Hostility, Job Attitudes, and Workplace Deviance:

Test of a Multi-Level Model

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Abstract

We tested a model, inspired by Affective Events Theory (Weiss & Cropanzano, 1996), which examined the dynamic nature of emotions at work, work attitudes, and workplace deviance. Sixty-four employees completed daily surveys over three weeks reporting their mood, job satisfaction, perceived interpersonal treatment, and deviance. Supervisors and significant others also evaluated employees’ workplace deviance and trait hostility, respectively. Over half of the total variance in workplace deviance was within-individual, and this intra-individual variance was predicted by momentary hostility, interpersonal justice, and job satisfaction. Moreover, trait hostility moderated the interpersonal justice – state hostility relationship such that perceived injustice was more strongly related to state hostility for individuals high in trait hostility.
For most individuals, work is a context in which they devote most of their waking hours and from which they derive a central measure of their identities (Hulin, 2002). It is no surprise, then, that the workplace is a forum for the expression of various behaviors that are of consequence to individuals, organizations, and society. Although some of these organizational behaviors—such as helping or “citizenship” behaviors—are socially desirable (judged favorably by most members of society), another set of behaviors may be viewed by many as improper or outside normal conventions of acceptability. These behaviors have been investigated under various labels, including workplace deviance (Bennett & Robinson, 2003), counterproductive behavior (Mangione & Quinn, 1975), and antisocial behavior (Giacalone & Greenberg, 1997). Robinson and Bennett (1995) defined workplace deviance as “voluntary behavior of organizational members that violates significant organizational norms, and in so doing, threatens the well-being of the organization and/or its members” (p. 556). Although deviance has been conceptualized and measured at varying levels of specificity, conceptual (Hulin, 1991) and empirical (Lee & Allen, 2002) research has suggested the benefits of considering the specific behaviors as indicators of a broad unitary construct.

In their review of the literature on the antecedents of workplace deviance, Bennett and Robinson (2003) noted the existence of three distinct research trends: (1) studies where deviance is conceptualized as a reaction to experiences at work; (2) those that examine deviance as a reflection of employees’ personality; and (3) studies investigating deviance as adaptation to the social context at work. In the first set of influences (deviance as a reaction to work experiences), research has established that job dissatisfaction is related to measures of deviance in particular
(Bennett & Robinson, 2003), and withdrawal behaviors more generally (Hulin, 1991). Second, though perhaps falling in between the first and second areas because it has been based on between-individual designs, evidence suggests that anger and hostility are positively related to deviance or counterproductive behaviors (Fox & Spector, 1999; Lee & Allen, 2002).

Finally, in the third category (deviance as adaptation to the social context), Robinson and Greenberg (1998) note that unfair interpersonal treatment is a prominent social influence on deviance. The key concept here may be interpersonal justice. Following Bies and Moag’s (1986) introduction of interactional justice, Greenberg (1993a) proposed that interactional justice be separated into two components: informational justice and interpersonal justice. Interpersonal justice captures the respect (e.g., treating people with dignity and courtesy) and proprietary (e.g., refraining from improper comments) criteria of interactional justice, and is concerned with the fairness of interpersonal treatment that individuals receive. A recent meta-analysis provided supported for the distinction of interpersonal justice from the other justice dimensions and demonstrated that, of the four types of justice (distributive, procedural, interpersonal, informational), interpersonal justice is most strongly related to deviant behaviors (Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

In this paper, we consider a model that opens up another area of research, though it includes many of the previously-studied constructs at a different level of analysis. Specifically, we study the dynamic associations of job attitudes (job satisfaction), the social context (interpersonal justice), affect (in the form of state hostility), and the moderating effect of personality (trait hostility), with workplace deviance. In doing so, we respond to Mischel and Shoda’s (1998) call for studying intra-individual processing and inter-individual differences (personality traits) within an integrated research framework. Robinson and Greenberg (1998)
note: “Current conceptualizations of workplace deviance are static in nature” (p. 22). This suggests that the literature on workplace deviance can be advanced theoretically and empirically by studying dynamic (within-individual, longitudinal) processes (Bennett & Robinson, 2003). The model we develop was inspired by Weiss and Cropanzano’s (1996) Affective Events Theory (AET), which considers the dynamic nature of workplace affect, attitudes, and behaviors. In the next section of the paper, we present the model, discuss its genesis in AET, and, finally, hypothesize relationships among the constructs.

Model and Hypotheses

The hypothesized model is shown in Figure 1. Consistent with AET (Weiss & Cropanzano, 1996), the model incorporates cognitive, affective, and attitudinal states (interpersonal justice perceptions, state hostility, and job satisfaction), as well as dispositional constructs (trait hostility), with workplace deviance being the end criterion variable. We decided to focus on interpersonal justice because of its relatively stronger relationship with deviant behaviors (Colquitt et al., 2001), and also because it is likely that interpersonal justice exhibits greater intraindividual variability (e.g., day to day) than distributive or procedural justice. This notion of intraindividual variability in behavior (changes across time) fits well with the focus of AET on the dynamic nature of events and affect.

AET proposes that the work environment generally and work events specifically lead to affective reactions (e.g., anger, joy) experienced at work, which then lead to work attitudes such as job satisfaction and work behaviors, which may be affect-driven or judgment-driven. A core premise of affective events theory is that job satisfaction must be distinguished from affect (mood or emotions) experienced at work, and that each (emotions and job satisfaction) are likely to have independent influences on workplace behaviors. Another key assertion is that models
which incorporate work affect must be dynamic in nature. As Weiss and Cropanzano (1996, p. 65) note, “Research on mood and emotion clearly indicates that affect levels fluctuate over time and that the patterns of these fluctuations are predictable to a great extent.”

Though tests of parts of AET are accumulating (e.g., Fisher, 2002), the model we develop in Figure 1 represents the first application of AET to workplace deviance. The model is broadly consistent with AET in proposing that an attribute of the social context (interpersonal justice) leads to an affective reaction (state hostility) which then, in turn, leads to job satisfaction and, finally, to a behavior (workplace deviance). Implicit in this model is the assumption that workplace deviance is, at least in part, affect-driven. Although Weiss and Cropanzano do not discuss workplace deviance per se, they note that numerous withdrawal behaviors may be affect-driven because they are less “considered,” tend to be spontaneous, and thus are more likely to reflect immediate affect levels. However, deviant behavior need not be spontaneous in every occasion; individuals may also engage in workplace deviance after cognitive deliberation. Thus, in the current study, we conceptualize workplace deviance as both an affect-driven behavior and a judgment-driven behavior. This position fits well with recent research by Lee and Allen (2002), who reported that both job affect and job cognitions predicted workplace deviance, and with AET, which includes both types of behaviors. Having discussed the origins of the hypothesized model, we next discuss the hypothesized relationships within the model.

