consequence of prior faults or sins of

the victim (Maes, 1994). Individuals who have a strong belief in ultimate justice believe that a misfortune will be compensated and a victim will receive reparation sometime in the future and, therefore, do not blame the victim for his or her misfortune (Maes, 1994). Whereas belief in immanent justice has been associated with attributions of responsibility, belief in ultimate justice is associated with the emotional experience of a misfortune. Specifically, belief in ultimate justice predicts emotional consequences of a misfortune like feelings of hope and optimism for the future, confidence in coping, and belief in invulnerability (Maes, 1994, 1998).

Besides examining the different factors or types of belief in a just world, researchers have focused on how belief in a just world may be considered positive versus negative. Specifically, the research in the 1970s and 1980s tended to focus on the negative side of belief in a just world by exploring how those with a strong belief in a just world were more likely to criticize and denigrate the victim of a misfortune than those with a weak belief in a just world (Furnham, 2003; Lerner, 1980). Recently, researchers have begun to examine belief in a just world in a positive light such that belief in a just world can also be considered a healthy coping mechanism (Dalbert, 2001; Dzuka & Dalbert, 2000; Lipkus, Dalbert, & Siegler, 1996). In her recent book, Dalbert (2001) argues that belief in a just world is a necessary condition for an individual's sense of fairness because individuals with strong belief in a just world perceive the world as just even when misfortunes or tragedies occur. Therefore, having a strong belief in a just world allows individuals to cope better with misfortunes than those with a weak belief in a just world because they believe that there is a rationale behind the misfortune.

*Belief in ultimate justice as a moderator.* In his book on general belief in a just world, Lerner (1980) suggested that individuals with a strong belief in a just world use a variety of strategies to cope with unjust events. One strategy is cognitive such that those with a strong belief in a just world may reframe the event in order for the person to continue believing the world is just. When the ISF is applied to explain the coping strategy, it is understood how belief in a just world, or more specifically belief in ultimate justice, can affect an individual's cognitive appraisal of an injustice. As mentioned earlier, beliefs affect the appraisal process by guiding individuals to decide what is salient and by assisting individuals in determining the implications of the situation (Lazarus & Folkman, 1984). As other researchers (i.e., Fiske & Taylor, 1991) have shown, individuals tend to pay more attention to information that confirms their belief and interpret information in a way that is consistent with their beliefs, similar to what Lerner (1980) described as a cognitive coping strategy. Therefore, due to their belief that they will be compensated in the long run for an injustice, those with a strong belief in ultimate justice will be more likely to consider this positive information and decide that they are able to cope effectively with an injustice, as compared to those with a weak belief in ultimate justice. As Lazarus and Folkman (1984) suggest, certain beliefs tend to affect the secondary appraisal more than the primary appraisal because they affect whether the individual feels he or she can cope with the threat of the injustice. In the case of an individual with a strong belief in ultimate justice, he or she believes that an injustice will be righted in the future, which allows him or her to cope with the injustice threat. Belief in ultimate justice may not affect the primary appraisal because it is a belief associated

with what will happen in the future (i.e., being compensated in the long run for an injustice), not what is occurring in the present (i.e., the injustice currently taking place).

Whereas no known studies have examined whether belief in a just world or belief in ultimate justice moderate the injustice-stress relationship, some researchers (Colquitt, Scott, Judge, & Shaw, 2006) have suggested the belief's buffering effect. Specifically, Colquitt et al. (2006) suggested that people who have the belief that "things may work out in the end" (p. 125) may not be as affected by injustice as compared to those without this belief because individuals with a strong belief in ultimate justice feel they will be compensated in the long run and thus, are not very sensitive to injustice in the workplace. Therefore, those with this belief will not have as intense negative outcomes, such as counterproductive work behavior, due to injustice as those without this belief. Even though Colquitt et al. (2006) mentioned general belief in a just world as a potential moderator of the injustice-stress relationship for future researchers to examine, the idea that things will work out in the end is actually the specific concept of belief in ultimate justice. In other words, belief in ultimate justice may moderate the relationship between injustice and perceived stress, specifically the relationship between the secondary appraisal of an injustice and perceived stress. Therefore, the following is proposed:

Proposition 1: Belief in ultimate justice moderates the relationship between an individual's secondary appraisal of injustice and perceived stress. Specifically, those with a strong belief in ultimate justice are able to cope with injustice and thus report less stress than those with a weak belief in ultimate justice.

*Sensitivity to Befallen Injustice*

Another source of individual differences according to the ISF that may moderate the injustice-stress relationship is the attribute of sensitivity to befallen injustice. Sensitivity to befallen injustice refers to the tendency or predisposition of individuals to feel unfairly treated and victimized in a wide range of situations (Schmitt, Neumann, & Montada, 1995). There are four main dimensions that define sensitivity to befallen injustice (Schmitt, 1996; Schmitt et al., 1995). The first indicator of sensitivity to befallen injustice (Frequency) is that an individual frequently perceives unjust events. The second indicator of sensitivity to befallen injustice (Intensity) is the intensity of anger that is brought about by an unjust event. The third and fourth indicators of sensitivity to befallen injustice include the level of intrusiveness of thoughts and emotions about the unjust event (Intrusiveness), and the level of desire to punish the persecutor (Punitivity). Immediate, as well as delayed reactions to unjust and inequitable treatment depend greatly on one's level of sensitivity to befallen injustice (Mohiyeddini & Schmitt, 1997), which means that sensitivity to befallen injustice alters one's perceptions of and reactions to injustice.

In some of the initial laboratory research on sensitivity to befallen injustice, Schmitt (1996) tested the construct validity of sensitivity to befallen injustice and found that those with high sensitivity to befallen injustice tended to have different cognitive reactions to unjust events than those with low sensitivity to befallen injustice. Specifically, those with high sensitivity to befallen injustice were more likely to view situations involving justice perceptions as unjust as compared to those with low sensitivity to befallen injustice. In a follow-up study, Schmitt and Mohiyeddini (1996) found that sensitivity to befallen injustice was the only significant predictor of

distributive and procedural justice judgments out of the eight independent variables in a lab study with college students; although the authors utilized three of the four sensitivity to befallen injustice indicators, excluding punitivity in the study. A few years later, Schmitt and Dorfel (1999) found that individuals' perceptions of procedural injustice depended on whether or not they had high justice sensitivity. Schmitt and Dorfel (1999) only utilized one indicator of sensitivity to befallen injustice, intrusiveness, in their study; therefore, they called the construct they examined justice sensitivity, not sensitivity to befallen injustice. The research mentioned above by Schmitt (1996), Schmitt and Dorfel (1999), and Schmitt and Mohiyeddini (1996) seems to support the hypothesis that sensitivity to befallen injustice alters an individual's perception of injustice; the researchers found that those with a high sensitivity to befallen injustice reported experiencing injustice more than those with a low sensitivity to befallen injustice.

*Sensitivity to befallen injustice as a moderator.* Because sensitivity to befallen injustice is considered a personality trait (Schmitt, Gollwitzer, Maes, & Arbach, 2005), it should be treated as one in the ISF. Schneider (1983) suggested that personality alters the cognitive construction of a person's environment and forms the meaning of various responses to that environment. When applied to individuals' reactions to unjust situations, personality traits (e.g., sensitivity to befallen in justice) alter their perceptions of the injustice while also forming reactions triggered by those perceptions. In other words, someone high in sensitivity to befallen in justice is most likely to perceive an unjust situation as more unjust and also feel more angry than those low in sensitivity to befallen in justice. Furthermore, an individual with high sensitivity to befallen injustice may react to their injustice perceptions by both continuously thinking about the event and

feeling the need to punish the victimizer, according to the definition of the construct of sensitivity to befallen injustice.

According to the ISF, it is expected that an individual's sensitivity to befallen injustice will affect his or her primary and secondary appraisal of an injustice. In particular, an individual with high sensitivity to befallen injustice would be more likely to appraise the event as more harmful during primary appraisal than a low sensitivity to befallen injustice individual because of the frequent thoughts and high intensity of anger that is invoked by an unjust event. Their incessant strong emotions and feelings of anger could also affect the secondary appraisal by not allowing the individual to think clearly about whether or not he or she could avert the harm from the unjust event. Therefore, sensitivity to befallen injustice is expected to amplify the perceived stress following an injustice.

Researchers studying sensitivity to befallen injustice have shown results that could be interpreted as supporting the ISF's predictions of moderation. For example, Schmitt (1996) found that intrusiveness of thoughts from an unjust event moderated the effect of procedural injustice on self-reported sickness and absence from work. That is, those with high intrusiveness of thoughts about the unjust event (one indicator of high sensitivity to befallen injustice) showed stronger associations between procedural injustice and sickness and absence than those with low intrusiveness of thoughts. Schmitt and Dorfel (1999) also found that intrusiveness moderated the relationship between procedural injustice and employee well-being. Additionally, a dissertation by Francis (2003) found that sensitivity to befallen injustice moderated the relationship between distributive injustice and perceived stress that resulted from a class exam. Consequently,

based on the ISF and previous research findings, it is proposed that sensitivity to befallen injustice moderates the relationship between an individual's primary and secondary appraisal of an injustice, and the relationship between the secondary appraisal and perceived stress.

Proposition 2: Sensitivity to befallen injustice moderates the relationship between an individual's primary and secondary appraisal of an injustice, as well as the relationship between the secondary appraisal and perceived stress. Specifically, those with a high sensitivity to befallen injustice appraise injustice more as a threat, feel less able to cope with the threat, and thus perceive more stress than those with a low sensitivity to befallen injustice.

#### *Equity Sensitivity*

Besides belief in ultimate justice and sensitivity to befallen injustice, a third individual difference that may moderate the injustice-stress relationship is equity sensitivity. Equity sensitivity refers to the various levels of personal fairness that individuals need. Specifically, there are three different types of people with regard to the need for equity: benevolents, equity sensitives, and entitlements (Huseman, Hatfield, & Miles, 1985). According to Sauley and Bedeian (2000), benevolents can be described as givers who have a tolerance for and tend to prefer under-reward or inequity. Equity sensitives, in contrast, are most comfortable in situations when there is a balance of input to output equal to comparison others (Sauley & Bedeian, 2000). That is, equity sensitive individuals prefer to have equitable relationships and situations. Finally, entitlements are individuals who are tolerant of and tend to prefer over-reward. Entitlements prefer to receive more in outcomes than they give in inputs, in any given situation. Whereas benevolents

could be considered givers, entitlements could be considered as takers. Many researchers (Greenberg, 1990; King & Miles, 1994; Patrick & Jackson, 1991; Mudrack, Mason, & Stepanski, 1999) argue that although equity sensitivity is an individual difference, it is not considered a personality trait or an attitude. As Mudrack and colleagues (1999) stated, equity sensitivity is in-between a trait and attitude, and perhaps could be considered a preference or value.

*Equity sensitivity as a moderator.* Huseman, Hatfield, and Miles (1987) suggested that equity sensitivity moderates the association between perceived inequity and behavioral and attitudinal outcomes. They proposed that entitlements are more sensitive to unfair resource allocations because of their preference for overreward as compared to equity sensitives or benevolents. Therefore, when entitlements experience distributive injustice they are more likely to experience more distress than benevolents and equity sensitives. In contrast, benevolents are not as distressed when experiencing distributive injustice because of their greater tolerance for underreward (King, Miles, & Day, 1993).

Other researchers have indeed shown that entitlements are more concerned about allocations and hence, outcomes, than benevolents and equity sensitives. For example, Miles, Hatfield, and Huseman (1989) found that entitlements place primary concern on outcomes and secondary concern on relationships, whereas benevolents are most concerned with relationships first and outcomes second. In a related study, King et al. (1993) found that entitlements placed more importance on their pay at work than benevolents and equity sensitives; in contrast, benevolents placed more importance on the work itself. In addition, Miles, Hatfield, and Huseman (1994) showed that entitlements have a strong preference for extrinsic outcomes, like pay and rewards, whereas benevolents have a

strong preference for intrinsic outcomes, such as friendships on the job and feelings of personal worth.

Although the early research on equity sensitivity only focused on distributive justice, recent research (e.g., Connor, 2002; Kwak, 2006) has found relationships between equity sensitivity and procedural or interactional justice. For example, in her dissertation, Kwak (2006) illustrated how equity sensitivity moderated the relationship between interactional injustice and burnout. Specifically, those who were benevolent regarding equity sensitivity had a stronger positive relationship between informational and interpersonal injustice and burnout than entitlements or equity sensitives. Kwak's (2006) rationale for this non-hypothesized finding is that entitlements could be considered more self-focused, rather than other-focused, and therefore are not as concerned about how others are treating them.

Another explanation for Kwak's (2006) findings may be derived from Lind and Tyler's (1988) group value model, which was later recast as the relational model of authority (Tyler & Lind, 1992). The relational model of authority explains that individuals care about procedural justice because fair procedures are "symbols of group values" (p. 140), which indicate they are valued by their coworkers and supervisor. Individuals care about procedural justice because it tells them something about their relationships with others. In their model, Tyler and Lind (1992) combine interactional justice in their conceptualization of procedural justice. Given that benevolents are more concerned with relationships than entitlements and equity sensitives, one may expect that benevolents are thus more concerned with procedural and interactional injustice rather than distributive injustice. Furthermore, because entitlements are more concerned with

outcomes (and pay specifically), they will be more likely than benevolents and equity sensitives to be affected by distributive injustice.