Hypotheses

According to AET (Weiss & Cropanzano, 1996), events are defined simply as “a change in circumstances, a change in what one is currently experiencing” (p. 31). AET focuses on “significant” events, that is, events that “generate an emotional reaction or mood change in people” (p. 31). Following Weiss, Suckow, and Cropanzano (1999), we propose that instances of
interpersonally unfair treatment are significant events which trigger negative emotions. In essence, unfair treatment is a “shock” that generates both an affective reaction and a cognitive appraisal of the situation. Fortunately, one theory of organizational justice, fairness theory (Folger & Cropanzano, 2001), specifically addresses the role of emotions in unfair treatment and is discussed below.

An extension of referent cognitions theory (Folger, 1987), fairness theory (Folger & Cropanzano, 2001) stipulates that emotions are an important part of reactions to injustice and stresses that justice assessments frequently are made in a rapid and automatic fashion. An individual who determines that a transgressor has violated some internal moral standard is likely to experience negative emotions such as anger and hostility (Folger, 1987). Bies (1987) describes these feelings as “moral outrage,” and Folger, Cropanzano, and Goldman (in press) discuss these feelings as a “deontic response,” that is, an obligatory response to some event. Furthermore, the nature of emotions associated with injustice is likely to be specific. Watson (2000, p. 39) suggests, “When we are treated unfairly by another person, we feel anger and annoyance, not guilt and nervousness.” A study of terminated employees by Goldman (2003) supported this notion and demonstrated that state anger partially mediated the relationship between justice and legal-claiming. Moreover, interactional justice displayed the strongest relationship with state anger, controlling for distributive and procedural justice. Although the empirical results by Goldman (2003) were between-individual, we expect instances of interpersonal injustice to be related to hostile emotions, within-individuals. To date, this has not been examined empirically. However, the tenets of both AET and fairness theory do not imply strictly between-individual effects. In fact, AET particularly stresses the importance of examining work events and affective states over time.
H-1: Within individuals, interpersonal justice will be negatively related to state hostility (across time).

Interpersonal injustice may not only induce the experience of negative emotions, such as hostility, but should also decrease employees’ satisfaction with their job. Because job satisfaction reflects individuals’ evaluations of various aspects of their jobs, and injustice represents a negative aspect of the job, when individuals feel that they have been treated unjustly at work, they will naturally experience lower satisfaction with their job. The results of the meta-analysis on organizational justice by Colquitt et al. (2001) showed that between-individual differences in interpersonal justice were moderately and positively related to job satisfaction. Employees who are treated fairly during their interactions with their supervisors are more likely to view their job and job experiences as more satisfying than those who are treated unfairly. However, the dynamic, within-individual nature of interpersonal justice and job satisfaction has yet to be examined. On this point, AET suggests that work events (in this case, instances of injustice) are associated with work attitudes such as job satisfaction and may fluctuate over time. Accordingly, we expect that daily occurrences of unfair treatment will impact an individual’s appraisal of his or her job satisfaction.

H-2: Within individuals, interpersonal justice will be positively related to job satisfaction (across time).

Though past research has not considered the dynamic state hostility – job satisfaction relationship, theoretically, the relationship can be supported from the literatures on emotional labor and emotional control. The literature on emotional labor suggests that the display (or suppression) of emotions—the act of conforming to a display rule (Ashforth & Humphrey, 1993)—promotes feelings of estrangement, dissonance, and exhaustion (Glomb & Tews, 2004).
Indeed, in social psychology, research on the suppression of emotional expression suggests that suppression strategies are not an effective means of diminishing the subjective experience of the emotion (Levenson, 1994). Thus, if individuals experience anger while at work, workplace norms may work to suppress the expression of anger. But since the emotion itself is unmitigated, it should continue to be dissatisfying, and the suppression may breed further frustration, suggesting that lower job satisfaction will result.

Previously, we suggested that state hostility is an outcome of interpersonally unfair treatment (see H-1). Returning to AET, the effects of work events on work attitudes are transmitted through affective reactions. Following an event, individuals first experience emotions and then turn to cognitive appraisals. In the context of the present study, this suggests that state hostility should mediate, as least in part, the relationship between interpersonal justice and job satisfaction.

H-3: Within individuals, state hostility will be negatively related to job satisfaction (H-3a), and state hostility will partially mediate the relationship between interpersonal justice and job satisfaction (H-3b).

We are aware of no published research on the within-individual relationship between job satisfaction and workplace deviance. However, both theory and empirical data can be used to support such a link. Theoretically, if deviant behavior is a form of adaptation, then it stands to reason that deviance represents a means of adjusting to a frustrating job. Dissatisfied employees may engage in deviant behavior as a cathartic means of restoring control over the job (Bennett & Robinson, 2003). Alternatively, deviance can be seen as a form of withdrawal where employees engage in behaviors to reduce job inputs (Hulin, 1991). Empirically, the job satisfaction – withdrawal relationship is relatively strong and robust (Hulin, 1991, 2002). Though the empirical
support is between-individual, we expect job satisfaction to be related to workplace deviance within-individuals as well. If workplace deviance is a form of withdrawal/adaptation, or even the result of catharsis (Bennett & Robinson, 2003), then it is reasonable to expect that the adaptation takes place on a “real time” basis. This is especially apparent after one considers the definition of job satisfaction as a state (Locke, 1976), which implies that satisfaction levels may vary from one day to the next.

H-4: Within individuals, job satisfaction will be negatively related to workplace deviance (across time).

Andersson and Pearson (1999) hypothesized that feelings of anger increase the probability of enactment of organizational incivility. In a between-individuals study, Lee and Allen (2002) found that of the three positive affects and four negative affects investigated, hostility had the strongest correlation with workplace deviance ($r = .27$, $p < .01$). Similarly, Fox and Spector (1999) found that anger correlated $r = .59$ with self-reported counterproductive behaviors. Though these studies suggest that hostility is related to workplace deviance, because they used between-individual measures, they are unable to address the dynamic, within-individual association between state hostility and deviant behavior.

AET suggests that affective reactions such as hostility are directly related to affect-driven behaviors (Weiss & Cropanzano, 1996). In contrast, the effects of affective reactions on judgment-driven behaviors are mediated by work attitudes. As discussed previously, workplace deviance contains both affective and cognitive components (Lee & Allen, 2002). Thus, hostile emotions should exert both direct effects and indirect effects on deviant behaviors. In particular, feelings of reduced job satisfaction should partially mediate the relationship between state hostility and workplace deviance. Thus,
H-5: Within individuals, state hostility will be positively related to workplace deviance (H-5a), and job satisfaction will partially mediate the state hostility – workplace deviance relationship (H-5b).