Applying the ISF to the above research findings, one can predict a potential moderating role (equity sensitivity's) in the injustice-stress relationship. Lazarus and Folkman's (1984) defined a commitment as a goal, value, or choice. Given that some researchers consider equity sensitivity to be a value (e.g., Mudrack et al., 1999), according to Lazarus and Folkman (1984) it can also be considered a commitment. In their transactional model, Lazarus and Folkman (1984) state that commitments can affect the primary appraisal of stress because commitments are what are important to the individual and commitments determine what is at stake in a potential stressful situation. If the situation impinges on a commitment (i.e., equity sensitivity), then the situation will likely be thought of as stressful.

Consequently, if an entitled individual recognizes that pay and outcomes are most important to him or her, then he or she will appraise an injustice that is distributive in nature as more stressful than a benevolent or equity sensitive. If a benevolent individual places primary importance on the work itself, processes and policies, or relationships, then he or she will appraise a procedural and interactional injustice situation as more stressful than an entitled person would. Therefore, the following are proposed:

Proposition 3a: Equity sensitivity moderates the relationship between an individual's primary and secondary appraisal of a distributive injustice.

Specifically, those who are entitled perceive a distributive injustice as a threat more so than benevolent or equity sensitive individuals.

Proposition 3b: Equity sensitivity moderates the relationship between an individual's primary and secondary appraisal of procedural, informational, and interpersonal injustices. Specifically, those who are benevolent perceive procedural, informational, and interpersonal injustices as threats more so than entitled individuals.

### Empirical Study

The second purpose of the current paper is to test a portion of the ISF as a first step towards evaluating the theoretical framework. The entire ISF was presented in order to provide future researchers with a full theoretical framework that incorporates the entire organizational system. To test the propositions set forth by the theoretical model, a researcher must conduct a laboratory study to test the appraisal portion of the ISF. However, a first step in evaluating the model is to confirm that the larger system functions as specified. Therefore, a first step toward testing the ISF is presented in the hypothesized model shown in Figure 2. This part of the ISF theoretical framework shows the most unexplored portion of the overall model and that which is unique to the ISF. The empirical study reveals whether the aforementioned individual difference moderators affect the injustice-stress relationship.

Furthermore, substantial research in the stress literature has shown that social support can reduce the negative effects of stressors on strains. Because the three individual difference moderators of the ISF are expected, for the most part, to increase the negative effects of injustice as stress and strains, an extended contribution of the study would be to also empirically test if social support counteracts the negative effects. According to the ISF, situational variables, such as support, moderate the stressor-stress-

strain relationship at various parts. Therefore, empirically testing support as a moderator as shown in Figure 2, allows for an additional test of the ISF. It is possible that a lack of moderation by the individual differences in not because they do not affect the injustice-stress relationship, but because support is countering their negative effects. Should the hypothesized relationships in the empirical study be supported, a second step in evaluating the ISF would be to examine the propositions; providing a detailed study of the phases in the appraisal process. The second step is beyond the scope of the present project.

Given that the relationships between injustice and stress (e.g., Ben-Ari, Tsur, & Har-Evan, 2006; Brotheridge, 2003; Judge & Colquitt, 2004) and injustice and strain (e.g., Elovainio et al., 2002; Greenberg, 2006; Tepper, 2001; Zohar, 1995) have been established, they will not be hypothesized here. However, it is important to show replication whenever possible to support previous research findings. Thus, the current study replicates previous studies by first testing the positive relationships between injustice and perceived stress and injustice and strain. The ISF suggests that perceived stress mediates the relationship between injustice and strain. To date, no studies have empirically assessed this relationship, though it is clear that injustice is related to stress (e.g., Ben-Ari, et al., 2006; Brotheridge, 2003; Judge & Colquitt, 2004) and perceived stress is related to strain (e.g., Elovainio et al., 2002; Greenberg, 2006; Tepper, 2001; Zohar, 1995). Therefore:

Hypothesis 1: Perceived stress fully mediates the relationship between distributive, procedural, interpersonal, and informational injustice and strain.

#### *Individual Difference Moderators*

The empirical study examines the moderating effects of belief in ultimate justice, sensitivity to befallen injustice, and equity sensitivity of the injustice-stress relationship.

As hypothesized by the ISF:

Hypothesis 2: Belief in ultimate justice moderates the relationship between perceptions of injustice and perceived stress. Specifically, those with a strong belief in ultimate justice will report a weaker positive relationship between distributive, procedural, interpersonal, and informational injustice and perceived stress than those with a weak belief in ultimate justice.

Hypothesis 3: Sensitivity to befallen injustice moderates the relationship between perceptions of injustice and perceived stress. Specifically, those with high sensitivity to befallen injustice will report a stronger positive relationship between distributive, procedural, interpersonal, and informational injustice and perceived stress than those with a low sensitivity to befallen injustice.

Hypothesis 4a: Equity sensitivity moderates the relationship between perceptions of distributive injustice and perceived stress. Specifically, those who are entitled will report a stronger positive relationship between distributive injustice and perceived stress than benevolent or equity sensitive individuals.

Hypothesis 4b: Equity sensitivity moderates the relationship between perceptions of procedural, interpersonal, and informational injustice and perceived stress. Specifically, those who are benevolent will report a stronger positive relationship between procedural, interpersonal, and informational injustice and perceived stress than entitled or equity sensitive individuals.

*Situational Moderator*

Social support has been considered a moderator of the stressor-strain relationship (Beehr & Bahagat, 1985; Lazarus & Folkman, 1984). Social support can be characterized as resources provided by others (Cohen & Syme, 1985) and consists of informational, emotional, and tangible support (House, 1981). In general, social support consists of support given by an individual's supervisor, friends, family, and coworkers. Therefore, social support can be considered to be an individual's assessment of how much his or her supervisor, coworkers, friends, and family are willing to provide aid to help them cope with stressful situations. Viswesvaran, Sanchez, and Fisher (1999) conducted a meta-analysis based on 68 effect sizes showing social support (including support from coworkers, supervisors, friends, and family) acted as a moderator of the stressor and strain relationship.

Although the studies included in Viswesvaran et al.'s (1999) meta-analysis did not include injustice as a stressor, it is expected that social support will buffer the effects of injustice on stress and strain. As Cohen and Wills (1985) suggest, social support moderates the stressor-strain relationship only if the support matches "the specific need elicited by a stressful event" (p. 314). When individuals experience any type of injustice, it can be expected that those with strong social support may not feel as threatened by the injustice as those with low social support. Furthermore, an individual with strong social support may lean on others to cope with the threat. Once stress is perceived, social support can buffer the effects of the stress so that the consequent strains are lessened. Therefore, the following are hypothesized:

Hypothesis 5a: Social support moderates the relationship between distributive, procedural, interpersonal, and informational injustice and perceived stress.

Specifically, those with strong social support will report less perceived stress than those with weak social support.

Hypothesis 5b: Social support moderates the relationship between perceived stress and strain. Specifically, those with strong social support will report less strain than those with weak social support.

## Method

### *Participants*

Three hundred and thirty-one undergraduates from a large, public university in the Western United States were recruited from introductory and advanced psychology classes to voluntarily participate in this study. Attrition rates were such that 296 of the initial 331 participants completed the full study. To determine if there were significant differences between those who completed the study and those who did not return to the second study session, an independent samples t-test was conducted comparing stress, strain, sensitivity to befallen injustice, equity sensitivity, and supervisory support reported in the two groups. The aforementioned variables were tested because they were the measures given during the first study session. Results showed no significant differences at the  $p < .05$  level between the two groups on any variable mentioned, suggesting that participants who completed the study did not differ from the participants who did not complete the study.

The age of participants ranged from 18 to 65 years ( $M = 21.3$  years;  $SD = 4.3$  years). Two hundred and fourteen participants were reported as female (72%). Eighty-five percent of the participants ( $N = 252$ ) identified themselves as Caucasian, 5% as Hispanic ( $N = 15$ ), 2% as Asian or Asian-American ( $N = 5$ ), and the remaining 8% as African-American, Native American, or of mixed ethnicity ( $N = 24$ ). All participants worked in their current jobs at least 10 hours a week ( $M = 18.62$  hours;  $SD = 7.58$  hours).

The participants' tenure at their current jobs ranged between one month and 109 months ( $M = 15$  months;  $SD = 11$  months). The majority of the participants worked in the food industry ( $N = 66$ ; 22%), professional services ( $N = 46$ ; 16%), retail ( $N = 38$ ; 13%), childcare ( $N = 14$ ; 5%), or administrative ( $N = 37$ ; 13%) or managerial ( $N = 15$ ; 5%) positions. Participants received class credit for their participation in this study. Institutional Review Board (IRB) approval was obtained prior to recruiting participants for the current study and participants gave their informed consent before participating (Appendix A).

### *Measures*

Unless otherwise stated, the factor structures of scales were analyzed using confirmatory factor analysis (CFA) via EQS version 6.1 (Bentler, 2005). The following widely accepted fit indices were used, (1) the normed fit index (NFI: above .90 is desirable), (2) the comparative fit index (CFI: above .90 is desirable), and (3) the root mean square error of approximation (RMSEA: less than .08 is desirable). Hu and Bentler (1999) and Byrne (1994) present complete descriptions of the fit indices and their cutoff criteria.

### *Stressors*

*Organizational injustice.* All four types of injustice, distributive, procedural, interpersonal, and informational, were measured using Colquitt's (2001) scales in which items are each rated on a 5-point scale from 1 (*strongly disagree (very unfair)*) to 5 (*strongly agree (very fair)*). The distributive injustice scale ( $\alpha = .92$ ) has four items and measures the degree to which employee rewards are thought to be related to performance inputs. The distributive injustice scale begins with the phrase "The following items refer

to outcomes in your organization, like pay, bonuses, or rewards” and a sample item includes “Do outcomes reflect the effort you have put into your work?” The procedural injustice scale ( $\alpha = .88$ ) consists of seven items that are based on Thibaut and Walker’s (1975) concept of voice as well as Leventhal’s (1980) procedural justice rules. The procedural injustice scale begins with the phrase “The following items refer to the procedures used to arrive at your outcomes in your organization.” A sample item on the procedural injustice includes “Have you had influence over the outcomes arrived at by procedures in your organization?” Both the informational injustice and interpersonal injustice scales begin with the phrase “The following items refer to the authority figure who enacts the procedures in your organization.” The interpersonal injustice scale ( $\alpha = .93$ ) consists of four items and a sample item includes “Has he/she treated you in a polite manner?” The informational injustice scale ( $\alpha = .93$ ) consists of five items and sample item includes “Has he/she explained the procedures in your organization thoroughly?” Psychometric evidence for Colquitt’s (2001) is strong and has been shown in a variety of studies. Validity evidence for the scales measuring justice can be found in Colquitt (2001), as well as in Colquitt and Shaw (2005), utilizing both student samples and employee samples.

As Colquitt’s (2001) scales were originally designed to measure justice and not injustice, the anchors on Colquitt’s original scales included 1 (*to a small extent*) to 5 (*to a large extent*). The design of these particular anchors only measured the extent to which a respondent perceived justice, not injustice. Following the lead of other researchers (e.g., Judge & Colquitt, 2004), the anchors for the current study were revised to 1 (*strongly disagree*) to 5 (*strongly agree*). Still, though, it was not clear whether participants would

use the low end of the anchors to mean unfairness or, instead, to mean only a low level of fairness. In response to this concern, a pilot study was conducted with 89 undergraduate students. The results of the pilot study indicated that approximately half of the participants believed the low anchors represented unfairness whereas the other half believed the low anchors represented a lack of fairness (neither fair nor unfair). Therefore, fairness wording was added to the existing anchors to make clear to the participants what the anchors represented in the scale (e.g., very unfair to very fair). Furthermore, utilizing conventions in the organizational justice research (Adams, 1965; Bies & Moag, 1986; Greenberg, 1993; Leventhal, 1980; Thibaut & Walker, 1975), descriptions of what is fair versus unfair were included in the measure for added clarity. Fairness is described as “impartial, equitable, unprejudiced, decent, and honest” whereas unfairness is described as “biased, prejudiced, discriminatory, one-sided, and inequitable.” All items were reverse-scored so that high scores on the scale (above a 3) indicated perceptions of injustice, low scores on the scale (less than a 3) indicated justice, and a score of 3 represented “neither fair nor unfair.”

Three CFAs were conducted on injustice scales to ensure the four factor solution remained as the best fit with the response anchors revised for the current study. A three factor solution representing distributive, procedural, and interactional (interpersonal plus informational) injustice, as well as a two factor solution representing distributive and procedural injustice (with interpersonal and informational injustice included in procedural injustice) were tested. The CFA results showed this scale as consisting of four factors ( $\chi^2 = 407.57$  (164), NFI = .91, CFI = .94, RMSEA = .07), as opposed to three factors ( $\chi^2 = 631.75$  (165), NFI = .86, CFI = .89, RMSEA = .10) or two factors ( $\chi^2 =$

988.02 (169), NFI = .78, CFI = .81, RMSEA = .13). A chi-square difference test revealed differences between the four factor and three factor solutions ( $\Delta \chi^2 \Delta df = 224.18$  (1),  $p < .001$ ) and between the three factor and two factor solutions ( $\Delta \chi^2 \Delta df = 356.27$  (5),  $p < .001$ ) as significant.

### *Stress*

*Perceived stress.* Perceived stress was measured utilizing Cohen, Kamarck, and Mermelstein's (1983) perceived stress scale ( $\alpha = .87$ ). The self-report scale contains 14 items that ask how often participants' felt or thought a certain way since they began their current job and are rated on a 5-point scale from 0 (*never*) to 4 (*very often*). Sample items include "Since you began your current job, how often have you dealt successfully with irritating life hassles?" and "Since you began your current job, how often have you felt difficulties were piling up so high that you could not overcome them?" Possible scores on the perceived stress scale range from zero to 56. High scores, therefore, represent high levels of perceived stress. The perceived stress scale has been shown to have criterion-related validity evidence with depressive and physical symptoms, utilization of health services, and social anxiety (Cohen et al., 1983).

### *Individual Difference Moderators*

*Belief in ultimate justice.* Belief in ultimate justice was measured utilizing Maes' (1998) belief in ultimate justice scale ( $\alpha = .87$ ). The self-report scale includes four items and each is rated on a 6-point scale from 0 (*don't agree at all*) to 5 (*agree very strongly*). Sample items from the scale include "Even persons who suffer from severe misfortune can expect that, in the end, something good will happen to balance everything out" and "Even amidst the worse suffering, one should not lose faith that justice will prevail and

set things right.” A high score on this scale represents a strong belief in ultimate justice.

In a series of correlational studies, Maes (1998) illustrated how his belief in ultimate justice scale has impressive discriminant validity evidence when compared to other belief systems, such as control beliefs. The results of Maes’ (1998) studies also provided concurrent validity evidence when predicting adaptive processes such as finding sense in severe illness, optimism, and confidence in coping with illness. When subjected to a factor analysis with other just world belief measures in a previous study (Maes, 1998), belief in ultimate justice was found to be distinct from general belief in a just world, belief in immanent justice, and belief in an unjust world.

*Sensitivity to befallen injustice.* Sensitivity to befallen injustice was measured using a scale created by Schmitt et al. (2005;  $\alpha = .86$ ). The scale includes 10 items consisting of various situations, such as performing better than others yet not receiving any reward. The scale is rated on a 5-point scale from 1 (*completely false*) to 5 (*exactly true*). “It makes me angry when others are undeservingly better off than me” is a sample item on justice sensitivity scale. The CFA results showed this scale as consisting of one factor ( $\chi^2 = 142.38$  (35), NFI = .86, CFI = .89, RMSEA = .10) as opposed to the three factors of anger, frequency, and intrusiveness of thoughts ( $\chi^2 = 606.82$  (36), NFI = .41, CFI = .42, RMSEA = .24). A chi-square difference test revealed this difference between the one factor solution and three factor solution as significant ( $\Delta \chi^2 \Delta df = 464.44$  (1),  $p < .001$ ). A high score on this scale represents a strong sensitivity to befallen injustice. Construct validity evidence of the scale has been shown with the scale’s low correlations with belief in a just world, conscientiousness, and openness, and the scale’s moderate correlations with jealousy, interpersonal trust, and paranoia (Schmitt et al., 2005).

*Equity sensitivity.* The self-report equity sensitivity instrument (Huseman et al., 1985;  $\alpha = .79$ ) was used to measure equity sensitivity. Instructions for the equity sensitivity instrument asks participants to divide 10 points between two opposing statements by “giving the most points to the choice that is most like you and the fewest points to the choice that is least like you.” All five items begin with the phrase “In any organization I might work for.” An example item is “It would be more important for me to (A) get from the organization, or (B) give to the organization.” As previously shown by Colquitt and colleagues (2006), the instrument can be scored in such a way that reflects a continuous variable, as opposed to a dichotomized or trichotomized variable. The potential range of scores is zero to 50 and the instrument was scored by adding items reflecting Benevolence; thus, high scores represent a strong preference for underreward. King and Miles (1994) recruited five samples ( $N = 2399$ ) to test the equity sensitivity instrument’s construct validity. Their results showed that the equity sensitivity instrument has indeed shown evidence for both convergent validity (i.e., high correlations with perceived distributive justice of pay and exchange ideology) and discriminant validity (i.e., low correlations with self-esteem, job satisfaction, and organizational commitment).

### *Strain*

*General well-being.* The short form of the general health questionnaire (Goldberg, 1972;  $\alpha = .86$ ) was used to measure a lack of general well-being, which is a type of psychological strain. The scale includes 12 items that ask about general well-being, such as depression and self-confidence. The items are rated on a 4-point scale ranging from 1 (*less than usual*) to 4 (*more than usual*). Sample items include “Have you

been feeling unhappy and/or depressed?” and “Have you been losing confidence in yourself?” Items asked participants to consider only the time since they began their current job. The possible range of scores on the questionnaire range from 12 to 48. Individuals who score high on the questionnaire have poor well-being as compared to those who score low on the scale. Banks and colleagues (1980) demonstrated construct validity evidence for the use of the scale in assessing well-being, demonstrating that there were no associations between scores on the general health questionnaire and a person’s age, job type, and marital status.

#### *Situational Moderators*

*Perceived supervisory support.* Perceived supervisory support was measured using the perceived organizational support scale by Eisenberger, Huntington, Hutchinson, and Sowa (1986;  $\alpha = .97$ ). Like many other researchers have done in the past (e.g., Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Kottke & Sharafinski, 1988), the wording of the items was changed by replacing “organization” with “supervisor.” The scale includes 17 items rated on a 7-point response scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Representative items include “My supervisor cares about my opinions” and “My supervisor tries to make my job as interesting as possible.” High scores on this scale represent perceptions of strong supervisory support. The perceived supervisory support scale has been found to be related to, but distinguishable from, measures of similar beliefs and attitudes (e.g., Eisenberger et al., 2002) showing evidence for convergent and discriminant validity.

*Other support.* Two subscales from Caplan, Cobb, French, Van Harrison, and Pinneau’s (1980) measure ( $\alpha = .74$ ) were utilized to measure other support. The items on

the two subscales describe the support an individual perceives is available from his or her coworkers, spouse, family, and friends. The other support scale includes eight items on a 4-point response scale from 1 (*not at all*) to 4 (*very much*). A sample item includes “How much does each of these people go out of their way to do things to make your work life easier for you?” The participant then responded using the scale for both “coworkers (other people at work except for your supervisor)” and “your spouse/partner, friends, and relatives.” The possible range of scores for the total scale is zero to 32. A high score on this scale indicates perceptions of strong support from an individual’s coworkers, family, and friends. The CFA results showed this scale as consisting of two factors ( $\chi^2 = 63.17$  (19), NFI = .92, CFI = .94, RMSEA=.08) as opposed to one factor ( $\chi^2 = 350.28$  (20), NFI = .53, CFI = .54, RMSEA = .10;  $\Delta \chi^2 \Delta df = 287.11$  (1),  $p < .001$ ). Lim (1996) found that other support scores correlated negatively with job insecurity, job dissatisfaction, and noncompliant job behaviors, indicating evidence of validity.

### *Demographics*

Participants completed a demographics form after completing the questionnaires on injustice, stress, strain, individual differences, and social support. In order to describe the sample of participants effectively, questions asked for sex, age, ethnicity, average number of hours worked each week in the participant’s job, tenure at his or her current job, and type of job. Some questions were included to offer some indication of how generally busy he or she is currently in order to assess other possible reasons (i.e., overload), besides injustice, that the participants may perceive stress. Questions asked how many classes the participants are currently taking, average number of hours that are spent studying for classes each week, whether the participants participate in

extracurricular activities, and whether the participant is in a committed relationship and has children. If the participant indicated he or she does participate in extracurricular activities, then average number of hours per week spent in these activities was also asked.

### *Procedure*

Data collection took place over two one-week periods. All questionnaires (Appendix B) were self-report and administered via a secure web survey. Participants were able to complete the first set of questionnaires during their leisure time over the first one-week period and then waited one week before completing the second session. During the second one week-period, participants were able to complete the second set of questionnaires at their leisure; thus, making the total time for the study three weeks. The measurement of the independent variables and dependent variables were taken during two different periods as one way to reduce common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

When participants initially visited the website during the first one-week period, they were asked to create a unique identification number on the first webpage in order to link their questionnaires completed during the first and second week periods. On the next webpage, the participant viewed the study's consent form. By continuing on with the web survey, he or she acknowledged that he or she has read, understood, and agreed to the consent form. At this point, each participant began the first set of scales utilized in the current study. First, each participant completed the stress and strain measures: the perceived stress scale and general health questionnaire. Following these two questionnaires, the participant completed the sensitivity to befallen injustice scale, the equity sensitivity instrument, and the perceived supervisory support scale.

A few days before the second one-week period, the participants received a reminder electronic mail message with a link to the next set of questionnaires. During the second week long period, participants logged back onto the website using their unique identification number that they created during the first week. They were reminded of the instructions given during the first web session to create their identification number to ensure the same number was used during the first and second session. Participants then completed the organizational injustice scale, belief in ultimate justice scale, and the other support scale. Before completing the survey, each participant completed the demographics form. After all the measures were completed, each participant continued to the last webpage that contained the debriefing form that explained the variables and measures used in the study (Appendix C).

## Data Analysis

Prior to testing the hypotheses of the current study, all variables were subjected to Harman's single factor test, which consisted of including all variables in a CFA in order to test for common method variance (Podsakoff et al., 2003). If all scales did not converge on one factor, then these results would indicate some reassurance that common method variance did not explain the relationships between the independent and dependent variables in the current study.

Prior to conducting any analyses to test hypotheses, injustice, belief in ultimate justice, sensitivity to befallen injustice, equity sensitivity, other support, and perceived supervisory support scores were centered to aid in interpretation (Aiken & West, 1991). To test Hypothesis 1, Baron and Kenny's (1986) steps for mediation were used. First, strain (well-being) was regressed on each type of injustice (distributive, procedural, interpersonal, and informational injustice). Then, the proposed mediator, perceived stress, was regressed on each of the injustice types. Finally, strain was regressed on both perceived stress and each type of injustice. If the coefficient for each type of injustice was no longer significant, then perceived stress fully mediated the relationship between injustice and strain. However, if the coefficient for each type of injustice was only reduced, then perceived stress partially mediated the injustice-strain relationship. In the case of partial mediation, the Sobel (1982) formula to determine the statistical significance of the decrease in the size of the beta coefficient was applied.

Moderated multiple regression (Baron & Kenny, 1986) was used to analyze the remainder of the hypotheses (Hypotheses 2 through 5b). In step one of each analysis, perceived stress was regressed on the predictors (distributive, procedural, interpersonal, and informational injustice). In step two, each proposed moderator variable (belief in ultimate justice, sensitivity to befallen injustice, equity sensitivity, and social support) was entered individually. In the third and final step, the cross-product of each type of injustice and the respective moderator variable was entered. When testing Hypothesis 5b, strain was individually regressed on the predictor (perceived stress) in step one. A significant change in variance accounted for was measured to assess moderating effects and whether the significant interaction term explained incremental variance beyond the main effects (i.e., individual difference or situational variables moderated the relationship between each type of injustice perception and perceived stress, or the relationship between perceived stress and strain).

In a final test of the hypothesized portion of the ISF, a moderated mediated model (James & Brett, 1984) was tested. To establish moderated mediation one establishes basically the same conditions that were essential for mediation mentioned previously. The main difference with moderated mediation is that some predictor variables are interaction terms that include the effect of the moderator variable (belief in ultimate justice, sensitivity to befallen injustice, equity sensitivity, or social support).

In order to evaluate the relative importance of each type of injustice in the regression model to predict perceived stress, dominance analysis (Budescu, 1993) was conducted. Dominance analysis, similar to relative weights analysis, determines the incremental importance of each predictor when the predictors are highly correlated.

Dominance analysis partitions total variance into a more meaningful decomposition that takes into account the contribution each predictor makes considering both its unique contribution, and its contribution in the presence of other predictors. The analysis results in a dominance weight,  $C_j$ , which is the mean of each predictor's  $\Delta R^2$  across all possible subset regression models. When rescaled, or divided by the model  $R^2$ , it is interpreted as the proportion of variance predicted in the dependent variable that may be attributed to the predictor. There were no predictions about which type of injustice contributes the most variance to perceived stress; thus, dominance analysis was conducted for exploratory purposes.

## Results

When investigating common method variance, the Harman single factor test results showed the 11 factor solution with all study variables ( $\chi^2 = 6671.13$  (3860), NFI = .68, CFI = .83, RMSEA=.05) was an overall better fit than the one factor solution ( $\chi^2 = 12606.66$  (3914), NFI = .39, CFI = .48, RMSEA = .09; ( $\Delta \chi^2 \Delta df = 5935.53$  (54),  $p < .001$ ). These results provide some evidence that common method variance was not the main explanation for relationships among the variables in the current study. Table 1 illustrates the means, standard deviations, intercorrelations, and reliability estimates for the variables in this study.

### *Hypothesis Testing*

The results for Hypothesis 1 are shown in Table 2. First, Model 1 shows strain regressed on each individual type of injustice (distributive, procedural, informational, and interpersonal injustice). Then, Model 2 illustrates the proposed mediator, perceived stress, regressed on each of the injustice types. All of Model 1 and Model 2's results were significant, except for informational injustice, allowing for the continuation of the mediation analysis (testing Model 3) for distributive, procedural, and interpersonal injustice. In Model 3, strain was regressed on both perceived stress and each type of injustice. As shown in Table 2, stress fully mediated the relationship between distributive injustice and strain and between procedural injustice and strain because distributive and procedural injustice's coefficients were no longer significant in Model 3.