As discussed previously, fairness theory (Folger & Cropanzano, 2001) suggests that negative emotions often accompany instances of injustice. Furthermore, these negative emotions can illicit behavioral responses before an individual considers reasons for behaving in one way or another (Folger et al., in press). This “moral outrage” (Bies, 1987) motivates individuals to seek retribution by punishing the transgressor. This can be accomplished in a variety of ways, including deviant behaviors such as theft (Greenberg, 1993b), retaliatory behaviors (Skarlicki & Folger, 1997), and sabotage (Ambrose, Seabright, & Schminke, 2002). Supporting the link between interpersonal justice and workplace deviance is the meta-analysis of organizational justice by Colquitt et al. (2001). The results of the meta-analysis revealed that interpersonal justice was the strongest predictor of workplace deviance, controlling for the other justice dimensions. To the extent that workplace deviance is an affect-driven behavior, interpersonal justice should have direct effects on workplace deviance. However, as stated above, workplace deviance may also be a judgment-driven behavior that results from the cognitive evaluation of one’s job (Lee & Allen, 2002). According to AET, work attitudes mediate the relationship between work events and judgment-driven behaviors. Thus, in the context of the current study, this suggests that job satisfaction should partially mediate the association between interpersonal justice and workplace deviance.

H-6: Within individuals, interpersonal justice will be negatively related to workplace deviance (H-6a), and job satisfaction will partially mediate the interpersonal justice – workplace deviance relationship (H-6b).
Moderating Effect of Trait Hostility

To study inter-individual differences in the patterns of intra-individual processing (e.g., Mischel & Shoda, 1998), we examine the moderating effect of trait hostility on the magnitude of individuals’ affective reactions—conceptualized as state hostility—to injustice, across time. Because affective traits represent individual differences in the tendency to experience a corresponding emotional state (Watson, 2000), we focus on trait hostility and not on broader traits such as neuroticism in order to maintain a close correspondence between the state and trait conceptualizations of affect. Our focus on both within- and between-individual levels of analyses and our use of state and trait conceptualizations of hostility fits rather well with the dual conceptualization of hostility, or anger, as a reaction to a specific event or series of events, as well as a reflection of a dispositional trait (Plutchik, 2003).

AET specifically suggests that affective dispositions impact individuals’ reactions to events. According to the theory, “Affective traits appear to act as latent predispositions that help set the stage for individuals to have more or less intense bouts of emotion” (Weiss & Cropanzano, 1996, p. 37). The authors further elaborate by stating that certain individuals, such as those high in negative affectivity, are “predisposed to react more strongly to negative events when they happen to occur” (p. 37). Given the conceptual similarities between negative affectivity and trait hostility, we would expect those high in trait hostility to react more strongly to negative events such as unfair treatment.

H-7: Trait hostility will moderate the within-individual interpersonal justice – state hostility relationship, such that the relationship will be stronger (more negative) for individuals high in trait hostility.
Method

Participants

Participants were 74 full-time employees located in organizations throughout the Southeastern United States. Participants represented a variety of occupations, including information technology, administration, and education. The average age of the sample was 36 years (SD = 9.2 years). The majority of respondents were female (72%).

Procedure

Participants were recruited for the study via an email letter describing the study and requesting their voluntary participation. Two individuals, one in a hospital administrative office and one in a public secondary educational institution, served as contacts who sent an email describing the study to their coworkers. It should be noted that these contacts were not of higher organizational status than any of the participants; otherwise, participants may have felt unfairly obligated to participate. The email, composed by the authors, described the study as an examination of the relationships among mood, personality, and workplace behavior. Given that the two contacts sent the email to coworkers they knew (rather than to a random list of employees), the sample is best described as a convenience sample. Individuals who wished to participate were instructed to go to a sign-up page on the study’s website. At this time, participants viewed the informed consent sheet online, which assured them that they could withdraw from the study at any time without penalty. Once individuals signed up for the study, the authors sent detailed instructions on how and when to participate. Between the hospital administrative office and the educational institution, approximately 115 individuals were asked to participate in the study. This initial pool of individuals, much like the final sample, was comprised primarily of females. Of these, 74 agreed to participate, resulting in a response rate of
64%. Data collection took place over three weeks, beginning in October and ending in November of 2003. Participants who completed the study received a $50 honorarium.

We used an interval-contingent experience-sampling methodology (ESM) in which a signal was sent via email to remind participants to complete a Web-based survey at the end of their workday. This daily survey was used to assess momentary mood, interpersonal justice, job satisfaction, and deviant behavior. Participants completed the daily survey Monday through Friday for a period of three weeks, resulting in a total of 15 possible observations for each individual. In order to maintain confidentiality and anonymity, participants entered a four-digit number of their choice each time they completed a daily survey. In addition, each participant provided this four-digit number to their immediate supervisor and significant-other in order to allow us to match the surveys. A separate webpage that participants used to sign up for the study collected participants’ names and addresses. This information was used only to compensate participants at the end of the study and was in no way matched to participants’ responses on the study questionnaires.

Given the demanding nature of an ESM design, we obtained useable responses from 64 of the 74 participants who originally volunteered for participation. We defined an individual as having useable data if he or she missed no more than three of the 15 possible daily surveys. Given that 64 individuals completed the study, the maximum number of observations across all individuals was 960. We obtained a total of 849 summated-scale ratings of mood, interpersonal justice, job satisfaction, and deviant behavior. This corresponds to an overall response rate of 88.4% across all individuals and time periods.

In addition to self-ratings of deviant behavior over time, we obtained ratings of participants’ workplace deviance from their immediate supervisor. Participants were instructed
to ask their immediate supervisor to complete a brief online questionnaire. Supervisors who agreed to participate were then provided with a link to the online survey as well as a statement ensuring confidentiality. Finally, participants had a significant-other (spouse, partner, close relative, etc.) complete a survey assessing the participant’s trait hostility. We collected data from participants’ significant-others in the same manner that we did for participants’ supervisors. We obtained complete data from supervisors and significant-others for the 64 individuals in the study. In addition, we collected Internet Protocol (IP) addresses with each online survey to determine that the supervisor surveys and significant-other surveys were not simply completed by the participants themselves.

Measures

**Workplace deviance.** We measured workplace deviance using the scale developed by Bennett and Robinson (2000). Although Bennett and Robinson (2000) have conceptualized deviance as consisting of two dimensions (interpersonal and organizational), the dimensions are very highly correlated \( \hat{r}_c = .86 \) in Bennett & Robinson [2000]; \( \hat{r}_c = .96 \) in Lee & Allen [2002]). Thus, consistent with Lee and Allen (2002), we did not distinguish between the two dimensions.

For the supervisor survey, the instructions stated to “indicate how often the individual who gave you this survey has engaged in the behavior during the past three months” using a Likert scale of 1 = Never to 5 = Often. Sample items included: “Taken property from work without permission,” “Littered the work environment,” “Cursed at someone at work,” and “Left work early without permission.” Coefficient alpha for this scale was \( \alpha = .86 \).

For the daily survey, we measured deviance using 11 items from Bennett and Robinson’s (2000) measure of workplace deviance. Given that participants completed the daily survey during work hours, it was important to keep the survey brief. Thus, we eliminated items that
would have been unlikely to vary on a daily basis or to occur during a short time period. An example would be: “Discussed confidential company information with an unauthorized person.” For the items included in the survey, participants were instructed to “indicate how often you engaged in the behavior today” using a Likert scale of 1 = Never to 5 = Often. Sample items included: “Worked on a personal matter instead of work for your employer,” “Said something hurtful to someone at work,” “Came in late to work without permission,” “Intentionally worked slower than you could have worked,” and “Acted rudely toward someone at work.” The average (across days) coefficient alpha for this scale was $\alpha = .73$.

Interpersonal justice. We used the measure of interpersonal justice developed by Colquitt (2001). Participants were asked the extent to which their supervisor had engaged in specific behaviors each day using a Likert scale of 1 = Never to 5 = Often. The four items were: “Has he/she treated you in a polite manner?” “Has he/she treated you with dignity?” “Has he/she treated you with respect?” and “Has he/she refrained from improper remarks or comments?” The average (across days) coefficient alpha for this scale was $\alpha = .93$.

Job satisfaction. We assessed job satisfaction using the five-item version of the Brayfield and Rothe (1951) measure. All items were measured using a five-point Likert scale with anchors 1 = Strongly Disagree to 5 = Strongly Agree. Participants indicated the extent to which they agreed with the following statements about their job each day: “At this very moment, I am enthusiastic about my work,” “Right now, I feel fairly satisfied with my present job,” “At present, each minute at work seems like it will never end” (reverse-scored), “At this moment, I am finding real enjoyment in my work,” and “Right now, I consider my job rather unpleasant” (reverse-scored). The average (across days) coefficient alpha for this scale was $\alpha = .89$. 
State hostility. We assessed state hostility with the hostility subscale of the PANAS-X (Watson & Clark, 1994). Participants were instructed to “indicate to what extent you experience the following states right now” using a five point Likert scale with anchors 1 = Very Slightly or Not At All to 5 = Very Much. Sample adjectives for hostility included: “angry,” “hostile,” “irritable,” “scornful,” and “disgusted.” The average (across days) coefficient alpha for this scale was $\alpha=.83$.

Trait hostility. We assessed participants’ trait hostility using items from the measure developed by Buss and Perry (1992) and from the Angry Hostility scale of the NEO Personality Inventory (Costa & McCrae, 1992). A significant-other for each participant responded to the seven statements using a Likert scale of 1 = Strongly Disagree to 5 = Strongly Agree. Sample items included: “Often gets angry at the way people treat him or her,” “It takes a lot to get him or her mad” (reverse-scored), “Even minor annoyances can be frustrating to him or her,” and “When frustrated, s/he lets his or her irritation show.” Coefficient alpha for this scale was $\alpha=.80$.

In order to provide evidence of external validation to an independent report for the significant-other reports of trait-hostility, we also collected self-ratings of participants’ trait hostility by having participants respond to the same set of items above. Coefficient alpha for this scale was $\alpha=.67$.

Analyses

To model the relationships among mood, justice perceptions, job satisfaction, and workplace deviance within individuals, and to examine the moderating role of trait hostility, we used hierarchical linear modeling (HLM; Byrk & Raudenbush, 1992). HLM allows one to analyze variables at multiple levels of analysis in a series of regression equations. In the current study, the first level of analysis (level-1) includes the daily, repeated measures (over time) of
mood, interpersonal justice, job satisfaction, and deviance. The second level of analysis (level-2) includes the measure of trait hostility assessed by each participant’s significant-other. Thus, the level-1 variables are “nested” within the level-2 variables. The level-1 variables are at the within-individual level of analysis, while the level-2 variables are at the between-individual level of analysis. We used HLM 5 (Byrk, Raudenbush, & Congdon, 2000) to analyze the hierarchical models.

In order to interpret the estimates as representing strictly within-individual relationships, we centered the predictor variables at each individual’s mean (Hofmann, Griffin, & Gavin, 2000). This form of centering removes any between-individual variance in estimating within-individual relationships among the variables, meaning that the relationships among the within-individual variables are unconfounded by personality or other individual differences.

Results

Correlations

We first calculated both within-individual and between-individual correlations among the variables. These correlations are provided in Table 1. Estimates above the diagonal represent between-individual correlations. Within-individual correlations below the diagonal were obtained by calculating standardized effects from simple (one independent variable) regressions in HLM using centered predictors. Of note are the correlations between the self and other reports for workplace deviance and trait hostility. The supervisor report of employee workplace deviance correlated \( \hat{r} = .40 \) \( (p < .01) \) with the aggregated employee self-report of deviance, and the significant-other report of trait hostility correlated \( \hat{r} = .55 \) \( (p < .01) \) with the employee self-report of trait hostility. This level of self-other agreement suggests that the self-reported
measures of workplace deviance and trait hostility have external validation to independent reports.

It should be noted that the IP addresses for all but three of the participants were different for their daily surveys and their respective supervisor survey, providing some evidence that the supervisor surveys were not simply completed by the participants themselves. However, we did not feel that there was sufficient evidence for the three participants with matching IP addresses for the daily and supervisor surveys to rule out the possibility of self-completion. Thus, we excluded these individuals and re-estimated the correlation between the aggregated self ratings of workplace deviance and the supervisor ratings of workplace deviance. Excluding these three individuals did not change the magnitude of the correlation ($\hat{r} = .40, p < .01$).

**Partitioning of Variance Components**

Before proceeding to test the linkages in the hypothesized model with HLM, we investigated whether systematic within- and between-individual variance existed in the criterion variables (state hostility, job satisfaction, and workplace deviance) by estimating a null model for each variable. The null model partitions the total variance of a dependent variable into within- and between-individual components, and the intercept for each null model represents the average level of that variable across individuals. If no within-individual variance exists in the criterion variables, then HLM would not be appropriate because there only would be between-individual variance to explain (i.e., there would be only one level of analysis). As shown in Table 2, the null model results indicated that there was significant between-individual variance in each of the dependent variables ($p < .01$ for all variables) and that a substantial proportion ($P = \rho^2/[\rho^2+\tau_{00}]$) of the total variance in these dependent variables was within individuals. Specifically, 65% of the variance in state hostility was within-person, 33% of the variance in job satisfaction was within-
person, and 53% of the variance in workplace deviance was within-person. These results suggested that hierarchical modeling of these data was appropriate and that there was substantial within-person variability in the dependent construct scores to potentially be explained.

**Tests of Hypotheses**

*Main effects*. In order to test the main effects in Figure 1 (Hypotheses 1, 2, 3a, 4, 5a, and 6a) a series of regressions with level-1 variables were estimated in HLM to predict: (1) state hostility; (2) job satisfaction; and (3) workplace deviance. H-1 predicted that interpersonal justice would be negatively related to state hostility, within-individuals. The regression results predicting state hostility are provided in Table 3. As the table shows, at level-1, interpersonal justice was negatively related to state hostility. Thus, within-individuals, perceptions of injustice were associated with feelings of hostility on a day-to-day basis, supporting H-1.