For interpersonal injustice, stress only partially mediated the relationship between interpersonal injustice and strain because its coefficient was reduced from Model 1 to Model 3, yet was still significant. Results of the Sobel test revealed that the reduction in the coefficient for interpersonal injustice from Model 1 to Model 3 was indeed significant at the  $p < .05$  level, providing further evidence of partial mediation. Thus, Hypothesis 1 was partially supported.

Hypothesis 2 results are shown in Table 3. Results of the moderated multiple regression analysis showed that in the first step injustice accounted for 26% of variance in the perceived stress scores (distributive:  $\beta = .26, p < .01$ ; procedural:  $\beta = .21, p < .01$ ; interpersonal:  $\beta = .15, p < .05$ ; and informational:  $\beta = .00, ns; \Delta R^2 = .26$ ). In the second step of the regression analysis, belief in ultimate justice was entered and accounted for an additional one percent of variance in perceived stress scores beyond injustice ( $\beta = -.09, p < .10; \Delta R^2 = .01$ ). In the third step, the interactions between belief in ultimate justice and each type of injustice did not explain incremental variance over the main effects (see Table 3). Therefore, Hypothesis 2 was not supported.

The results of the first step of the regression analyses to test Hypotheses 3 – 5b are the same as Hypothesis 2; therefore, the results of step one will not be repeated in the following paragraphs. Results for Hypothesis 3 are illustrated in Table 4. Results of the regression analysis showed that in the second step, sensitivity to befallen injustice accounted for an additional significant seven percent of variance in the perceived stress scores beyond injustice ( $\beta = .28, p < .01, \Delta R^2 = .07$ ). In the third step, the interactions between sensitivity to befallen injustice and distributive, interpersonal, and informational injustices did not explain incremental variance over the main effects (see Table 4). Even

though the interaction between sensitivity to befallen injustice and procedural injustice was found to be significant ( $\beta = .18, p < .05; \Delta R^2 = .01$ ), the change in  $R^2$  was not significant. Therefore, Hypothesis 3 was not supported.

Hypotheses 4a and 4b results are shown in Table 5. Results of the regression analysis showed that in the second step, equity sensitivity did not account for an additional percentage of variance in the perceived stress scores beyond injustice (See Table 5). Furthermore, in the final step, the interactions between equity sensitivity and each type of injustice did not explain incremental variance over the main effects of injustice (See Table 5). Therefore, Hypotheses 4a and 4b were not supported.

For the first situational moderator hypothesis (Hypothesis 5a), results are shown for perceived supervisory support in Table 6. Results showed in the second step of the analysis, perceived supervisory support accounted for a small, yet significant additional two percent of variance in perceived stress scores beyond injustice ( $\beta = -.23, p < .01, \Delta R^2 = .02$ ). In the final step, the interaction between perceived supervisory support and distributive injustice and informational injustice did not explain incremental variance over the main effects (see Table 6), yet the interactions between perceived supervisory support and the other two types of injustice did contribute an additional three percent of variance (procedural:  $\beta = .16, p < .05$ ; and interpersonal:  $\beta = .17, p < .05; \Delta R^2 = .03$ ).

For the other type of social support examined, support from one's coworkers, family, and friends, results are shown in Table 7. In the second step of the analysis, other support accounted for an additional one percent of variance in perceived stress scores beyond injustice ( $\beta = -.12, p < .05, \Delta R^2 = .01$ ). In the third and final step, the interactions between other support and distributive, procedural, interpersonal, and

informational injustices were not found to explain incremental variance over the main effects (see Table 7). In conclusion, for perceived supervisory support and other support, Hypothesis 5a was partially supported.

Finally, results for Hypothesis 5b are shown in Tables 8 and 9. Results of the regression analyses showed in the first step stress accounted for a significant 59% of variance in the strain scores ( $\beta = .77, p < .01, \Delta R^2 = .59$ ). In the second step of the analysis, perceived supervisory support accounted for an additional four percent of variance in strain scores beyond stress ( $\beta = -.22, p < .01, \Delta R^2 = .04$ ). In the final step, the interaction between perceived supervisory support and stress did not explain incremental variance over the main effects (see Table 8).

In the second step of the following analysis when strain was regressed on other support and stress, other support accounted for a small, yet significant one percent of variance in the strain scores beyond stress ( $\beta = -.13, p < .01, \Delta R^2 = .01$ ). In the final step, the interaction between other support and stress did not explain incremental variance over the main effects (see Table 9). Hence, for both perceived supervisory support and other support, Hypothesis 5b was not supported.

#### *Additional Analyses*

In a final test of the hypothesized portion of the ISF, a moderated mediated model (James & Brett, 1984) was tested for those interactions that were found to predict incremental variance in stress scores beyond the main effects in each regression analysis. That is, moderated mediation analyses were conducted for the interactions between procedural and interpersonal injustice and perceived supervisory support. Therefore, moderated mediation was conducted two times. For each interaction, Baron and Kenny's

(1986) mediation steps were used. In Model 1, strain was regressed on the aforementioned interaction term. In Model 2, perceived stress was regressed on the interaction term. Finally, in Model 3, strain was regressed on both perceived stress and the interaction term. As Table 10 illustrates, both Model 1 or Model 2 were nonsignificant for each interaction examined. Thus, moderated mediation was not shown for the two tested interaction terms.

In order to evaluate the relative importance of each type of injustice in the regression model to predict perceived stress, dominance analysis (Budescu, 1993) was conducted. When rescaled, or divided by the model  $R^2$ , it is interpreted as the proportion of variance predicted in the dependent variable that may be attributed to the predictor. Overall, the four types of injustice accounted for 27.1% of the variance in perceived stress scores. Of that 27.1% of variance, distributive injustice accounted for 34.44% ( $C = .09$ ), procedural injustice 30.44% ( $C = .08$ ), interpersonal injustice 19.86% ( $C = .05$ ), and informational injustice 15.25% ( $C = .04$ ). In other words, distributive injustice attributed the most variance when predicting perceived stress, whereas informational injustice attributed the least variance.

## Discussion

There were two main purposes of the current dissertation. The first purpose was to present a theoretical model of the relationship between workplace injustice and employee stress, including personal and situational variables that can affect this relationship. The other main purpose was to test a portion of the theoretical model. First, the empirical study examined if perceived stress mediated the relationship between injustice and strain. Second, the empirical study investigated whether belief in ultimate justice, sensitivity to befallen injustice, equity sensitivity, and social support moderated the relationship between organizational injustice and perceived stress. Third, results revealed whether social support moderated the relationship between stress and strain.

Results of the empirical study indeed showed that perceived stress mediated the relationship between injustice and strain, operationalized as a lack of well-being. Specifically, distributive, procedural, and interpersonal injustice had an indirect effect on strain through perceived stress. No known prior studies have empirically assessed this chain relationship, though it was clear before the current study that injustice is related to stress (e.g., Ben-Ari, et al., 2006; Brotheridge, 2003; Judge & Colquitt, 2004) and perceived stress is related to strain (e.g., Elovainio et al., 2002; Greenberg, 2006; Tepper, 2001; Zohar, 1995). It should be noted that although distributive, procedural, and interpersonal injustice predicted stress in the present study, informational injustice was not found to predict stress.

It is interesting that although distributive, procedural, and interpersonal injustice were found to predict stress, informational injustice did not. Results showed that the other dimension of interactional injustice, interpersonal injustice, predicted stress, which is consistent with previous findings that showed interpersonal stressors such as conflict with coworkers and supervisors were related to stress (Spector & Jex, 1998), as well as statements made by Bies (2001) that interpersonal injustice can lead to intense pain. However, the finding that informational injustice did not predict stress suggests that the informational dimension of interactional injustice may not predict such a severe outcome. Whereas interpersonal injustice may threaten an individual's need to be respected and treated decently by one's supervisor, informational injustice may only threaten one's curiosity and the need to receive tailored details in a timely manner. Therefore, it seems that whereas a workplace environment in which one's supervisor does not give sufficient explanations about decision (informational injustice) is most likely unpleasant, the current study's findings may suggest that it is not perceived as a threat during the primary appraisal of the injustice and thus, does not predict stress.

Another explanation for the finding that informational injustice did not explain additional variance in perceived stress scores beyond the other three injustice types is related to one's secondary appraisal of the injustice. If an individual does indeed perceive informational injustice as a threat during the primary appraisal, then he or she must also decide if there are not resources available to cope with the threat before sensing stress. Perhaps the individual feels that the lack of explanation that led to perceptions of informational injustice can be satisfied in other ways (i.e., asking a coworker for

information). Therefore, the individual has the resources to cope with the threat and will not perceive stress due to informational injustice.

As already noted, distributive, procedural, and interpersonal injustices were found to predict perceived stress as hypothesized. Dominance analyses showed that distributive and procedural injustice contributed the most variance in stress, more so than interpersonal injustice. Some notable fairness theories may explain the differences in relative importance found among injustice types in the current study.

The instrumental model of justice states, along with other ideas, that individuals are interested in maximizing the favorability of outcomes (Thibaut & Walker, 1975; Tyler, 1987). The theory presents human beings as rational individuals interested in economic gains. Some previous research supports this idea. Specifically, favorable outcomes are more likely to be perceived as fair, and unfavorable outcomes are more likely to be perceived as unfair (e.g., Ambrose, Harland, & Kulik, 1991; Conlon & Ross, 1993). The current study's dominance analysis findings support the instrumental model because a lack of favorable outcomes (distributive injustice) has the greatest association with stress.

Although there is prior research support for the instrumental model, effect sizes of distributive injustice on outcomes tend to be somewhat small because researchers are only considering pay, promotions, and bonuses (e.g., Tyler, 1991, 1994), which is one reason why procedural injustice is also important to consider when examining injustice-related outcomes. Similarly, in the current study, procedural injustice contributed about the same percentage of variance as distributive injustice to stress, so it is important to discuss procedural injustice as well.

Another fairness theory that may explain the dominance analysis results is called the relational model of authority (Tyler & Lind, 1992) and explains why individuals care about procedural justice. The relational model posits that if a procedure suggests a positive relationship with a supervisor, or other authority figure, then the procedure is seen as fair. Individuals care about procedural justice because fair procedures are “symbols of group values” (Tyler & Lind, 1992, p. 140), which indicate they are valued by their coworkers and supervisor. Therefore, according to the relational model, if one perceives procedural injustice, then that individual may not feel valued by the authority figures in the organization possibly resulting in negative outcomes, like stress. Indeed, many researchers (e.g., Beehr & Bahagat, 1985; Lazarus & Folkman, 1984) have found evidence of this idea. Specifically, if individuals do not feel valued or supported by their supervisors they are more likely to perceive stress (Beehr & Bahagat, 1985; Lazarus & Folkman, 1984). The dominance analysis findings are in line with these previous study results showing that procedural injustice is nearly as important as distributive injustice when predicting stress.

An additional fairness theory, uncertainty management theory (Van den Bos, 2001) may also explain the importance of both distributive and procedural injustice when predicting stress. In the theory, uncertainty is defined as depriving individuals of confidence about what to expect from the environment because future events are unpredictable (Van den Bos & Lind, 2002). Van den Bos (2001) argued that uncertainty in individuals’ lives makes fairness important to them. When people perceive distributive injustice, they are not confident of what to expect and how to behave because their inputs do not match their outcomes. Consequently, distributive injustice is related

to being uncertain. Furthermore, unjust procedures create uncertainty because procedures are usually wide-ranging across organizations and typically remain in place for a great deal of time (Sweeney & McFarlin, 1993). Uncertainty has also been found to be an important component of the stress construct (Beehr & Bhagat, 1985); thus, the uncertainty that is associated with both distributive and procedural injustice may be one of the reasons why both types of injustice are highly related to stress.

Returning to the results of the current empirical study, even though three of the four types of injustice predicted stress and there were significant main effects of four of the five individual difference or situational variables, many of the interaction terms between the variables were nonsignificant when they were entered into the regression equations. Only two interaction terms were found to be significant. Specifically, perceived supervisory support interacted with procedural injustice and interpersonal injustice to reduce stress.

The interactions revealed in the results were hypothesized as such. The two significant interactions revealed in the current study showed that perceived supervisory support interacted with both procedural injustice and interpersonal injustice to reduce the effects of injustice on stress. Social support has long been considered a moderator of the stressor-strain relationship (Beehr & Bahagat, 1985; Lazarus & Folkman, 1984). Social support can be considered to be an individual's assessment of how much his or her supervisor, coworkers, friends, and family are willing to provide aid to help them cope with stressful situations. In the results of the current study, support from one's supervisor specifically was found to interact with procedural and interpersonal injustice when predicting stress. These results are consistent with a meta-analysis by Viswesvaran and

colleagues (1999) that showed supervisory support acted as a moderator of the stressor and strain relationship. Although the studies included in Viswesvaran et al.'s (1999) meta-analysis did not include injustice as a stressor, it was shown in the current study that supervisory support indeed moderates the injustice-stress relationship.

Perhaps an explanation of perceived organizational support by Eisenberger and colleagues (1986, 1997) can illustrate why supervisory support only interacted with procedural and interpersonal injustice, and not distributive, when predicting stress. They argued that the organization's actions in relation to the employee must be viewed as discretionary and as reflective of positive evaluations by the organization for perceived organizational support to be improved. As perceived supervisory support is a narrower dimension of perceived organizational support, one may assume a similar relationship holds true and that the supervisor's actions towards direct reports must be viewed as discretionary for perceived supervisory support to be enhanced.