H-2 predicted that interpersonal justice would be positively related to job satisfaction, within-individuals, and H-3a predicted that state hostility would be negatively related to job satisfaction, within-individuals. The regression results predicting job satisfaction are provided in Table 4. As results in the table show, at level-1, interpersonal justice was positively related to job satisfaction, and state hostility was negatively related to job satisfaction. Thus, within-individuals, perceptions of justice and reduced feelings of hostility were associated with increased job satisfaction on a day-to-day basis, supporting H-2 and H-3a, respectively.

H-4 and H-6a predicted that job satisfaction and interpersonal justice would be negatively related to workplace deviance, within-individuals, and H-5a predicted that state hostility would be positively related to workplace deviance, within-individuals. The regression results predicting workplace deviance are provided in Table 5. The top portion of the table displays the direct effects of interpersonal justice and state hostility on workplace deviance. As results in the table
show, at level-1, interpersonal justice was not significantly related to deviance, failing to support H-6a. However, it should be noted that the zero-order correlation between interpersonal justice and workplace deviance was negative and significant (see Table 1), a result which we revisit in the mediation section. In contrast to the level-1 results for interpersonal justice, state hostility was positively related to workplace deviance, supporting H-5a. Finally, the bottom portion of Table 5 shows that, at level-1, job satisfaction was negatively related to workplace deviance, supporting H-4. It is important to note that because the predictors were individual-mean centered, these results are solely within-individual and therefore not confounded by traits or other individual differences.

Cross-level moderating effects. One benefit of HLM is that cross-level moderating effects can be tested. Cross-level moderation is indicated when a level-2 variable significantly predicts the slope of a given level-1 relationship, thus moderating “across” levels. For the current study, we were interested in determining whether trait hostility (a level-2 variable assessed independently by significant others) moderated the within-individual relationship between interpersonal justice and state hostility. In order to determine this, we added trait hostility as a predictor of the level-1 one regression of state hostility on interpersonal justice. The bottom portion of Table 3 presents the effect of trait hostility on the level-1 relationship between interpersonal justice and state hostility. The negative value of the coefficient ($\beta_1 = -.16, p < .01$) as well as inspection of the interaction graphically (see Figure 2), shows that the nature of the interaction was as hypothesized. Specifically, individuals high on trait hostility were more sensitive to justice violations in that the interpersonal justice – state hostility relationship was stronger for individuals high on trait hostility than for those low on the trait, supporting H-7.
Mediating effects. In order to test the mediation hypotheses (Hypotheses 3b, 5b, and 6b), we conducted level-1 regressions controlling for the mediator and then compared the results to regressions without the mediator included. H-3b predicted that state hostility would partially mediate the relationship between interpersonal justice and job satisfaction, within-individuals. In a regression predicting within-individual variation in job satisfaction with only interpersonal justice, the unstandardized ($\hat{\beta}_u$) and standardized ($\hat{\beta}_s$) coefficients were ($\hat{\beta}_u = .23$ and $\hat{\beta}_s = .17$). However, after controlling for state hostility (see Table 4), the unstandardized ($\hat{\beta}_u$) and standardized ($\hat{\beta}_s$) coefficients decreased ($\hat{\beta}_u = .14$ and $\hat{\beta}_s = .09$). Furthermore, to ascertain whether the mediated effect was statistically significant, we conducted the Sobel (1982) test, which revealed that the indirect effect of interpersonal justice on job satisfaction (through state hostility) was indeed significant ($p < .01$). The comparison of the standardized total effect ($\hat{\beta}_s = .17$) to the direct effect ($\hat{\beta}_s = .09$) suggests that nearly half (47%) of the within-individual effect of interpersonal justice on job satisfaction was mediated through state hostility, providing support for H-3b.

H-5b predicted that job satisfaction would partially mediate the relationship between state hostility and workplace deviance, and H-6b predicted that job satisfaction would partially mediate the relationship between interpersonal justice and workplace deviance. Results of the HLM level-1 regressions predicting workplace deviance are provided in Table 5. The top portion of Table 5 reveals that when interpersonal justice and state hostility were simultaneously entered in the regression predicting deviance (considered without job satisfaction), interpersonal justice was not significantly related to workplace deviance ($\hat{\beta}_s = -.09, ns$) whereas state hostility predicted within-individual variation in deviance significantly ($p < .01$) and relatively strongly.
As shown in the bottom portion of Table 5, when job satisfaction was added as a predictor of workplace deviance, interpersonal justice remained non-significant and state hostility remained significant ($p < .01$), though weaker in magnitude ($\hat{\beta}_s = .19$). The Sobel (1982) test for mediation revealed that the state hostility-job satisfaction-workplace deviance link was highly significant ($p < .01$), whereas the interpersonal justice-job satisfaction-workplace deviance mediated effect was significant at $p < .05$. However, because the direct interpersonal justice-workplace deviance effect was weak and not statistically significant, suggesting that there was no effect that could be mediated, we interpret the results as only suggestive of mediation through job satisfaction. Thus, $H-5b$ was supported, but results failed to solidly support $H-6b$. Worth noting is the significant zero-order correlation between interpersonal justice and workplace deviance, which suggests that the effect of interpersonal justice on deviance was entirely mediated through state hostility and job satisfaction. In other words, there is a positive association between interpersonal justice and workplace deviance that disappears once state hostility and job satisfaction were controlled (suggesting mediation).

**Additional Analyses**

**Analysis of gender differences.** Given that the sample was gender skewed (72% female), we investigated whether gender affected the relationships in our model by (1) determining whether gender significantly predicted the intercepts of the level-1 relationships, (2) determining whether gender acted as a cross-level moderator of the level-1 relationships, and (3) determining whether gender was significantly related to our level-2 variables. In order to examine the first issue, we estimated models for each level-1 variable with gender (a level-2 variable) as the only predictor. This analysis revealed that gender did not significantly predict the average level of any level-1 variable. Second, we entered gender as a cross-level moderator for each level-1
relationship tested in the model. The results of this analysis revealed that gender did not
moderate any of the hypothesized level-1 relationships. Finally, we correlated gender with each
level-2 variable and found no significant relationships. Thus, we can be confident that results do
not differ according to gender.

*Potential confound of negative affect and positive affect with state hostility.* As Weiss and
Cropanzano (1996) note, both moods and discrete emotions are ways of conceptualizing and
measuring affect. Because in this study we focused on a specific emotion (hostility), one might
wonder how the situation might change if a broader mood dimension, such as negative affect
(NA) or positive affect (PA), was studied. Indeed, a recurrent issue in the literature on mood and
emotions is whether specific emotions (e.g., joy, hostility, etc.) are superior to a dimensional
structure of affect (Diener, 1999). If specific emotions do not contribute to prediction beyond the
general dimension, then their relative usefulness would be called into question.