Employees are likely to assume that greater discretion is possible in procedures and interpersonal treatment than in outcomes (Shore & Shore, 1995). When work-related decisions are not based on accurate and unbiased information (i.e., procedural injustice), and when employees are not treated with dignity and respect (i.e., interpersonal injustice), this communicates a lack of concern for employee well-being. Although it is possible for organizations to implement fair procedures and treatment for all employees, many valued outcomes are competitive (e.g., not everyone who is qualified can get promoted), so organizations may not be able to provide adequate support for employees through such outcomes. As Cohen and Wills (1985) suggest, social support moderates the stressor-strain relationship only if the support matches "the specific need elicited by a stressful

event” (p. 314). Therefore, it makes sense that when individuals experience procedural and interpersonal injustice in an organization (the stressful event), support from one’s supervisor counteracts the negative outcomes of this injustice.

The final hypothesis of the current study examined whether social support moderated the relationship between perceived stress and strain. When examining this relationship, perceived supervisory support and other support were both found to have main effects on strain. In other words, support from one’s supervisor, coworkers, family, and friends predicted low strain. These findings are consistent with a plethora of previous studies (see Viswesvaran et al., 1999). Yet, the interactions between perceived supervisory support and stress, and other support and stress, did not explain incremental variance in strain above the main effects. These findings suggest that although having social support in one’s workplace or personal life is associated with low stress after an injustice, it seems that once stress is perceived social support does not reduce the strain that follows perceived stress.

Non-hypothesized findings of the current study revealed small main effects of belief in ultimate justice, sensitivity to befallen injustice, perceived supervisory support, and other social support on perceived stress beyond the effects of injustice. In prior studies, social support has been found to have a negative relationship with stress in prior studies (Beehr & Bahagat, 1985; Kahn & Byosiére, 1992; Lazarus & Folkman, 1984; Viswesvaran et al., 1999) and sensitivity to befallen injustice has been found to have a positive relationship with stress (Francis, 2003). However, this is the first known non-laboratory studies to show belief in ultimate justice is related stress.

Some researchers have shown that those with strong belief in a just world tend to experience less stress than those with weak belief in a just world. For example, Lipkus et al. (1996), Lucas (2006), and Brown and Grover (1998) found that those with a strong belief in a just world tend to perceive less stress in a variety of situations. Furthermore, Maes and Schmitt (1999) found that belief in ultimate justice predicted an individual's optimism and confidence in coping with a stressful situation. Maes and Schmitt's (1999) research findings may be explained because individuals with a belief in ultimate justice look towards the future, not the past, and may discover there is some kind of resolution in the present difficulty (Maes, 1998); thus, these individuals tend to cope with stress better than individuals without the belief. Perhaps this is also why Dalbert et al. (2001) found that the general belief in a just world was correlated positively with life satisfaction, mood level, and positive affect. It seems that an individual with belief in ultimate justice may be slightly more predisposed than those without this belief to cope with any type of stress, not just stress due to an injustice; therefore, providing some explanation for the current study's small main effect of belief in ultimate justice on stress.

Although there was support for a few of the present study's hypotheses, many of the hypotheses were not supported. There are several possible reasons to explain these non-findings, including the lack of moderated mediation. One possible reason is that there simply is not an interactive relationship between some of the hypothesized variables and stress or strain. That is, the findings are appropriate and reveal that certain individual difference and situational variables do not interact with injustice to predict stress or strain. Another possibility is that there is an interactive relationship between those variables, but the present study did not have enough statistical power to find significant

results for some of the variables. When designing this study, a power analysis was calculated and concluded that at least 430 participants were needed to have sufficient statistical power for the proposed moderations in the current study. However, the study concluded with only 296 participants, resulting in power ranging from .17 to .50 for the various analyses conducted in the current study. The statistical power results found in the empirical study are consistent with the fact that moderated regression suffers from low statistical power (Cohen, Cohen, West, & Aiken, 2003).

One of the reasons for low power is due to issues with reliability. If the predictor measures were perfectly reliable (i.e., measured without error) than the sample size needed to detect interactions would be small. Yet because the predictor measures in the current study were found to have reliabilities between  $\alpha = .74$  and  $\alpha = .97$  and I was testing for interactive effects, the sample size needed was much greater (approximately 430). Although I considered removing certain items from the scales with lower alpha levels to increase the reliability evidence, I decided to keep the scales in my study unaltered as to not decrease construct validity evidence and to keep the measures consistent with previous literature.

Besides not having error-free measurement, in general, the participants in the sample did not experience a high amount of injustice or a high amount of perceived stress, which lessened statistical power as well. Furthermore, the individual difference variable scores (belief in ultimate justice, sensitivity to befallen injustice, and equity sensitivity) were not widely distributed. In order to ensure a wide distribution of scores in a study, an optimal experimental design would have to be employed (McClelland & Judd, 1993) instead of the field survey design used in the current study. In an

experimental design carried out in a laboratory setting, treatment conditions could be implemented at the ends of the continuum and thus, the scores of all the participants would be at one end of the continuum or the other. This type of design would maximize statistical power and the possibility of detecting interactive effects (Cohen et al., 2003). It is possible in the current study that the lack of scores at the low and high ends of the distribution masked actual interactions between the individual difference variables and injustice to predict stress.

Finally, another possible reason for the non-findings is that the dependent variable, perceived stress was too broad. Perhaps a more narrow scale describing a type of stress specifically related to injustice would have shown additional interactive effects. For example, Fox and colleagues (2001) did not find moderated effects of autonomy on the relationship between distributive injustice and work sabotage behaviors until they used a subset of the organizational counterproductive work behavior items (the dependent variable). Only then, when they used a measure of the dependent variable that included a more narrow range of behaviors that were specifically related to distributive injustice, did their post hoc analyses show moderation. Because the literature on injustice and stress is in its infancy, it is difficult to estimate what the operationalization of injustice-specific stress would be, but perhaps suggestions would become clearer as more research in the field is conducted.

#### *Implications of Study Findings*

There are several implications of the current study, from both theoretical and practical viewpoints. First, I presented the Injustice-Stress Framework, a full theoretical model of injustice antecedents, perceptions of injustice, stress, strain, resulting

organizational consequences, and possible moderators of all the relationships included in the model. The ISF is the first known model that specifically incorporates organizational injustice as a stressor and also includes how personality and situational variables may moderate the appraisal process, along with beliefs and commitments which were originally mentioned by Lazarus and Folkman (1984). The ISF is based on two well-known models in the stress literature: the transactional model (Lazarus & Folkman, 1984) which is the most prominent model that explains the stress process itself, as well as Kahn and Byosiére's (1992) model on stressors and strains that is based on a number of previous researchers' work (i.e., Dohrenwend et al., 1982; French & Kahn, 1962; Ivancevich & Matteson, 1980; Levi, 1981; and Schuler, 1981). Although only a small part of the framework was empirically tested, the model is now available for future stress and injustice researchers to investigate further.

Second, not only do the results show more evidence beyond previous studies (i.e., Ben-Ari, et al., 2006; Brotheridge, 2003; Judge & Colquitt, 2004) that injustice is a stressor, it reveals evidence of the next step in the theoretical model: stress associated with injustice is related to strain. Whereas stress has been shown to mediate the relationship between stressors and strain in previous studies (as reviewed in Sonnentag & Frese, 2003), the current study is the first to show this relationship with injustice as the stressor specifically. Also, I examined all four types of injustice, not just one or two, resulting in the conclusion that perhaps only three of the four types of injustice predict stress. Finally, perceived supervisory support was revealed as moderators of the injustice-stress relationship, further illustrating support for part of the ISF. Whereas the findings show some evidence supporting a portion of the theoretical model, this empirical

study was only a first step in testing the ISF. Therefore, researchers should continue to test the ISF in order to gain full understanding of the injustice and stress phenomenon.

Another theoretical contribution includes demonstrating that context-neutral studies of injustice can be useful. Much fairness research involves examining justice perceptions of one particular event, like drug tests (Konovsky & Cropanzano, 1991), layoffs (Brockner, Wiesenfeld, Reed, Grover, & Martin, 1993), or training (Quinones, 1995). As illustrated in the current empirical study, another way of examining justice perceptions is to ask participants to consider the fairness or unfairness across all possible events (Colquitt & Shaw, 2005). These types of measures are called entity measures (Cropanzano et al., 2001) and investigate global judgments of justice, as opposed to event-based judgments. Even though context-specific research is informative (Greenberg, 1996), context-neutral, or entity, fairness research also can advance our understanding of justice or injustice perceptions in the workplace.

Finally, another theoretical contribution concerns the measurement of injustice perceptions versus the measurement of justice perceptions. Study results showed that by adapting Colquitt's (2001) anchors to represent a continuum from very fair to very unfair, his justice scales can be used to measure injustice as well. The confirmatory factor analysis in the current study showed that the four scales measure what they intend to even after the anchors were revised.

In a related point, future researchers should be careful how they interpret the findings from studies which use scales that were intended to measure justice, as opposed to injustice. The results of the pilot study mentioned earlier in this paper showed that only half of the study's participants interpreted Colquitt's (2001) and Moorman's (1991)

low end of justice scales to represent injustice. If researchers use these well-known justice scales to measure injustice without making any changes, there is a possibility that they are measuring only low levels of justice perceptions, not actual injustice perceptions, at the low end of the distribution. By adapting the anchors to represent injustice on the low end of the distribution, researchers can be more confident that the effect sizes found represent the effects of injustice perceptions rather than low levels of justice perceptions.

Besides the theoretical implications of the current paper, there are also practical implications. First, the results provided additional evidence beyond prior studies that injustice is related to stress which is related to strain. Together, distributive, procedural, and interpersonal injustice explained a robust 26% of the variance in perceived stress, which is considered a large effect size in the behavioral sciences (Cohen, 1988). This large percent of variance is impressive in the behavioral sciences, specifically when predicting stress. Stress has many various causes; thus, a strong correlation with any single variable is thought-provoking and should increase interest among practitioners in investigating ways of reducing injustice in the workplace. That is, organizations should consider injustice and employee's perceptions of injustice in the design of jobs and human resource systems because of the possible ramifications. Organizations that focus on increasing distributive, procedural, and interpersonal justice should have employees who experience less stress and possibly, better psychological health. Therefore, according to the ISF, increasing justice perceptions in an organization perhaps could reduce stress-associated costs for the organization in the long run.

Whereas the effects of injustice on stress were robust, the moderator effects of perceived supervisory support were small. Including perceived supervisory support in

the injustice-stress model only explained an additional three percent of variance in stress. To a layperson, this amount of variance may be considered small, but many behavioral science researchers would agree that this amount of variance for a moderator is to be expected and still assists researchers in understanding the phenomenon being investigated (Cohen et al., 2003).

Second, support from one's supervisor was found to slightly buffer the effects of injustice on stress. Therefore, the current study reveals additional evidence beyond previous research of why organizations should exert effort to increase supervisory support systems. The results specifically showed supervisory support is important in situations with high perceptions of injustice.

#### *Study Strengths and Limitations*

There are many strengths of the current study that illustrate the ways in which this study is unique. First, by using modified justice scale anchors, this study measured the relationship between injustice and outcomes, rather than low levels of justice and outcomes. Previous researchers (De Cremer & Ruiters, 2003) have suggested measuring injustice, rather than justice, because the richness of the organizational justice construct comes more in discussing injustice than justice (Bies, 2001) and individuals tend to be more strongly affected by unfair events than by fair events. Additionally, the current study examined distress, rather than eustress; hence, measuring injustice rather than low levels of justice, may be considered more logical.

Second, this study examined all four types of injustice, not just one or two. By measuring all four types of injustice, I was able to make conclusions that previous researchers have not yet been able to make. Specifically, it was shown that informational

injustice does not explain additional variance in stress when measured with the other three types of injustice. Second, the current study included perceived stress and took the investigation one step further than only examining stress by including strain. Many previous researchers measured only stress or only strain, not both, and therefore, were not able to use empirical evidence to demonstrate the full model of injustice, stress, and strain.

An additional strength is that a variety of possible moderators of the injustice-stress relationship were examined. Many researchers (i.e., Judge & Colquitt, 2004; Moliner et al., 2005a; Moliner et al., 2005b; Tepper, 2001) have suggested that there could be individual difference and situational moderators of the injustice-stress relationship and urged future researchers to examine them. Some researchers, like Tepper (2001), suggested that if models of injustice in organizations do not take into account individual difference moderators, then the models are likely to be underidentified. Even though only a portion of the theoretical model was tested in the current empirical study, it was a first step of testing a model of injustice and stress that includes possible moderators. Therefore, a strength is the examination of five possible moderators suggested by researchers, one moderated the injustice-stress relationship whereas the remainder did not.

Finally, the results of the current study may be more generalizable than studies that were either a laboratory study in which situation may not mirror the actual workplace, or a study that utilized a field sample in just one organization. The generalizability of the current study was enhanced in that the population from which the participants were drawn was heterogeneous, covering a wide range of industries. Even

though the sample was heterogeneous with regard to industry, the variance in stress, injustice, and individual difference moderators measured in the current study was only moderate. Hence, the sample used in this study may be considered both a strength and a limitation. Consequently, while examining the study's strengths, it's also important to consider the study's possible limitations.