To address this issue, we first re-estimated the hypothesized model, including state
negative affect (measured using Watson and Clark’s [1994] NA scale; $\alpha = .79$) as a level-1
predictor. Negative affect was not a significant predictor of job satisfaction ($\hat{\beta}_U = -.09, p = .56,$
*ns*) or workplace deviance ($\hat{\beta}_U = .09, p = .13,$ *ns*). Moreover, controlling for NA did not change
the significance of the coefficients on state hostility. Next, we re-estimated the hypothesized
model with state positive affect (measured using Watson & Clark’s [1994] PA scale; $\alpha = .93$) as
a level-1 predictor. Although positive affect was not a significant predictor of workplace
deviance ($\hat{\beta}_U = -.02, p = .41,$ *ns*), it was a significant predictor of job satisfaction ($\hat{\beta}_U = .39, p < .05$). However, controlling for PA did not change the significance of the coefficients on state
hostility. Thus, it does not appear that the exclusion of NA or PA is a problem in these results.
**Potential confound of individual differences and time with justice perceptions.** Given that we measured perceptions of interpersonal justice rather than actual unjust events, one may question whether individuals’ perceptions of injustice were merely a result of some bias due to stable individual differences. With regards to the current study, individuals high in trait hostility or negative affect may have reported higher injustice not because they actually experienced greater unfair treatment, but rather because they tended to view events in a negative light (see LeBlanc & Barling, 2004; Smith, Sanders, & Alexander, 1990). In order to address this issue, we examined whether interpersonal justice was significantly related to measures of trait hostility, negative affect, and positive affect. As shown in Table 1, interpersonal justice was not significantly related to trait hostility (for significant-other-rated trait hostility, $\hat{r} = -.24, ns$; for self-rated trait hostility, $\hat{r} = -.16, ns$) or negative affect ($\hat{r} = -.22, ns$). Although interpersonal justice was positively correlated with positive affect ($\hat{r} = .40, p < .05$), controlling for positive affect did not change the significance of the relationship of interpersonal justice and job satisfaction or interpersonal justice and workplace deviance. Taken together, these results provide some evidence that reports of injustice were not confounded with the individual differences measured in this study.

Another potential concern with ratings of interpersonal justice is that by completing daily measures over a two-week period, individuals could have been cued to notice justice more. As a result, ratings of interpersonal justice may have increased artificially over time. To address this concern, we regressed ratings of interpersonal justice on time, within-individuals. Time was not a significant predictor of interpersonal justice ($\hat{\beta}_u = .00, ns$). This result suggests that, within-individuals, ratings of interpersonal justice were not influenced by time.
Discussion

Though the literature on workplace deviance is still in a nascent state, research on the topic has accumulated rapidly and is currently proceeding at a “hectic pace” (Robinson & Greenberg, 1998, p. 24). However, considerable room for development remains; one area for further development is to study the dynamic nature of deviant behavior (Bennett & Robinson, 2003, p. 269). As Robinson and Greenberg (1998, p. 22) noted, current conceptualizations of workplace deviance “fail to recognize how deviant behavior may shift in form and evolve over time” (p. 22). Indeed, though intra-individual variations in behavior have long been noted (Mischel & Shoda, 1998), research and theory on workplace deviance has focused exclusively on predicting individual differences in behaviors. Bennett and Robinson (2003) note, “To date, almost all the theoretical and empirical models of workplace deviance have taken a snapshot or state perspective on this set of behaviors” (p. 266).

Drawing from AET (Weiss & Cropanzano, 1996), we attempted to address this void in the literature by modeling both inter- and intra-individual variation in deviant behavior. Our results revealed that, in fact, a substantial portion of the total variation in deviant behavior is intra-individual. That roughly half (53%) of the overall variation in deviant behavior is within-individual is noteworthy for several reasons. First, this is variation that has not been explainable in past research because the dynamic and static portions of deviance have not been separated. Judging from the results of this study, it appears that we can explain more of the variation in deviant behavior than has been implicitly assumed. For example, Iverson and Deery (2001) found that a comprehensive set of variables (demographic, job-related, environmental, and dispositional) explained roughly 14% of the variability in counterproductive (tardiness, early departure, absenteeism) behaviors. Similarly, Lee and Allen (2002) found that cumulatively,
affect, job cognitions, and demographics explained 10% of the between-individual variability in workplace deviance. Though these studies were not designed to model within-individual variability in behavior, it is likely that these and other research studies would explain more variability in deviant behavior if both within- and between-variability in behavior were examined.

Documenting intra-individual variation is one thing, explaining it is another. Indeed, beyond showing the dynamic nature of workplace deviance, we were able to explain the intra-individual variation in the behavior with other state-like variables—state hostility and job satisfaction. Hostility has been studied extensively in psychology, most intensively in health psychology and neuropsychology. In these literatures and in the psychological literature more generally, very little research has used state hostility measures. Similarly, with a few exceptions (Lee & Allen, 2002), there has been a paucity of research on hostility in organizational behavior, and we are aware of no organizational behavior research that has focused on state hostility. Given the importance of state hostility to workplace deviance, further study of state hostility and its implications for other dynamic processes is warranted.

As for job satisfaction, these results add to a growing literature on intra-individual variation in job satisfaction (see Hulin & Judge [2003] for a review). These earlier efforts have focused on predicting within-individual variation in job satisfaction. This study revealed that within-individual variation in job satisfaction can be predicted by other state variables (state hostility, interpersonal justice), and that job satisfaction is an important predictor of within-individual variation in workplace deviance. Thus, not only are individual differences in job satisfaction related to workplace deviance (Robinson & Greenberg, 1998), but also within-individual variation in job satisfaction predicts workplace deviance.
Another important set of findings pertain to inter-individual differences in the patterns of employees’ emotional responses to injustice across time. Our strategy for examining the intra-individual relationship between justice and state hostility across time, and investigating inter-individual differences in the magnitude of the intra-individual relationship in an integrated research framework, allowed us to uncover a much richer picture of how employees react to injustice, compared to traditional studies of individual differences in behavior. We found that individuals’ personality not only influences their average hostility, but also the magnitude of their discrete hostile reactions to injustice at work. Although the practical constraints of an ESM design limited us to the examination of interpersonal justice, as stated previously, it is likely that interactional forms of justice exhibit greater variability on a daily basis than distributive or procedural forms of justice. Future research that examines whether sufficient day-to-day variation in the fairness of outcomes and procedures exists may not only address the issue of variability, but also may uncover differential effects compared to those found in the current investigation. Indeed, if distributive and procedural forms of justice fail to exhibit substantial day-to-day variability, then effects typically found at the between individual level may not generalize to the within-individual level. Future research that can address these issues is needed in order to increase our understanding of justice effects at different levels of analysis.