The first limitation of the current study is that the data was collected using all self-report measures, introducing the threat of common method variance. Whereas using all self-report measures to collect data in a research study is not ideal, this methodology may make more sense for certain types of research as compared to others (Fox & Spector, 1999). This empirical study investigated individual perceptions of injustice, perceived stress, and social support, as well as individuals' beliefs and commitments, which are more subjective rather than objective. Logically, it can be argued that subjective perceptions may be better measured when using self-reports rather than objective measures. Furthermore, when a researcher is interested in investigating how employees respond to and feel about their jobs, self-report measures tend to be the most useful (Howard, 1994; Spector, 1994).

Even though the use of a self-report methodology may be justified, the threat of common method variance remains. However, several strategies employed here may relieve some concerns of this bias for this study. Specifically, the independent and dependent variables were measured at two different times with at least one week in between surveys. As Podsakoff and colleagues (2003) suggest, collecting the independent and dependent variables at two different times reduces common method variance. Second, I used the Harman single factor test of the questionnaire items, which

revealed that using self-reports for all measures was not the primary reason the variables in the current study were related.

Another limitation beyond the self-report methodology is that the sample size was too small to have adequate statistical power. Any research that involves testing moderated regression equations should have a sample size that is quite large in order to have enough power. The study methodology should be taken into account when considering power. Studies with more than one session, like this one, tend to have the problem of attrition. I recruited college students as participants via a psychology department website, as well as in their classes, yet the initial sample was not large enough to have power. Furthermore, 35 participants did not return to the study for the second set of questionnaires, although each participant received electronic mail messages, as well as announcements in their classes, reminding them of the second survey session. Therefore, because attrition was possible, the current study should have begun with a sample size even larger than what was needed to have adequate power. It is expected that significant interactions between social support with injustice and stress were found, whereas other variables were not because these relationships were strong enough to be revealed with a small sample of participants.

A third limitation is that the data collected for the current study was cross-sectional in nature. Therefore, even though the theoretical model presented shows injustice leading to stress, which leads to strain, I cannot rule out the possibility that there are not reciprocal effects between injustice, stress, and strain. Only a longitudinal study design that measured all variables at Time 1 and Time 2 would be able to examine the reciprocal effects. Also, I did not conduct an experiment, which would be the only

methodological design to infer a causal relationship between injustice, stress, and strain. Although I could not show that injustice led to stress and stress led to strain, previous researchers (i.e., Frese, 1985) have shown that it is more likely that stressors lead to stress which lead to strain and not vice versa.

Furthermore, a longitudinal study would be able to show if injustice perceptions build up over time. Although the injustice measures utilized in the current study did not ask about only a single injustice event, and instead asked about workplace injustice perceptions in general, the responses are still a self-report taken at one moment in time. In order to test whether injustices build up over time, a longitudinal design would need to be conducted.

#### *Recommendations for Future Research*

First, it is recommended that future researchers replicate the current study, with a larger sample. It is suggested that some of the current study's non-findings may be a result of the small sample size, and perhaps not a result of the lack of interaction between individual differences and injustice when predicting stress. It is suggested that a larger sample size in future studies may allow for significant interactions between individual differences and distributive, procedural, and interpersonal injustice to be revealed.

Second, it is recommended that future researchers examine other parts of the theoretical model, the ISF, presented in this paper. To constrain the current empirical study to a manageable scope, only a small portion of the model was tested. Results showed some initial evidence for a small part of the model: three types of injustice have an indirect effect on strain through perceived stress, and the relationships between different types of injustice and perceived stress are moderated by perceived supervisory

support. Thus, even with a small sample size and lack of adequate statistical power, some results were revealed which support part of the tested portion of the ISF. Therefore it is recommended that future researchers use the ISF as a framework for examining injustice and stress. For example, in a future study, the propositions regarding the appraisal process of injustice that were presented in the ISF could be investigated in a laboratory study. As evidence for relationships among other specific variables are uncovered, future researchers may also find it useful to conduct a more complete test rather than investigating individual relationships. Other statistical analyses, like structural equation modeling, could accomplish this objective.

Future research should also examine other possible individual difference or situational moderators that may fit within the ISF. For example, Tepper (2001) suggested that self-esteem may moderate the relationship between injustice and stress because those with high self-esteem may be less likely to perceive threats to their well-being during the primary appraisal of the injustice. Also, organizational commitment may exaggerate the relationship between injustice and stress. In a study by Brockner, Tyler, and Cooper-Schneider (1992), results revealed that those who were highly committed to an organization were more likely to experience greater negative reactions (i.e., turnover intent and less effort on the job) after perceiving injustice than those individuals who were less committed. Brockner et al. (1992) utilized the relational model of authority (Lind & Tyler, 1988) to explain these findings. Specifically, those who are more committed to the organization have invested more of their sense of self-worth in their identification with the group. As a result, these individuals have the most to lose if the procedures or treatment in the organization are unjust. Future researchers should

investigate whether a similar relationship holds true when stress as the dependent variable. As Brockner et al. (1992) stated in the title of their article, “the higher they are, the harder they fall” (p. 241).

Another possible moderator of the injustice-stress relationship is culture. For example, a culture’s power distance (Hofstede, 1980) may affect how individuals react to injustice in the workplace. In a study by Gudykunst and Ting-Toomey (1988), results showed that those who lived in a high power distance society were less likely to be angered by an injustice than those in a low power distance society. In high power distance cultures, an individual’s acceptance of unequal social prerogatives seems to be related to a high tolerance of unfair treatment. After perceiving an injustice, those within a high power distance culture may not view injustice as a threat, and therefore, should not experience stress. Future researchers should examine the possible moderation of power distance, or other cultural differences, of the injustice-stress relationship.

Finally, another possible moderator is perceived organizational politics. Those individuals who perceive a highly political organizational environment may experience more stress after an injustice than someone who does not perceive politics. Specifically, during the secondary appraisal of an injustice, those who perceive high politics may feel they have less coping resources to deal with the injustice than those who do not perceive politics because they feel individuals act in their own self-interest (Ferris, Adams, Kolodinsky, Hochwarter, and Ammeter; 2002) and may not care about helping others cope. Or, on the contrary, those who perceive high organizational politics may be immunized to injustice and not perceive injustice as a threat during primary appraisal.

Future researchers testing this possible moderation would be able to reveal the direction of the relationship.

Besides examining other possible moderators of the injustice-stress relationship, other types of stress and strain should be investigated by future researchers. In the current empirical study, only perceived stress was tested as a type of stress, and lack of well-being as strain. Other types of stress include disturbed mood, cognitive reactions, or decreased effort on the job immediately after experiencing an injustice. Other types of strain include behavioral or physical symptoms. For example, behavioral strain, like absenteeism from one's job, could be measured in an organizational setting either from self-report, peer-report, or human resource records. Physical strain, such as high blood pressure or an increase in salivary cortisol could be measured in a clinical setting.

A third recommendation for future researchers is to conduct injustice-stress research that is longitudinal in nature. As suggested by Cropanzano et al. (2001), single justice event perceptions are aggregated to form a summary judgment of an entity; entity perceptions are what were measured in the current study. Even though its possible that one particularly severe injustice experience can lead to long-lasting stress, many manifestations of stress are the results of day-to-day injustices (i.e., daily hassles) that on their own may not affect an individual, but in the aggregate form may lead to strain. The importance of time in the accumulation of stress is present in Beehr and Newman's (1978) model of stress; therefore, researchers should examine the importance of time when examining injustice as a stressor.

Finally, a last recommendation to future researchers is to consider building upon the ISF and adding variables that are not specified in the model yet. For example, the

idea of anticipatory injustice was presented in 2001 by Shapiro and Kirkman. In their main thesis, they argue it is important to measure the potential injustice respondents foresee in the workplace because simply anticipating injustice can lead to outcomes such as dishonesty or harassment. Whereas Shapiro and Kirkman (2001) suggest anticipatory injustice is an antecedent to injustice perceptions, future researchers should also examine whether simply anticipating injustice in the workplace alone can be associated with employee stress.

### *Conclusion*

The research on injustice and stress has been scarce over the past two decades. An overall theoretical model, the Injustice and Stress Framework, explaining the relationship between injustice and stress was presented in the current paper in order to summarize and build upon the past research on injustice and stress. This theoretical model is now available for future researchers to investigate. Furthermore, results of the current empirical study revealed that perceived stress mediated the relationships between distributive, procedural, and interpersonal injustice and strain. Also, it was shown that supervisory support interacts with procedural and interpersonal injustice to reduce stress. This study is one of the first steps toward understanding the full model of injustice and stress. Perhaps future studies illustrating the relationship between injustice, stress, and moderators or mediators of the relationship can eventually assist human resource managers and other individuals in the workplace in relieving stress in the workplace. It is hoped that this study will lead to future questions and investigation of the effects of injustice in the workplace.

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## Appendix A

### **Consent to Participate in a Research Study Colorado State University**

**TITLE OF STUDY:** Moderators of the Relationship Between Organizational Injustice and Employee Stress

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**CO-PRINCIPAL INVESTIGATOR:** Rachel M. Johnson, M.S. 678-575-7231, rachel.johnson@colostate.edu

**WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?** Because you are currently working in a part time or full time job and we are interested in your perceptions of fairness, your personality, and your experience of stress.

**WHO IS DOING THE STUDY?** An assistant professor in industrial-organizational psychology and her advisee (a doctoral candidate).

**WHAT IS THE PURPOSE OF THIS STUDY?** To determine if personality affects the relationship between perceptions of injustice in the workplace and stress.

**WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?** This study will be completed on a secure website during two one-week periods, so you can complete the surveys on a computer wherever you have access to the Internet. It will take about 45 minutes to complete all surveys for each session.

**WHAT WILL I BE ASKED TO DO?** You will be asked to complete a series of short surveys on a website during two different one-week periods. The surveys should take no longer than one and half hours to complete total. There will be a one week period between the first set of surveys and the second set.

**ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?** You should only participate in this study if you are currently working at least part time in a paying job. For this study, part time is defined as at least 10 hours a week spent at work. If you are under 18, see below.

**WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?** There are no known risks associated with the procedures of this study. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

**ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?** There are no direct benefits for participation.

**DO I HAVE TO TAKE PART IN THE STUDY?** Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

**WHAT WILL IT COST ME TO PARTICIPATE?** There are no costs associated with participating in this study.

**WHO WILL SEE THE INFORMATION THAT I GIVE?**

We will keep private all research records that identify you, to the extent allowed by law.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private. We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

You will create a unique participant number at the start of this study which will be used to link your surveys from the first web session to the second web session. The following procedure will be used to generate a unique ID number: Please create an ID number by supplying the last 2 digits of your home telephone number, followed by the day of the month on which you were born, followed by the last 2 digits of your student identification number. Ex: 132299.

This ID number should be included at the beginning of each of the two survey sessions in this study. This allows us to easily have unique numbers for each participant while at the same time protecting your confidentiality and allowing us to match your responses from the first survey to the second. At the end of the first and second survey session, you will be directed to another secure website in which you will enter your name, email address, and telephone number. Your name is needed in order to give you the appropriate research credit. Also, you will be sent a telephone reminder and an email reminder with the link to the second set of surveys during the week between the first and second survey sessions. This website will collect your contact information in a separate database from your data, and in no way will your information be linked to the survey data you provide.

**CAN MY TAKING PART IN THE STUDY END EARLY?** You will not be removed from this study unless you decide you would like to withdraw, otherwise the study lasts for the entire time to complete all the surveys.

**WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?** You will receive 1.5 credits towards research for participating in this study and completing all the surveys.

**WHAT HAPPENS IF I AM INJURED BECAUSE OF THE RESEARCH?** The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

**WHAT IF I HAVE QUESTIONS?** Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind by contacting the co-principal investigator, Rachel Johnson at 678-575-7231, or the principal investigator, Zinta Byrne, Ph.D. at 970-491-6982. Later, if you have questions about the study, you can contact either investigator. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. You may print this consent form to keep or may contact the co-principal investigator, Rachel Johnson, for a copy of this form.

By clicking on the "I agree to the terms in this consent form" button below, you are acknowledging that you have read the information stated and willingly agree to this consent form.

# PARENTAL SIGNATURE FOR MINOR

(If you are under the age of 18, you must obtain a parental signature to participate in this study. Please print this form, obtain your parent's or guardian's signature, and return the form to the principal investigator, Zinta Byrne, Ph.D., in the Psychology Main Office (B219) of the Andrew Clark Building.)

As parent or guardian I authorize \_\_\_\_\_ (print name) to become a participant for the described research. The nature and general purpose of the project have been satisfactorily explained to me by \_\_\_\_\_ and I am satisfied that proper precautions will be observed.

\_\_\_\_\_  
Minor's date of birth

\_\_\_\_\_  
Parent/Guardian name (printed)

\_\_\_\_\_  
Parent/Guardian signature

\_\_\_\_\_  
Date

Page \_\_\_\_ of \_\_\_\_ Participant's initials \_\_\_\_\_ Date \_\_\_\_\_

## Appendix B

*Organizational Injustice Scales: Distributive (Items 1-4), Procedural (Items 5-11), Interpersonal (Items 12-15), and Informational (Items 16-20) (Colquitt, 2001)*

**Instructions:** Please use the rating scale below to describe how accurately each statement describes **YOUR** experience at your **current job**. Describe your experiences as they generally are now, not as you wish them to be in the future. Please be as honest as possible.