At the broadest level, because the link between injustice and state hostility largely reflects a situational influence, by examining the effects of trait hostility, injustice, and their interaction on state hostility we have, in fact, modeled person and situation effects in an integrated multilevel framework. In this respect, our findings show that modeling within-individual relationships can indeed move personality theory beyond the person-situation debate (see Fleeson, 2004). Future research should capitalize on the opportunities for integrating theory on
personality traits with situational explanations for intra-individual variability in affect, attitudes, and behavior at work; as illustrated by the results presented here, such studies have the potential to enrich our understanding of employees’ experiences and behavior.

Implications

Practically, the substantial within-individual component to deviant behavior suggests limits on the degree to which workplace deviance can be “controlled” by simply selecting out applicants predisposed to deviance, or terminating employees based on acts of deviance. Even if an organization were able to eliminate the most “deviant-prone” individuals, given that much of workplace deviance lies within-individuals, deviant behavior would still occur. This leads to the question of how within-individual variation in workplace deviance might be influenced. One means of reducing workplace deviance suggested by the results is via interpersonal justice. Though the effect appeared to work entirely through state hostility and job satisfaction, employees in this study did appear to respond to perceived interpersonal injustices by engaging in deviant behavior. Thus, one means of containing workplace deviance is to ensure that supervision is fair, respectful, and interpersonally sensitive. Judging from the study results, the other mechanisms by which within-individual deviant behavior can be contained operate through state hostility and job satisfaction.

As for state hostility, the results suggest that organizations that care about reducing daily manifestations of deviant behavior would benefit from reducing employee hostility. Beyond reducing hostility by lessening interpersonal injustice, the question is how can that best be accomplished? AET (Weiss & Cropanzano, 1996) provides one suggestion. In considering our results from the vantage point of AET, one practical implication is that organizations should attend to the specific events at work that engender hostility on the part of employees. Some
examples might be reducing personal conflict, alleviating stressful working conditions, and considering the potential costs (in terms of hostility) generated by punishments and sanctions.

Limitations

Several potential limitations with the study need to be noted. A possible concern with the results is that they are inflated by common source variance. Specifically, because most of the core variables were necessarily self-reported, one may wonder if the relationships are inflated. This concern is particularly acute in the case of workplace deviance, because many of the items are sensitive in nature (i.e., involve behavior that is illegal and/or against many companies’ policies). Moreover, it is possible that our measurement approach caused a form of self-generated validity (Feldman & Lynch, 1988), where responses to one part of a survey are reactive to another. That is, it is possible that participants’ responses to questions at the beginning of the daily survey may have influenced their responses to questions later in the survey. Two aspects of the analysis and data are on point here. First, the within-individual variables were centered relative to individuals’ mean scores, meaning that the relationships are net of any between-individual differences such as personality, stable mood differences, and so forth. Thus, many of the common method/source explanations—such as general response biases or affectivity—are eliminated in this design. Of course, intra-individual biases may exist, but presumably the main source of intra-individual bias—short-term affect—is precisely what we are studying. For those who study generalized constructs in nomothetic designs, this may indeed be a bias (Schmidt, Le, & Ilies, 2003). However, in this study, it is a valid source of variability which is explained by, and explains, other constructs. Second, following the methodological convergence suggested by Robinson and Greenberg (1998), we collected supervisor ratings of deviance to validate the self-reports, and we collected self-ratings of trait hostility to validate the
significant-other reports. As stated previously, the self and other ratings of both workplace deviance and trait hostility were strongly correlated (see Table 1), suggesting that the supervisor and significant-other ratings exhibited convergent validity with the self-reports. Thus, although we attempted to eliminate several common method/same source explanations, future research should estimate the impact of such measurement effects on within-individual relationships as well as counterbalance daily measures when feasible.

A second and related limitation is that ESM designs, while having many advantages, do not provide the degree of control present in experimental studies. Like all such studies, it is possible the inferences made are biased by the omission of unmeasured variables, alternative associations among the variables, and other causal limitations. Although the proposed model is one possible representation of the data, other alternative representations are possible. These alternative models were not tested in this study. Accordingly, the reader should exercise caution in interpreting the associations as “causal effects.” Future research should test alternative models, and also use experimental methods that permit a more internally valid test of the associations embedded in the model.

Third, with respect to our labeling interpersonal justice as an event, strictly speaking, we did not measure events as defined by Affective Events Theory (Weiss & Cropanzano, 1996). Although instances of fair or unfair treatment could be construed as events, we measured individuals’ perceptions of interpersonal justice. Indeed, one might wonder whether the measure simply reflects the quality of the relationship one has with one’s supervisor. Although the two concepts are certainly related, research has distinguished interactional justice from the quality of leader-member exchange (Masterson, Lewis, Goldman, & Taylor, 2000). Nevertheless, future
research testing AET would benefit from testing supervisor-related events, beyond the more
general perceptions included in this study.

Fourth, our sample was predominately (72%) female, which limits generalizability of our
findings to males. Although we did show that, in our sample, gender did not affect the
relationships of interest, because of the relatively small number of men in the sample, these tests
may not have had sufficient power. Accordingly, future research should investigate gender
differences more thoroughly.

Finally, our momentary measure of affect was not immediately following the experience
of justice events. Thus, the two measures lack correspondence. On the other hand, our choice to
measure momentary affect is in keeping with mood research which cautions against the use of
retrospective reports when assessing state mood. The process of forming retrospective judgments
of prior emotions is a complex one, subject to many biases (Fredrickson & Kahneman, 1993).
Watson (2000) termed the reliance on retrospective reports of mood as a “serious problem” (p.
1051-1052) note that momentary reports of emotions “are not subject to the biases involved in
making global reports of emotions (and, hence, are more valid).” Thus, though we do
acknowledge that in some ways it would have been beneficial to have the report of affect
 correspond to the report of interpersonal justice, we think there were good reasons to measure
affect as we did.

Conclusion

The present study suggests that employee deviance can fruitfully be studied as both an
intra- and inter-individual phenomenon, and that transient states in the form of state hostility,
interpersonal justice, and job satisfaction are related to daily deviant behavior at the intra-
individual level. Moreover, results suggest that a between-individuals variable—trait hostility—affects individuals’ sensitivity to perceived interpersonal justice violations. Future research could build on these results, and AET, through the formulation and testing of rich intra-individual models linking events, affect, and attitudes to a range of behavioral outcomes important for organizational success, such as citizenship behavior, attendance, and creativity.
References


Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor (NEO-FFI) Inventory professional manual*. Odessa, FL: PAR.


Author Note

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Table 1

*Correlations Between Workplace Deviance and Predictor Variables Both Within and Between Individuals*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interpersonal justice (within-individual)</td>
<td>---</td>
<td>-.42**</td>
<td>.57**</td>
<td>-.30*</td>
<td>-.24</td>
<td>-.24</td>
<td>-.16</td>
</tr>
<tr>
<td>2. State hostility (within-individual)</td>
<td>-.15**</td>
<td>---</td>
<td>-.63**</td>
<td>.25*</td>
<td>.08</td>
<td>.02</td>
<td>.08</td>
</tr>
<tr>
<td>3. Job satisfaction (within-individual)</td>
<td>.17**</td>
<td>-.59**</td>
<td>---</td>
<td>-.28*</td>
<td>-.14*</td>
<td>-.17</td>
<td>-.13</td>
</tr>
<tr>
<td>4. Workplace deviance (within-individual)</td>
<td>-.09**</td>
<td>.32**</td>
<td>-.24**</td>
<td>---</td>
<td>.40**</td>
<td>.01</td>
<td>.10</td>
</tr>
<tr>
<td>5. Workplace deviance (supervisor report)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.29*</td>
</tr>
<tr>
<td>6. Trait hostility (significant-other report)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.55*</td>
</tr>
<tr>
<td>7. Trait hostility (self-report)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*Notes: Correlations above the diagonal represent between-individual (aggregated) scores (n = 64). * p < .05, ** p < .01. Correlations below the diagonal were calculated by standardizing the regression coefficient obtained in HLM level-1 analyses between one predictor and one criterion (n = 849). * p < .05, ** p < .01.*
Table 2

*Parameter Estimates and Variance Components of Null Models for State Hostility, Job Satisfaction, and Workplace Deviance*

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Intercept (\gamma_{00})</th>
<th>Variance (\rho^2)</th>
<th>Variance (\tau_{00})</th>
<th>Percent Variability</th>
</tr>
</thead>
<tbody>
<tr>
<td>State hostility</td>
<td>1.241**</td>
<td>0.183</td>
<td>0.099**</td>
<td>64.9%</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>3.639**</td>
<td>0.268</td>
<td>0.545**</td>
<td>33.0%</td>
</tr>
<tr>
<td>Workplace deviance</td>
<td>1.311**</td>
<td>0.060</td>
<td>0.053**</td>
<td>53.1%</td>
</tr>
</tbody>
</table>

*Notes:* \(\gamma_{00}\) = pooled intercept representing average level of dependent variable across individuals. \(\rho^2\) = within-individual variance in dependent variable. \(\tau_{00}\) = between-individual variance in dependent variable. Percent variability within-individual is computed as:

\[
\frac{\rho^2}{(\rho^2 + \tau_{00})} \cdot \text{** p < .01.}
\]
Table 3

_HLM Results Predicting State Hostility_

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficient</th>
<th>Standard Error</th>
<th>T Value</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept ((\hat{\beta}_0))</td>
<td>1.24</td>
<td>0.04</td>
<td>29.47**</td>
<td>---</td>
</tr>
<tr>
<td>Interpersonal justice ((\hat{\beta}_1))</td>
<td>-0.17</td>
<td>0.05</td>
<td>-3.61**</td>
<td>-.15</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trait hostility ((\hat{\gamma}_{11}))</td>
<td>-0.16</td>
<td>0.06</td>
<td>-2.53**</td>
<td>-.12</td>
</tr>
<tr>
<td>R²</td>
<td>.07</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*Notes:* All predictor scores were centered at the individuals’ means to eliminate between-individual variance. Trait hostility was measured with significant other ratings. \(\hat{\beta}\) = level-1 regression coefficients (within-individual estimates). \(\hat{\gamma}\) = level-2 regression coefficients (between-individual estimates). \(R^2\) = variance explained by \(\hat{\beta}_1\) and \(\hat{\gamma}_{11}\) (the proportions were computed as the proportional reduction in the level-1 variance component of state hostility scores; see Hofmann, Griffin, & Gavin, 2000). ** p < .01.
### HLM Results Predicting Job Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized</th>
<th>Standard Error</th>
<th>T Value</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept ((\hat{\beta}_0))</td>
<td>3.63</td>
<td>0.09</td>
<td>38.58**</td>
<td>---</td>
</tr>
<tr>
<td>Interpersonal justice ((\hat{\beta}_1))</td>
<td>0.14</td>
<td>0.03</td>
<td>4.02**</td>
<td>0.09</td>
</tr>
<tr>
<td>State hostility ((\hat{\beta}_2))</td>
<td>-0.68</td>
<td>0.06</td>
<td>-10.45**</td>
<td>-0.56</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.30</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

**Notes:** All predictor scores were centered at the individuals’ means to eliminate between-individual variance. \(\beta\) = level-1 regression coefficients (within-individual estimates). \(R^2\) = variance explained by \(\hat{\beta}_1\) and \(\hat{\beta}_2\) (the proportions were computed as the proportional reduction in the level-1 variance component of job satisfaction scores; see Hofmann, Griffin, & Gavin, 2000). **p < .01.
Table 5

HLM Results Predicting Workplace Deviance

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficient</th>
<th>Standard Error</th>
<th>T Value</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept ($\hat{\beta}_0$)</td>
<td>1.31</td>
<td>0.03</td>
<td>43.66**</td>
<td>---</td>
</tr>
<tr>
<td>Interpersonal justice ($\hat{\beta}_1$)</td>
<td>-0.02</td>
<td>0.03</td>
<td>-0.75</td>
<td>-.09</td>
</tr>
<tr>
<td>State hostility ($\hat{\beta}_2$)</td>
<td>0.14</td>
<td>0.03</td>
<td>4.29**</td>
<td>.32</td>
</tr>
<tr>
<td>R²</td>
<td>.12</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>With job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept ($\hat{\beta}_0$)</td>
<td>1.31</td>
<td>0.03</td>
<td>43.65**</td>
<td>---</td>
</tr>
<tr>
<td>Interpersonal justice ($\hat{\beta}_1$)</td>
<td>0.00</td>
<td>0.03</td>
<td>0.15</td>
<td>.00</td>
</tr>
<tr>
<td>State hostility ($\hat{\beta}_2$)</td>
<td>0.07</td>
<td>0.03</td>
<td>2.12**</td>
<td>.19</td>
</tr>
<tr>
<td>Job satisfaction ($\hat{\beta}_3$)</td>
<td>-0.09</td>
<td>0.03</td>
<td>-3.44**</td>
<td>-.17</td>
</tr>
<tr>
<td>R²</td>
<td>.20</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

Notes: All predictor scores were centered at the individuals’ means to eliminate between-individual variance. $\hat{\beta}$ = level-1 regression coefficients (within-individual estimates). $R^2$ = variance explained by predictors. ** p < .01.
Figure Captions

Figure 1. Conceptual model of the relationships among interpersonal justice, hostility, job satisfaction, and workplace deviance.

Figure 2. Interaction between interpersonal justice and trait hostility in predicting state hostility.

Figure 3. Summary of results. (Notes: Results are standardized, obtained from separate regressions predicting state hostility, job satisfaction, and deviance. For state hostility and interpersonal justice, values in parentheses reflect total effects before controlling for job satisfaction. * p < .05. ** p < .01.)
State Hostility

- 1 SD below the mean on trait hostility
- 1 SD above the mean on trait hostility

Low Justice  High Justice