Strongly Disagree (Very Unfair) 1	Disagree (Unfair) 2	Neither Agree nor Disagree (Neither Fair nor Unfair) 3	Agree (Fair) 4	Strongly Agree (Very Fair) 5
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*Fair: impartial, equitable, unprejudiced, decent, and honest*

*Unfair: biased, prejudiced, discriminatory, one-sided, and inequitable*

The following items refer to outcomes in your organization, like pay, bonuses, or rewards.

1. Outcomes reflect the effort you have put into your work. (R)
2. Your outcomes are appropriate for the work you have completed. (R)
3. Your outcomes reflect what you have contributed to the organization. (R)
4. Your outcomes are justified, given your performance. (R)

The following items refer to the procedures used to arrive at your outcomes in your organization.

5. You have been able to express your views and feelings during procedures in your organization. (R)
6. You have had influence over the outcomes arrived at by procedures in your organization. (R)
7. Procedures in your organization have been applied consistently. (R)
8. Procedures in your organization have been free of bias. (R)
9. Procedures in your organization have been based on accurate information. (R)
10. You have been able to appeal the outcomes arrived at by procedures in your organization. (R)
11. Procedures in your organization uphold ethical and moral standards. (R)

The following items refer to the authority figure who enacts the procedures in your organization.

12. He/she has treated you in a polite manner. (R)

- 13. He/she has treated you with dignity. (R)
- 14. He/she has treated you with respect. (R)
- 15. He/she has refrained from improper remarks or comments. (R)

The following items refer to the authority figure who enacts the procedures in your organization.

- 16. He/she has been candid in his/her communications with you. (R)
- 17. He/she has explained the procedures in your organization thoroughly. (R)
- 18. His/her explanations regarding the procedures in your organization have been reasonable. (R)
- 19. He/she has communicated details in a timely manner. (R)
- 20. He/she has seemed to tailor his/her communications to individuals' specific needs. (R)

*Note.* (R) indicates reverse-scored items.

*Perceived Stress Scale (Cohen et al., 1983)*

**Instructions:** The questions in this scale ask you about your feelings and thoughts during the **time since you began your current job**. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate. **Describe yourself as you generally are now**, not as you wish to be in the future. Describe yourself as you honestly see yourself.

For each question, choose from the following alternatives:

Never 0	Almost Never 1	Sometimes 2	Fairly Often 3	Very Often 4
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1. Since you began your current job, how often have you been upset because of something that happened unexpectedly?
2. Since you began your current job, how often have you felt that you were unable to control the important things in your life?
3. Since you began your current job, how often have you felt nervous and "stressed"?
4. Since you began your current job, how often have you dealt successfully with irritating life hassles? (R)
5. Since you began your current job, how often have you felt you were effectively coping with important changes that were occurring in your life? (R)
6. Since you began your current job, how often have you felt confident about your ability to handle your personal problems? (R)
7. Since you began your current job, how often have you felt that things were going your way? (R)
8. Since you began your current job, how often have you found that you could not cope with all the things that you had to do?
9. Since you began your current job, how often have you been able to control irritations in your life? (R)
10. Since you began your current job, how often have you felt that you were on top of things? (R)
11. Since you began your current job, how often have you been angered because of things that happened that were outside of your control?
12. Since you began your current job, how often have you found yourself thinking about things that you have to accomplish?
13. Since you began your current job, how often have you been able to control the way you spend your time? (R)
14. Since you began your current job, how often have you felt difficulties were piling up so high that you could not overcome them?

*Note.* (R) indicates reverse-scored items.

*Belief in Ultimate Justice Scale (Maes, 1998)*

**Instructions:** Please use the following rating scale below to show how often each of the following instances accurately reflect you and your life. Please use the rating scale below to describe how accurately each statement describes **YOU**.

Don't agree at all 0	1	2	3	4	Agree very strongly 5
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1. Even persons who suffer from severe misfortune can expect that, in the end, something good will happen to balance everything out.
2. Even amidst the worse suffering, one should not lose faith that justice will prevail and set things right.
3. In the long run, the injustice imposed by illnesses receives appropriate reparation/amends.
4. Even terrible illnesses are often compensated for by fortunate happenstance later in life.

*Sensitivity to Befallen Injustice Scale (Schmitt et al., 2005)*

**Instructions:** Please use the following rating scale below to show how often each of the following instances accurately reflect you and your life. Please use the rating scale below to describe how accurately each statement describes **YOU**. **Describe yourself as you generally are now**, not as you wish to be in the future. Describe yourself as you honestly see yourself.

Completely false 1	2	3	4	Exactly true 5
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1. \_\_\_\_\_ It bothers me when others receive something that ought to be mine.
2. \_\_\_\_\_ It makes me angry when others receive an award which I have earned.
3. \_\_\_\_\_ I can't really bear it when others profit from me.
4. \_\_\_\_\_ I can't forget for a long time when I have to fix others' carelessness.
5. \_\_\_\_\_ It gets me down when I get fewer opportunities than others to develop my skills.
6. \_\_\_\_\_ It makes me angry when others are undeservingly better than me.
7. \_\_\_\_\_ It worries me when I have to work hard for things that come easily to others.
8. \_\_\_\_\_ I ruminate for a long time when other people are being treated better than me.
9. \_\_\_\_\_ It burdens me to be criticized for things that are being overlooked with others.
10. \_\_\_\_\_ It makes me angry when I am treated worse than others.

*Equity Sensitivity Instrument (Huseman et al., 1985)*

**Instructions:** The questions below ask what you'd like for your relationship to be with *any* organization for which you might work. On each question, *divide* 10 points between the two choices (choice A and choice B) by giving the *most* points to the choice that is *most* like you and the *fewest* points to the choice that is *least* like you. You can, if you'd like, give the same number of points for both choices (for example, 5 points to choice A and 5 points to choice B). And you can use zeros if you'd like.

Just *be sure* to allocate ***all*** 10 points per question between each pair of possible responses.

**Describe yourself as you honestly see yourself.**

1. In any organization I might work for, it would be more important for me to  
\_\_\_ A. Get from the organization.  
\_\_\_ B. Give to the organization.
2. In any organization I might work for, it would be more important for me to  
\_\_\_ A. Help others.  
\_\_\_ B. Watch out for my own good.
3. In any organization I might work for, I would be more concerned about  
\_\_\_ A. What I received from the organization.  
\_\_\_ B. What I contributed to the organization.
4. In any organization I might work for, the hard work I would do should  
\_\_\_ A. Benefit the organization.  
\_\_\_ B. Benefit me.
5. In any organization I might work for, my personal philosophy in dealing with the organization would be  
\_\_\_ A. If I don't look out for myself, nobody else will.  
\_\_\_ B. It's better for me to give than receive.

*General Health Questionnaire (Goldberg, 1972)*

**Instructions:** These statements are meant to inquire into your general experiences in the **last month**, not just those in relation to classes or work. Please read the following statements and indicate the response that best applies to you. **Describe yourself as you generally are now**, not as you wish to be in the future. Describe yourself as you honestly see yourself.

Less Often Than Usual 1	2	3	More Often Than Usual 4
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1. Since you began your current job, have you been able to concentrate on whatever you are doing? (R)
2. Since you began your current job, have you lost much sleep from worry?
3. Since you began your current job, have you felt that you are playing a useful part in things? (R)
4. Since you began your current job, have you felt capable of making decisions about things? (R)
5. Since you began your current job, have you felt under strain?
6. Since you began your current job, have you felt that you couldn't overcome your difficulties?
7. Since you began your current job, have you been able to enjoy your normal day-to-day activities? (R)
8. Since you began your current job, have you been able to face up to your problems? (R)
9. Since you began your current job, have you been feeling unhappy and/or depressed?
10. Since you began your current job, have you been losing confidence in yourself?
11. Since you began your current job, have you been thinking of yourself as a worthless person?
12. Since you began your current job, have you been reasonably happy, all things considered? (R)

*Note.* (R) indicates reverse-scored items.

*Perceived Supervisory Support Scale (Eisenberger et al., 1986)*

**Instructions:** Listed below is a series of statements that represent possible feelings that individuals might have about the company or organization for which they work. With respect to your own feelings about the particular organization for which you are now working, please indicate the degree of your agreement or disagreement with each statement by choosing one of the seven alternatives below for each statement.

Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree nor disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
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1. My supervisor values my contribution to the organization's well-being.
2. If my supervisor could hire someone to replace me at a lower salary, he/she would do so. (R)
3. My supervisor fails to appreciate any extra effort from me. (R)
4. My supervisor strongly considers my goals and values.
5. My supervisor would ignore any complaint from me. (R)
6. My supervisor disregards my best interests when he/she makes decisions that affect me. (R)
7. Help is available from my supervisor when I have a problem.
8. My supervisor really cares about my well-being.
9. My supervisor is willing to extend himself/herself in order to help me perform my job to the best of my ability.
10. Even if I did the best job possible, my supervisor would fail to notice. (R)
11. My supervisor is willing to help me when I need a special favor.
12. My supervisor cares about my general satisfaction at work.
13. If given the opportunity, my supervisor would take advantage of me. (R)
14. My supervisor shows very little concern for me. (R)
15. My supervisor cares about my opinions.
16. My supervisor takes pride in my accomplishments at work.
17. My supervisor tries to make my job as interesting as possible.

*Note.* (R) indicates reverse-scored items.

*Other Support Scale (Caplan et al., 1980)*

**Instructions:** Please use the following rating scale below to show how often each of the following instances accurately reflect you and your life. Please use the rating scale below to describe how accurately each statement describes **YOU**.

Don't have any such person 0	Not at all 1	A little 2	Somewhat 3	Very much 4
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1. How much does each of these people go out of their way to do things to make your work life easier for you?
  - a. Your coworkers (other people at work besides your supervisor)
  - b. Your spouse/partner, friends, and relatives
2. How easy is it to talk with each of the following people?
  - a. Your coworkers (other people at work besides your supervisor)
  - b. Your spouse/partner, friends, and relatives
3. How much can each of these people be relied on when things get tough at work?
  - a. Your coworkers (other people at work besides your supervisor)
  - b. Your spouse/partner, friends, and relatives
4. How much is each of the following people willing to listen to your personal problems?
  - a. Your coworkers (other people at work besides your supervisor)
  - b. Your spouse/partner, friends, and relatives

*Demographics*

1. Your sex:   Male   Female

2. Your age:           \_\_\_\_\_ years old

3. Your ethnic background is best described as (please check all that apply):

\_\_\_\_\_ African-American/Black

\_\_\_\_\_ Anglo/White

\_\_\_\_\_ Asian American

\_\_\_\_\_ Hispanic/Latino

\_\_\_\_\_ Native American

\_\_\_\_\_ Other (please describe) \_\_\_\_\_

4. Number of classes currently taking (total: either at CSU or in another university):

\_\_\_\_\_ classes

5. Average number of hours you spend studying outside of your classes per week: \_\_\_\_\_  
hours

7. Are you involved in extracurricular activities (e.g., belong to a sports team,  
fraternity/sorority, other clubs)? Yes or No

    If yes, how many hours per week on average do you spend being involved in  
    these extracurricular activities? \_\_\_\_\_ hours

6. How long you have worked at your current job: \_\_\_\_\_ months

7. What is your current job? \_\_\_\_\_

8. How many hours (on average) do you work at your current job? \_\_\_\_\_ hours

## Appendix C

### *Debriefing Form*

Thank you for your participation!

The surveys you have just completed are for a study that is examining people's personalities and how personality affects the relationship between fairness perceptions and stress. The various personality characteristics that were measured during this survey session include:

- Equity sensitivity: different needs for personal equity
- Sensitivity to befallen injustice: frequent and intrusiveness thoughts of anger after seeing some sort of injustice
- Belief in ultimate justice: the idea that bad things are compensated in the long run

Furthermore, we measured a few variables related to the type of support you perceive. These two variables include:

- Perceived supervisory support: the idea that your supervisor at work helps you and is there for you
- Other support: the idea that your coworkers at work or your friends and family outside of work help you and are there for you

We also measured what is known as organizational justice, or how you much fairness or unfairness you perceive at your job.

Finally, we measured how much stress you have experienced, as well as your general health and well-being, since beginning your current job.

This study included topics discussed in the *Stress and Health* chapter (pp. 549-578) and *Personality* chapter (pp. 597-616) of:

Myers, D. G. (2006). *Psychology*. NY: Worth Publishing Group.

You should understand how your data will be used: your responses on the surveys will be combined with the responses of all other participants to examine various hypothesized relationships. Your responses were completely anonymous as your name was not recorded with your data.

All data is kept confidential.

If you have any questions that remain unanswered, feel free to contact Zinta Byrne, Ph.D. at 970-491-6982 or [Zinta.Byrne@colostate.edu](mailto:Zinta.Byrne@colostate.edu); or Rachel Johnson at 678-575-7231 or [Rachel.Johnson@colostate.edu](mailto:Rachel.Johnson@colostate.edu).

Table 1

*Means, Standard Deviations, and Intercorrelations Among Variables, with Reliabilities Along the Diagonal (N=296)*

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Perceived stress <sup>a</sup>	25.03	7.15	(.87)										
2. Strain <sup>b</sup>	24.93	5.88	.77***	(.86)									
3. Distributive injustice <sup>c</sup>	2.41	.83	.44***	.40***	(.92)								
4. Procedural injustice <sup>c</sup>	2.58	.72	.46***	.43***	.56***	(.88)							
5. Interpersonal injustice <sup>c</sup>	2.10	.89	.40***	.43***	.43***	.64***	(.93)						
6. Informational injustice <sup>c</sup>	2.43	.78	.38***	.40***	.45***	.67***	.73***	(.93)					
7. Belief in ultimate justice <sup>d</sup>	11.62	4.08	-.19***	-.18***	-.21***	-.14**	-.15***	-.20***	(.87)				
8. SBI <sup>1,c</sup>	2.93	.69	.35***	.24***	.16***	.16***	-.11*	.21***	-.16***	(.86)			
9. Equity sensitivity <sup>e</sup>	26.93	5.62	-.12**	-.17***	-.11*	-.20***	-.17***	-.12**	.17***	-.23***	(.79)		
10. Supervisory support <sup>f</sup>	4.88	1.18	-.45***	-.52***	-.45***	-.60***	-.70***	-.66***	.18***	-.23***	.19***	(.97)	
11. Other social support <sup>g</sup>	24.90	4.09	-.26***	-.32***	-.27***	-.22***	-.28***	-.25***	.26***	-.13**	.05	.27**	(.74)

*Note.* \*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$ . <sup>a</sup> scores can range from 0 to 56. <sup>b</sup> scores can range from 12 to 48. <sup>c</sup> rating scale from 1 through 5. <sup>d</sup> scores can range from 0 to 20. <sup>e</sup> scores can range from 0 to 50. <sup>f</sup> a rating scale from 1 through 7. <sup>g</sup> scores can range from 0 to 32. <sup>1</sup> Sensitivity to befallen injustice

Table 2

*Multiple Regression for Stress Mediating Injustice and Strain*

Model	Independent	Dependent	$\beta$	se $\beta$	F	Adjusted $R^2$	$\Delta R^2$
1	Distributive Injustice	Stress	.26***	.53	27.06***	.26	
	Procedural Injustice		.21***	.74			
	Interpersonal Injustice		.15**	.61			
	Informational Injustice		.00	.74			
2	Distributive Injustice	Strain	.19***	.44	24.91***	.26	
	Procedural Injustice		.16**	.62			
	Interpersonal Injustice		.22***	.51			
	Informational Injustice		.03	.61			
3	Distributive Injustice	Strain	.01	.08	89.53***	.60	.34***
	Procedural Injustice		.01	.07			
	Interpersonal Injustice		.12**	.09			
	Informational Injustice		.03	.09			
	Stress		.70***	.04			

Note. N = 296. \*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$ .

Table 3

*Moderated Regression Results for Stress Regressed on Belief in Ultimate Justice and Injustice*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		27.01***		
Distributive injustice	.26***		.26	.26***
Procedural injustice	.21***			
Interpersonal injustice	.15**			
Informational injustice	.00			
Step 2:		22.40***		
Distributive injustice	.24***			
Procedural injustice	.22***			
Interpersonal injustice	.15**			
Informational injustice	.01			
Belief in ultimate justice	-.09*		.27	.01*
Step 3:		13.01***		
Distributive injustice	.25***			
Procedural injustice	.23***			
Interpersonal injustice	.13*			
Informational injustice	.01			
Belief in ultimate justice	-.09*			
Belief in ultimate justice X distributive injustice	.08			
Belief in ultimate justice X procedural injustice	-.11			
Belief in ultimate justice X interpersonal injustice	-.07			
Belief in ultimate justice X informational injustice	.05		.27	.01

Note. N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 4

*Moderated Regression Results for Stress Regressed on Sensitivity to Befallen Injustice and Injustice*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		27.01***		
Distributive injustice	.26***		.26	.26***
Procedural injustice	.21***			
Interpersonal injustice	.15**			
Informational injustice	.00			
Step 2:		30.31***		
Distributive injustice	.24***			
Procedural injustice	.21***			
Interpersonal injustice	.22**			
Informational injustice	-.06			
Sensitivity to befallen injustice	.28***		.33	.07***
Step 3:		17.66***		
Distributive injustice	.22***			
Procedural injustice	.17**			
Interpersonal injustice	.20***			
Informational injustice	-.03			
Sensitivity to befallen injustice	.28***			
Sensitivity to befallen injustice	-.04			
X distributive injustice				
Sensitivity to befallen injustice	.18**			
X procedural injustice				
Sensitivity to befallen injustice	-.05			
X interpersonal injustice				
Sensitivity to befallen injustice	-.04		.34	.01
X informational injustice				

Note. N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 5

*Moderated Regression Results for Stress Regressed on Equity Sensitivity and Injustice*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		27.01***		
Distributive injustice	.26***		.26	.26***
Procedural injustice	.21***			
Interpersonal injustice	.15**			
Informational injustice	.00			
Step 2:		21.48***		
Distributive injustice	.26***			
Procedural injustice	.21***			
Interpersonal injustice	.22***			
Informational injustice	.15*			
Equity sensitivity	-.02		.26	.00
Step 3:		12.09***		
Distributive injustice	.25***			
Procedural injustice	.22***			
Interpersonal injustice	.14*			
Informational injustice	.00			
Equity sensitivity	-.04			
Equity sensitivity X distributive injustice	-.05			
Equity sensitivity X procedural injustice	-.08			
Equity sensitivity X interpersonal injustice	.01			
Equity sensitivity X informational injustice	.08		.26	.00

Note. N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 6

*Moderated Regression Results for Stress Regressed Perceived Supervisory Support and Injustice*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		27.01***		
Distributive injustice	.26***		.26	.26***
Procedural injustice	.21***			
Interpersonal injustice	.15**			
Informational injustice	.00			
Step 2:		24.31***		
Distributive injustice	.24***			
Procedural injustice	.18**			
Interpersonal injustice	.05			
Informational injustice	-.05			
Perceived supervisory support	-.23***		.28	.02***
Step 3:		15.17***		
Distributive injustice	.21***			
Procedural injustice	.19**			
Interpersonal injustice	.10			
Informational injustice	-.07			
Perceived supervisory support	-.27***			
Perceived supervisory support	-.08			
X distributive injustice				
Perceived supervisory support	.16**			
X procedural injustice				
Perceived supervisory support	.17**			
X interpersonal injustice				
Perceived supervisory support	-.14		.30	.03**
X informational injustice				

Note. N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 7

*Moderated Regression Results for Stress Regressed on Other Support and Injustice*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		27.01***		
Distributive injustice	.26***		.26	.26***
Procedural injustice	.21***			
Interpersonal injustice	.15**			
Informational injustice	.00			
Step 2:		22.91***		
Distributive injustice	.24***			
Procedural injustice	.22***			
Interpersonal injustice	.13*			
Informational injustice	.00			
Other support	-.12**		.27	.01**
Step 3:		13.48***		
Distributive injustice	.24***			
Procedural injustice	.20**			
Interpersonal injustice	.14*			
Informational injustice	.00			
Other support	-.14**			
Other support X distributive injustice	-.04			
Other support X procedural injustice	.08			
Other support X interpersonal injustice	.10			
Other support X informational injustice	-.02		.28	.01

Note. N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 8

*Moderated Regression Results for Strain Regressed on Perceived Supervisory Support and Stress*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		416.94***		
Stress	.77***		.59	.59***
Step 2:		244.03***		
Stress	.67***			
Perceived supervisory support	-.22***		.62	.04***
Step 3:		162.44***		
Stress	.67***			
Perceived supervisory support	-.15			
Perceived supervisory support	-.08		.62	.00
X stress				

*Note.* N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 9

*Moderated Regression Results for Strain Regressed on Other Support and Stress*

Variable	$\beta$	$F$	Adjusted $R^2$	$\Delta R^2$
Step 1:		416.94***		
Stress	.77***		.59	.59***
Step 2:		221.24***		
Stress	.73***			
Other support	-.13***		.60	.01***
Step 3:		147.58***		
Stress	.73***			
Other support	-.02			
Other support X stress	-.11		.60	.00

*Note.* N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

Table 10

*Analysis of the Mediating Role of Stress on Strain and the Interactions between Injustice and Moderating Variables*

Model	SUP <sup>1</sup> X PJ <sup>2</sup>	SUP X INT <sup>3</sup>
Model 1:		
$\beta$	-.09	-.08
se $\beta$	.02	.01
$F$	2.34	2.05
Adjusted $R^2$	.01	.01
Model 2:		
$\beta$	-.04	-.06
se $\beta$	.02	.02
$F$	.52	1.13
Adjusted $R^2$	.00	.00
Model 3:		
$\beta$ (Stress)	.76***	.76***
$\beta$ (Interaction)	-.06	-.04
se $\beta$ (Stress)	.03	.03
se $\beta$ (Interaction)	.01	.01
$F$	210.55	208.86***
Adjusted $R^2$	.59	.59

*Note.* N = 296. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

<sup>1</sup>Perceived supervisory support

<sup>2</sup>Procedural injustice

<sup>3</sup>Interpersonal injustice

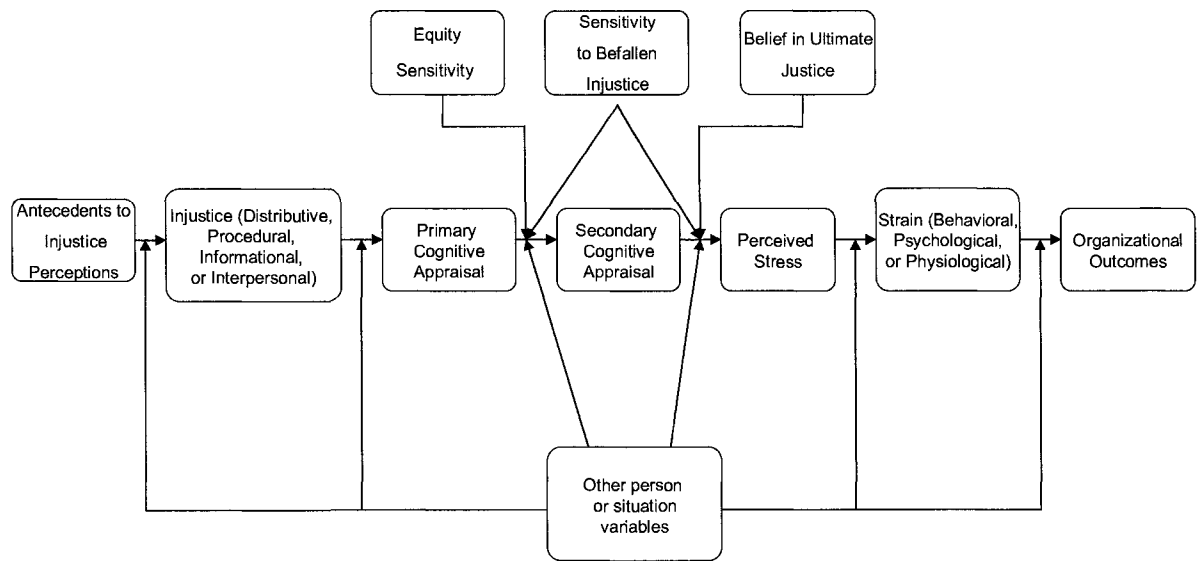


Figure 1. The Injustice and Stress Framework (ISF).

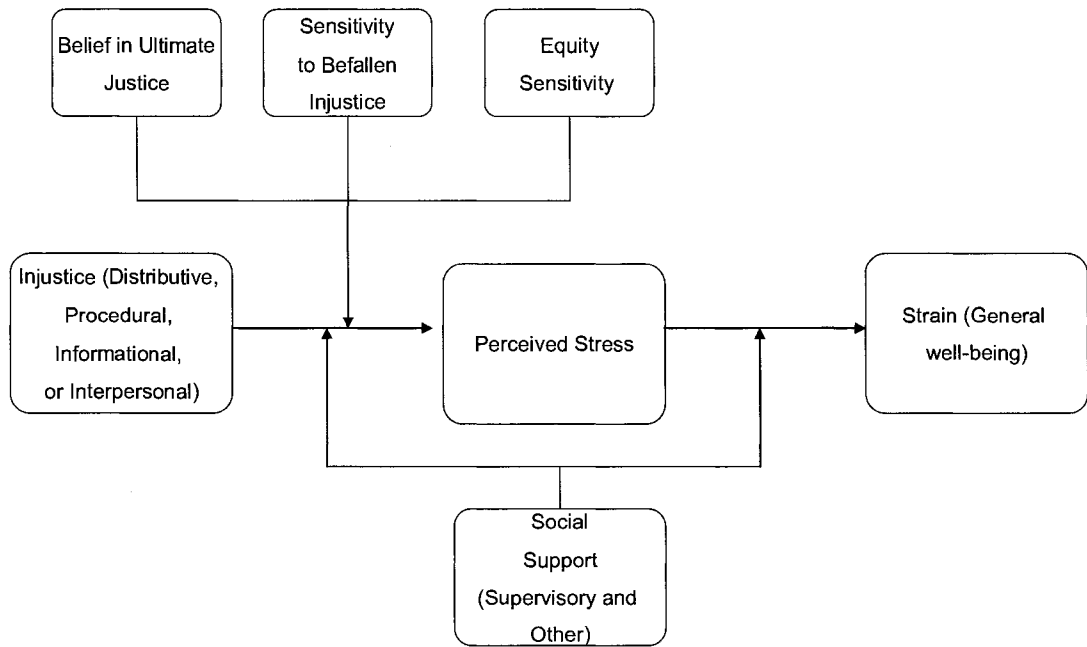


Figure 2. The hypothesized model for the current study.